



THE OHIO STATE UNIVERSITY

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# PROJECT MANUAL

## Morrill Hall Fire Panel / Elevator Upgrades

Project Number: **OSU-250050**

Prepared For: **The Ohio State University**  
**Andrew Hostetler, Project Manager**  
**Bill Holtz, Project Manager**

Prepared By: **Architect of Record**  
**Wellogy**  
Dublin, OH

Set Issuance: **Bid / Permit Documents**  
**July 23, 2026**

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# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Asbestos Local 207

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Asbestos Worker

**Effective Date:**  
7/8/2026

**Effective Date:**  
7/8/2026

|                          | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|--------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                          |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification           |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Asbestos Abatement       | \$35.25 |         | \$11.20                 | \$7.50  | \$1.00  | \$4.00 | \$0.00  | \$0.05 | \$0.00           | \$0.00   | \$59.00   | \$76.63       |
| Apprentice               | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| Trainee 1 Year - 600 Hrs | \$25.00 | \$70.92 | \$11.20                 | \$1.90  | \$1.00  | \$1.00 | \$0.00  | \$0.05 | \$0.00           | \$0.00   | \$40.15   | \$52.65       |

## (\*)Special Calculation Note :

Other: Drug Testing

## Ratio :

3 Journeymen to 1 Trainee

## Jurisdiction ( \* denotes special jurisdictional note ) :

Adams, Ashland, Ashtabula\*, Athens, Auglaize, Brown, Butler\*, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Erie\*, Fairfield, Fayette, Franklin, Geauga, Greene, Guernsey, Hamilton, Hardin, Harrison, Highland, Hocking, Holmes, Huron, Knox, Lake, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Miami, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Portage, Preble, Richland, Ross, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren\*, Wayne

## Special Jurisdictional Note :

Ashtabula County: (post offices & townships of Ashtabula, Austinburg, Geneva, Harperfield, Jefferson, Plymouth & Saybrook) (townships of Andover, Cherry Valley, Colbrook, Canneaut, Denmark, Dorset, East Orwell, Hartsgrove, Kingville, Lenox, Monroe, Morgan, New Lyme, North Kingsville, Orwell, Pierpoint, Richmond Rock Creek, Rome, Sheffield, Trumbull, Wayne, Williamsfield & Windsor)

Butler County: (townships of Fairfield, Hanover, Liberty, Milford, Morgan, Oxford, Ripley, Ross, St. Clair, Union & Wayne) (Lemon & Madison)

Erie County: (post offices & townships of Berlin, Berlin Heights, Birmingham, Florence, Huron, Milan, Shinrock & Vermilion)

Warren County: (townships of: Deerfield, Hamilton, Harlan, Salem, Union & Washington) (Clear Creek, Franklin, Mossie, Turtle Creek & Wayne)

## Details :

An Abatement Journeyman is anyone who has more than 600 hours in the Asbestos Abatement field.

Asbestos & lead paint abatement including, but not limited to the removal or encapsulation of asbestos & lead paint, all work in conjunction with the preparation of the removal of same & all work in conjunction with the clean up after said removal. The removal of all insulation materials, whether they contain asbestos or not, from mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) is recognized as being the exclusive work of the Asbestos Abatement Workers.

On all mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) that are going to be demolished, the removal of all insulating materials whether they contain asbestos or not shall be the exclusive work of the Laborers.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Asbestos Local 50 Heat & Frost Insulators

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Asbestos Worker

**Effective Date:**  
7/15/2026

**Effective Date:**  
7/15/2026

|                              | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                              |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification               |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Asbestos Insulation Mechanic | \$42.85 |         | \$10.20                 | \$10.10 | \$0.55  | \$0.00 | \$5.25  | \$0.00 | \$0.00           | \$0.00   | \$68.95   | \$90.38       |
| Firestop Technician          | \$42.85 |         | \$10.20                 | \$10.10 | \$0.55  | \$0.00 | \$5.25  | \$0.00 | \$0.00           | \$0.00   | \$68.95   | \$90.38       |
| Apprentice                   | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st year                     | \$27.91 | \$65.13 | \$9.80                  | \$4.52  | \$0.50  | \$0.00 | \$0.50  | \$0.00 | \$0.00           | \$0.00   | \$43.23   | \$57.19       |
| 2nd year                     | \$32.57 | \$76.00 | \$9.80                  | \$4.52  | \$0.50  | \$0.00 | \$0.85  | \$0.00 | \$0.00           | \$0.00   | \$48.24   | \$64.53       |
| 3rd year                     | \$37.23 | \$86.88 | \$9.80                  | \$6.76  | \$0.50  | \$0.00 | \$1.25  | \$0.00 | \$0.00           | \$0.00   | \$55.54   | \$74.16       |
| 4th year                     | \$39.56 | \$92.32 | \$9.80                  | \$6.76  | \$0.50  | \$0.00 | \$1.50  | \$0.00 | \$0.00           | \$0.00   | \$58.12   | \$77.90       |

**(\*)Special Calculation Note :**

**Ratio :**

1 Journeymen to 1 Apprentice  
4 Journeymen to 1 Apprentice thereafter

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Athens, Auglaize, Butler\*, Champaign, Clark, Clinton, Crawford, Darke, Delaware, Fairfield, Fayette, Franklin, Greene, Guernsey, Hardin, Hocking, Knox, Licking, Logan, Madison, Marion, Miami, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Preble, Ross, Shelby, Union, Vinton, Warren\*

**Special Jurisdictional Note :**

Butler County: Townships of Lemon and Madison.  
Warren County: Township of Clear Creek, Franklin, Massie, Turtle Creek and Wayne

**Details :**

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Boilermaker Local 105

**Type of Rate:** Commercial

**Change #:**  
LCN02-2013fb

**Craft:**  
Boilermaker

**Effective Date:**  
10/1/2013

**Effective Date:**  
10/1/2013

|                | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Boilermaker    | \$35.26 |         | \$7.07                  | \$13.28 | \$0.89  | \$0.00 | \$3.00  | \$0.55 | \$0.00           | \$0.00   | \$60.05   | \$77.68       |
| Apprentice     | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st 6 months   | \$24.69 | \$70.03 | \$7.07                  | \$11.30 | \$0.89  | \$0.00 | \$2.10  | \$0.55 | \$0.00           | \$0.00   | \$46.60   | \$58.95       |
| 2nd 6 months   | \$26.45 | \$75.02 | \$7.07                  | \$11.30 | \$0.89  | \$0.00 | \$2.25  | \$0.55 | \$0.00           | \$0.00   | \$48.51   | \$61.74       |
| 3rd 6 months   | \$28.21 | \$80.00 | \$7.07                  | \$11.30 | \$0.89  | \$0.00 | \$2.40  | \$0.55 | \$0.00           | \$0.00   | \$50.42   | \$64.52       |
| 4th 6 months   | \$29.98 | \$85.02 | \$7.07                  | \$11.30 | \$0.89  | \$0.00 | \$2.55  | \$0.55 | \$0.00           | \$0.00   | \$52.34   | \$67.33       |
| 5th 6 months   | \$30.86 | \$87.52 | \$7.07                  | \$13.28 | \$0.89  | \$0.00 | \$2.63  | \$0.55 | \$0.00           | \$0.00   | \$55.28   | \$70.71       |
| 6th 6 months   | \$31.74 | \$90.03 | \$7.07                  | \$13.28 | \$0.89  | \$0.00 | \$2.70  | \$0.55 | \$0.00           | \$0.00   | \$56.23   | \$72.11       |
| 7th 6 months   | \$32.62 | \$92.50 | \$7.07                  | \$13.28 | \$0.89  | \$0.00 | \$2.78  | \$0.55 | \$0.00           | \$0.00   | \$57.19   | \$73.49       |
| 8th 6 months   | \$33.50 | \$95.00 | \$7.07                  | \$13.28 | \$0.89  | \$0.00 | \$2.85  | \$0.55 | \$0.00           | \$0.00   | \$58.14   | \$74.89       |

## (\*)Special Calculation Note :

Other is Supplemental Health and Welfare

## Ratio :

5 Journeymen to 1 Apprentice

## Jurisdiction ( \* denotes special jurisdictional note ) :

Adams, Athens, Brown, Butler, Champaign, Clark, Clermont, Clinton, Fairfield, Fayette, Franklin, Gallia, Greene, Guernsey, Hamilton, Highland, Hocking, Jackson, Lawrence, Licking, Madison, Meigs, Miami, Montgomery, Morgan, Muskingum, Noble, Perry, Pickaway, Pike, Preble, Ross, Scioto, Vinton, Warren

## Special Jurisdictional Note :

## Details :

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Bricklayer Local 23 (Columbus Tile Finisher)

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Bricklayer

**Effective Date:**  
6/24/2026

**Effective Date:**  
6/24/2026

|                                          | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|------------------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                          |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                           |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Bricklayer<br>Tile<br>Marble<br>Finisher | \$33.01 |         | \$9.78                  | \$3.24  | \$0.73  | \$0.00 | \$1.00  | \$0.00 | \$0.00           | \$0.00   | \$47.76   | \$64.27       |
| Terrazzo<br>Finisher                     | \$33.26 |         | \$9.78                  | \$3.24  | \$0.73  | \$0.00 | \$1.00  | \$0.00 | \$0.00           | \$0.00   | \$48.01   | \$64.64       |
| Floor<br>Grinder                         | \$33.51 |         | \$9.78                  | \$3.24  | \$0.73  | \$0.00 | \$1.00  | \$0.00 | \$0.00           | \$0.00   | \$48.26   | \$65.02       |
| Base<br>Grinder                          | \$33.76 |         | \$9.78                  | \$3.24  | \$0.73  | \$0.00 | \$1.00  | \$0.00 | \$0.00           | \$0.00   | \$48.51   | \$65.39       |
| Apprentice                               | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year                                 | \$23.11 | \$70.00 | \$9.78                  | \$3.24  | \$0.73  | \$0.00 | \$1.00  | \$0.00 | \$0.00           | \$0.00   | \$37.86   | \$49.41       |
| 2nd Year                                 | \$26.41 | \$80.00 | \$9.78                  | \$3.24  | \$0.73  | \$0.00 | \$1.00  | \$0.00 | \$0.00           | \$0.00   | \$41.16   | \$54.37       |
| 3rd Year                                 | \$29.71 | \$90.00 | \$9.78                  | \$3.24  | \$0.73  | \$0.00 | \$1.00  | \$0.00 | \$0.00           | \$0.00   | \$44.46   | \$59.31       |
| Apprentice<br>Improver                   | \$16.50 | \$50.00 | \$0.00                  | \$0.00  | \$0.00  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$16.50   | \$24.75       |

**(\*)Special Calculation Note :**

**Ratio :**

1-2 Journeymen to 1 Apprentice  
3-5 Journeymen to 2 Apprentice  
Crews larger than 5: 4 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Athens, Coshocton, Delaware, Fairfield, Fayette, Franklin, Guernsey, Hocking, Jackson, Knox, Licking, Madison, Meigs, Morgan, Muskingum, Noble, Perry, Pickaway, Pike, Ross, Union, Vinton, Washington

**Special Jurisdictional Note :**

**Details :**

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Bricklayer Local 23 (Columbus Tile Setter)

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Bricklayer

**Effective Date:**  
6/24/2026

**Effective Date:**  
6/24/2026

|                               | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|-------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                               |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Bricklayer Tile Setter        | \$35.68 |         | \$10.05                 | \$7.40  | \$0.81  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$55.69   | \$73.53       |
| Marble Mason                  | \$35.68 |         | \$10.05                 | \$7.40  | \$0.81  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$55.69   | \$73.53       |
| Terrazzo Worker               | \$35.93 |         | \$10.05                 | \$7.40  | \$0.81  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$55.94   | \$73.91       |
| Terrazzo Worker, Installation | \$35.93 |         | \$10.05                 | \$7.40  | \$0.81  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$55.94   | \$73.91       |
| Apprentice                    | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year                      | \$24.98 | \$70.00 | \$10.05                 | \$7.40  | \$0.81  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$44.99   | \$57.48       |
| 2nd Year                      | \$28.54 | \$80.00 | \$10.05                 | \$7.40  | \$0.81  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$48.55   | \$62.82       |
| 3rd Year                      | \$32.11 | \$90.00 | \$10.05                 | \$7.40  | \$0.81  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$52.12   | \$68.17       |
| 4th Year                      | \$33.90 | \$95.00 | \$10.05                 | \$7.40  | \$0.81  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$53.91   | \$70.86       |

**(\*)Special Calculation Note :**

**Ratio :**

1 - 3 Journeymen to 1 Apprentice  
4 - 8 Journeymen to 2 Apprentices  
9 - 13 Journeymen to 3 Apprentices  
14 - 18 Journeymen to 4 Apprentices

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Athens, Coshocton, Delaware, Fairfield, Fayette, Franklin, Guernsey, Hocking, Jackson, Knox, Licking, Madison, Meigs, Morgan, Muskingum, Noble, Perry, Pickaway, Pike, Ross, Union, Vinton, Washington

**Special Jurisdictional Note :**

Noble County: (Townships of Beaver, Buffalo, Seneca & Wayne)

**Details :**

# Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 23 (Columbus)

Type of Rate: Commercial

Change #:  
LCN01-2026ib

Craft:  
Bricklayer

Effective Date:  
6/24/2026

Effective Date:  
6/24/2026

|                                            | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|--------------------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                            |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                             |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Bricklayer                                 | \$39.20 |         | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$61.86   | \$81.46       |
| Lay Out Man                                | \$39.70 |         | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$62.36   | \$82.21       |
| Saw Man                                    | \$39.70 |         | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$62.36   | \$82.21       |
| Stone & Cement Mason                       | \$39.20 |         | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$61.86   | \$81.46       |
| Pointer Caulker Cleaner Block Stone        | \$39.20 |         | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$61.86   | \$81.46       |
| Plaster                                    | \$39.20 |         | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$61.86   | \$81.46       |
| Swing Stage (Ground Floors thru 23 Floors) | \$40.20 |         | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$62.86   | \$82.96       |
| Swing Stage (24th Floors and Above         | \$41.20 |         | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$63.86   | \$84.46       |
| Apprentice                                 | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year                                   | \$27.44 | \$70.00 | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$50.10   | \$63.82       |
| 2nd Year                                   | \$31.36 | \$80.00 | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$54.02   | \$69.70       |
| 3rd Year                                   | \$35.28 | \$90.00 | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$57.94   | \$75.58       |
| 4th Year                                   | \$37.24 | \$95.00 | \$11.00                 | \$9.04  | \$0.87  | \$0.00 | \$1.75  | \$0.00 | \$0.00           | \$0.00   | \$59.90   | \$78.52       |
| MASON TRAINEE S                            | \$      | \$      | \$                      | \$      | \$      | \$     | \$      | \$     | \$               | \$       | \$        | \$            |
| 1-90 Days                                  | \$19.60 | \$50.00 | \$0.00                  | \$0.00  | \$0.00  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$19.60   | \$29.40       |
| 90-365 Days                                | \$19.60 | \$50.00 | \$11.00                 | \$0.00  | \$0.00  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$30.60   | \$40.40       |
| 2nd Year                                   | \$21.56 | \$55.00 | \$11.00                 | \$0.00  | \$0.00  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$32.56   | \$43.34       |

(\*)Special Calculation Note :

Above Journeyman Rate: Brick Power Saw Pay \$.50 Designated layout person \$.50 Swingstage Work \$1.00 at start, and additional \$2.00 at 24th floor

Ratio :

1-2 Journeyman to 1 Apprentice  
3- 6 Journeyman to 2 Apprentice  
7-10 Journeyman to 3 Apprentice  
1-15 Journeyman to 4 Apprentice

**MASON TRAINEE REQUIRED RATIO**

1 Apprentice permits 1 Mason Trainee  
2 Apprentice permits 1 Mason Trainee  
3 Apprentice permits 2 Mason Trainee  
4 Apprentice permits 2 Mason Trainee

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Delaware, Franklin, Madison, Pickaway, Union

**Special Jurisdictional Note :**

**Details :**

MASON TRAINEE: duties shall be to work in all aspects of Masonry construction taking direction from the employer and the Journeyman Bricklayer & Stone Mason's working on the job. MASON TRAINEE may work on job site only when a registered apprentice is on job and the ratios in above table will be strictly enforced.



# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Bricklayer Local 23 Heavy Hwy (A)

**Type of Rate:** Commercial

**Change #:**  
LCN02-2026ib

**Craft:**  
Bricklayer

**Effective Date:**  
6/10/2026

**Effective Date:**  
6/10/2026

|                                                         | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|---------------------------------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                                         |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                                          |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Cement Mason<br>Bricklayer<br>Sewer<br>Water<br>Works A | \$35.31 |         | \$10.71                 | \$10.14 | \$0.59  | \$0.00 | \$1.80  | \$0.00 | \$0.00           | \$0.00   | \$58.55   | \$76.21       |
| Apprentice                                              | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st year                                                | \$24.72 | \$70.00 | \$10.71                 | \$10.14 | \$0.59  | \$0.00 | \$1.80  | \$0.00 | \$0.00           | \$0.00   | \$47.96   | \$60.32       |
| 2nd year                                                | \$28.25 | \$80.00 | \$10.71                 | \$10.14 | \$0.59  | \$0.00 | \$1.80  | \$0.00 | \$0.00           | \$0.00   | \$51.49   | \$65.62       |
| 3rd year                                                | \$31.78 | \$90.00 | \$10.71                 | \$10.14 | \$0.59  | \$0.00 | \$1.80  | \$0.00 | \$0.00           | \$0.00   | \$55.02   | \$70.91       |

## (\*)Special Calculation Note :

This rate is not for building construction.

This rate applies only to the Cement Masons. All other Bricklaying, PCC, Stone, Tile, Marble, Refractory, Industrial and all other applicable work performed will be performed under the applicable rates for those contracts.

## Ratio :

3 Journeymen to 1 Apprentice  
6 Journeymen to 2 Apprentice  
9 Journeymen to 3 Apprentice  
12 Journeymen to 4 Apprentice  
15 Journeymen to 5 Apprentice

## Jurisdiction ( \* denotes special jurisdictional note ) :

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshoccon, Crawford, Cuyahoga, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Geauga, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne

## Special Jurisdictional Note :

## Details :

Bricklayer Local 23 Heavy Hwy (A): Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

Bricklayer Local 23 Heavy Hwy (B): Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control, Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Bricklayer Local 23 Heavy Hwy (B)

**Type of Rate:** Commercial

**Change #:**  
LCN02-2026ib

**Craft:**  
Bricklayer

**Effective Date:**  
6/10/2026

**Effective Date:**  
6/10/2026

|                                                                            | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------------------------------------------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                                                            |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                                                             |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Cement Mason<br>Bricklayer<br>Power Plants<br>Tunnels<br>Amusement Parks B | \$36.31 |         | \$10.71                 | \$10.14 | \$0.60  | \$0.00 | \$1.80  | \$0.00 | \$0.00           | \$0.00   | \$59.56   | \$77.72       |
| Apprentice                                                                 | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st year                                                                   | \$25.42 | \$70.00 | \$10.71                 | \$10.14 | \$0.60  | \$0.00 | \$1.80  | \$0.00 | \$0.00           | \$0.00   | \$48.67   | \$61.38       |
| 2nd year                                                                   | \$29.05 | \$80.00 | \$10.71                 | \$10.14 | \$0.60  | \$0.00 | \$1.80  | \$0.00 | \$0.00           | \$0.00   | \$52.30   | \$66.83       |
| 3rd year                                                                   | \$32.68 | \$90.00 | \$10.71                 | \$10.14 | \$0.60  | \$0.00 | \$1.80  | \$0.00 | \$0.00           | \$0.00   | \$55.93   | \$72.27       |

## (\*)Special Calculation Note :

This rate is not for building construction.

This rate applies only to the Cement Masons. All other Bricklaying, PCC, Stone, Tile, Marble, Refractory, Industrial and all other applicable work performed will be performed under the applicable rates for those contracts.

## Ratio :

3 Journeymen to 1 Apprentice  
6 Journeymen to 2 Apprentice  
9 Journeymen to 3 Apprentice  
12 Journeymen to 4 Apprentice  
15 Journeymen to 5 Apprentice

## Jurisdiction ( \* denotes special jurisdictional note ) :

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Geauga, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne

## Special Jurisdictional Note :

## Details :

Bricklayer Local 23 Heavy Hwy (A): Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

Bricklayer Local 23 Heavy Hwy (B): Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control, Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Carpenter & Pile Driver Local 200

**Type of Rate:** Commercial

**Change #:**  
LCR01-2026ib

**Craft:**  
Carpenter

**Effective Date:**  
6/17/2026

**Effective Date:**  
6/17/2026

|                | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Carpenter      | \$37.86 |         | \$9.63                  | \$10.78 | \$0.80  | \$0.00 | \$3.95  | \$0.15 | \$0.00           | \$0.00   | \$63.17   | \$82.10       |
| Pile Driver    | \$37.73 |         | \$9.63                  | \$10.78 | \$0.80  | \$0.00 | \$3.95  | \$0.15 | \$0.00           | \$0.00   | \$63.04   | \$81.91       |
| Apprentice     | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year       | \$26.50 | \$70.00 | \$9.63                  | \$2.00  | \$0.80  | \$0.00 | \$3.95  | \$0.15 | \$0.00           | \$0.00   | \$43.03   | \$56.28       |
| 2nd Year       | \$30.29 | \$80.00 | \$9.63                  | \$8.62  | \$0.80  | \$0.00 | \$3.95  | \$0.15 | \$0.00           | \$0.00   | \$53.44   | \$68.59       |
| 3rd Year       | \$34.07 | \$90.00 | \$9.63                  | \$9.70  | \$0.80  | \$0.00 | \$3.95  | \$0.15 | \$0.00           | \$0.00   | \$58.30   | \$75.34       |
| 4th Year       | \$35.97 | \$95.00 | \$9.63                  | \$10.24 | \$0.80  | \$0.00 | \$3.95  | \$0.15 | \$0.00           | \$0.00   | \$60.74   | \$78.72       |

## (\*)Special Calculation Note :

Other: UBC National Fund

## Ratio :

1 Journeyman to 1 Apprentice Thereafter 2 Journeyman to 1 Apprentice

The first carpenter on the job shall be a journeyman. The second carpenter employed may be an apprentice carpenter. After one (1) journeyman and one (1) apprentice are employed, each employer shall employ a ratio of one (1) apprentice, when available, to two (2) journeyman.

## Jurisdiction ( \* denotes special jurisdictional note ) :

Delaware, Fairfield, Franklin, Guernsey, Licking, Madison, Marion, Morgan, Muskingum, Noble, Perry, Pickaway, Union

## Special Jurisdictional Note :

## Details :

**CARPENTERS:** duties shall include but not limited to the milling, fashioning, joining, assembling, erecting, fastening, or dismantling of scaffolding and of material of wood, plastic, metal, fiber, cork and composition, and all other substitute materials. The handling, cleaning, erecting, installing and dismantling of machinery, equipment and all materials used by carpenters. The building and setting of all concrete forms and decking, and dismantling the same; the setting of templates for anchor bolts for structural members and for machinery, and the placing, leveling and bracing of these bolts; the making of all forms for bulkheads, figures, post, balusters and ornaments. The erection and installation of cooling towers assembled onsite. The building of all barricades and handling of rough lumber and drywall. The installation of all required blocking and all toilet accessories, including but not limited to grab bars, napkin dispensers and receptacles, mirrors and soap dispensers. The installation of metal studs and the welding of studs and other fastenings to receive material being applied by carpenters. The installation of all material used in drywall construction such as plasterboard, transite and other composition boards. The installation of carpet, artificial turf, wood and Resilient floors shall consist of and include the laying of all special designs of wood, wood block, wood composition, cork, linoleum, asphalt, mastic, plastic and rubber tile, whether nailed or laid in, or with linoleum paste or glue compositions. The installation of garage and overhead doors. The installation of fixtures, cabinets, shelving, racks, louvers, etc. The assembling and setting of all seats in theaters, halls, churches, schools, auditoriums, grandstands and other buildings. Our claim of jurisdiction, therefore, extends over the following subdivisions of the trade. Carpenters and Joiners; Bridge, Dock and Wharf Carpenters, Divers, Underpinners, Timbermen and Core Drillers; Shipwrights, Boat Builders, Ship Carpenters, Joiners and Caulkers, Cabinet Makers, Bench Hands, Stair Builders; Millmen; Wood and Resilient Floor Layers and Finishers; Carpet Layers; Shinglers; Siders; Insulators; Acoustic and Drywall Applicators; Shorers and House Movers; Loggers; Lumber and Sawmill Workers; Furniture Workers; Reed and Rattan Workers; Shingle Weavers; Casket and Coffin Makers; Box Makers; Railroad Carpenters; and Car Builders, regardless of material used; and all those engaged in the operation of woodworking or other machinery required in the fashioning, milling or manufacturing of products used in the trade, or engaged as helpers to any of the above divisions or subdivisions, and the handling, erecting and installing of material on any of the above divisions or subdivisions; burning welding, rigging and the use of any instrument or tool for layout work incidental to the trade. When the term "Carpenter" and "Joiner" is used, it shall mean all the subdivisions of the trade.

**PILEDRIIVER:** Where piling is used in the construction and repair of all wharves, docks, piers, trestles, caissons, cofferdams, the erection of all sea walls and breakwaters. The placing of all walling, bumper guards of wood or metal. The framing, boring, drilling or burning of all holes in the same, all tie and hog rods in connection with Piledrivers work. The driving, bracing, plumbing, cutting-off and capping of all piling whether wood, steel sheeting, metal pipe piling, composite or concrete. The heading and splicing of wood piling and the making of woodsheet piling. The welding, cutting or burning of any metal and wood piling and shoring and underpinning in connection with Piledriver work. The loading and unloading of all piling and other material used in connection with Piledrivers work. The loading, unloading, erecting, framing, dismantling, moving and handling of all drivers, derrick, cranes and other piledriving equipment used in the work. Drilling in piling or drilled in caissons where a steel liner is used. All machinery used for handling spuds or anchors on floating equipment used in our work shall be operated by our members. Where swing lines or derricks are used, members shall be used as watchmen. All underwater and marine work on all bulkheads, wharves, docks, shipyards, caissons, piers, bridges, pipeline work, viaducts, marine cable and trestles, as well as salvage and reclamation work where divers are employed. All clamming work that is done by floating derricks.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Carpenter & Piledriver SC District HevHwy

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Carpenter

**Effective Date:**  
5/1/2026

**Effective Date:**  
5/1/2026

|                | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Journeyman     | \$37.73 |         | \$9.62                  | \$10.78 | \$0.80  | \$0.00 | \$3.49  | \$0.15 | \$0.00           | \$0.00   | \$62.57   | \$81.44       |
| Apprentice     | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year       | \$26.41 | \$70.00 | \$9.62                  | \$10.78 | \$0.80  | \$0.00 | \$3.49  | \$0.15 | \$0.00           | \$0.00   | \$51.25   | \$64.45       |
| 2nd Year       | \$30.18 | \$80.00 | \$9.62                  | \$10.78 | \$0.80  | \$0.00 | \$3.49  | \$0.15 | \$0.00           | \$0.00   | \$55.02   | \$70.11       |
| 3rd Year       | \$33.96 | \$90.00 | \$9.62                  | \$10.78 | \$0.80  | \$0.00 | \$3.49  | \$0.15 | \$0.00           | \$0.00   | \$58.80   | \$75.78       |
| 4th Year       | \$35.84 | \$95.00 | \$9.62                  | \$10.78 | \$0.80  | \$0.00 | \$3.49  | \$0.15 | \$0.00           | \$0.00   | \$60.68   | \$78.60       |

## (\*)Special Calculation Note :

Other: UBC National Fund

When the contractor furnishes the necessary underwater gear for the diver, the diver shall be paid one and one half (1 & 1/2) times the journeyman rate for the time spent in the water.

## Ratio :

1 Journeymen to 1 Apprentice

## Jurisdiction ( \* denotes special jurisdictional note ) :

Adams, Athens, Delaware, Fairfield, Fayette, Franklin, Gallia, Guernsey, Highland, Hocking, Jackson, Lawrence, Licking, Madison, Marion, Meigs, Morgan, Muskingum, Noble, Perry, Pickaway, Pike, Ross, Scioto, Union, Vinton, Washington

## Special Jurisdictional Note :

## Details :

Highway Construction, Airport Construction, Heavy Construction but not limited to: Tunnels, subways, drainage projects, flood control, reservoirs

Railroad Construction, Sewer Waterworks & Utility Construction but not limited to: storm sewers, waterlines, gas lines  
Industrial & Building site, Power Plant, Amusement Park, Athletic stadium site, Sewer and Water Plants.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Carpenter Millwright Local 1090 Columbus

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Carpenter

**Effective Date:**  
5/1/2026

**Effective Date:**  
5/1/2026

|                      | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                      |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification       |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Carpenter Millwright | \$36.91 |         | \$9.62                  | \$10.99 | \$0.80  | \$0.00 | \$8.50  | \$0.15 | \$0.00           | \$0.00   | \$66.97   | \$85.42       |
| Apprentice           | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year             | \$25.84 | \$70.00 | \$9.62                  | \$10.99 | \$0.80  | \$0.00 | \$8.50  | \$0.15 | \$0.00           | \$0.00   | \$55.90   | \$68.82       |
| 2nd Year             | \$29.53 | \$80.00 | \$9.62                  | \$10.99 | \$0.80  | \$0.00 | \$8.50  | \$0.15 | \$0.00           | \$0.00   | \$59.59   | \$74.36       |
| 3rd Year             | \$33.22 | \$90.00 | \$9.62                  | \$10.99 | \$0.80  | \$0.00 | \$8.50  | \$0.15 | \$0.00           | \$0.00   | \$63.28   | \$79.89       |
| 4th Year             | \$35.06 | \$95.00 | \$9.62                  | \$10.99 | \$0.80  | \$0.00 | \$8.50  | \$0.15 | \$0.00           | \$0.00   | \$65.12   | \$82.65       |

**(\*)Special Calculation Note :**

Other: UBC National Fund

**Ratio :**

3 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Delaware, Fairfield, Franklin, Guernsey, Licking, Madison, Marion, Morgan, Muskingum, Noble, Perry, Pickaway, Union

**Special Jurisdictional Note :**

**Details :**



The term "Millwright and Machine Erectors" jurisdiction shall mean the unloading, hoisting, rigging, skidding, moving, dismantling, aligning, erecting, assembling, repairing, maintenance and adjusting of all structures, processing areas either under cover, underground or elsewhere, required to process material, handle, manufacture or service, be it powered or receiving power manually, by steam, gas, electricity, gasoline, diesel, nuclear, solar, water, air or chemically, and in industries such as and including, which are identified for the purpose of description, but not limited to, the following: woodworking plants; canning industries; steel mills; coffee roasting plants; paper and pulp; cellophane; stone crushing; gravel and sand washing and handling; refineries; grain storage and handling; asphalt plants; sewage disposal; water plants; laundries; bakeries; mixing plants; can, bottle and bag packing plants; textile mills; paint mills; breweries; milk processing plants; power plants; aluminum processing or manufacturing plants; and amusement and entertainment fields.

The installation of mechanical equipment in atomic energy plants; installation of reactors in power plants; installation of control rods and equipment in reactors; and installation of mechanical equipment in rocket missile bases, launchers, launching gantry, floating bases, hydraulic escape doors and any and all component parts thereto, either assembled, semi-assembled or disassembled.

The installation of, but not limited to, the following: setting-up of all engines, motors, generators, air compressors, fans, pumps, scales, hoppers, conveyors of all types, sizes and their supports; escalators; man lifts; moving sidewalks; hosts; dumb waiters; all types of feeding machinery; amusement devices; mechanical pin setters and spotters in bowling alleys; refrigeration equipment; and the installation of all types of equipment necessary and required to process material either in the manufacturing or servicing.

The handling and installation of pulleys, gears, sheaves, fly wheels, air and vacuum drives, worm drives and gear drivers directly or indirectly coupled to motors, belts, chains, screws, legs, boots, guards, booth tanks, all bin valves, turn heads and indicators, shafting, bearings, cable sprockets cutting all key seats in new and old work, troughs, chippers, filters, calendars, rolls, winders, rewinders, slitters, cutters, wrapping machines, blowers, forging machines, rams, hydraulic or otherwise, planning, extruder, ball, dust collectors, equipment in meat packing plants, splicing or ropes and cables.

The laying-out, fabrication and installation of protection equipment including machinery guards, making and setting of templates for machinery, fabrication of bolts, nuts, pans, dripping of holes for any equipment which the Millwrights install regardless of materials; all welding and burning regardless of type, fabrication of all lines, hose or tubing used in lubricating machinery installed by Millwrights; grinding, cleaning, servicing and any machine work necessary for any part of any equipment installed by the Millwrights; and the break-in and trail run of any equipment or machinery installed by the Millwrights.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Cement Mason Local 132 (Columbus)

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Cement Mason

**Effective Date:**  
6/1/2026

**Effective Date:**  
6/1/2026

|                | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Cement Mason   | \$36.92 |         | \$9.30                  | \$4.85  | \$0.85  | \$0.00 | \$3.18  | \$0.06 | \$0.00           | \$0.00   | \$55.16   | \$73.62       |
| Apprentice     | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year       | \$25.84 | \$70.00 | \$9.30                  | \$4.85  | \$0.85  | \$0.00 | \$3.18  | \$0.06 | \$0.00           | \$0.00   | \$44.08   | \$57.00       |
| 2nd Year       | \$29.54 | \$80.00 | \$9.30                  | \$4.85  | \$0.85  | \$0.00 | \$3.18  | \$0.06 | \$0.00           | \$0.00   | \$47.78   | \$62.55       |
| 3rd Year       | \$33.23 | \$90.00 | \$9.30                  | \$4.85  | \$0.85  | \$0.00 | \$3.18  | \$0.06 | \$0.00           | \$0.00   | \$51.47   | \$68.08       |

## (\*)Special Calculation Note :

Other: International Training Fund

Working on swing stage, slip scaffold, window jack scaffold, scissor lifts, and aerial lifts shall receive the following rates:

\$0.50 above the regular rate for heights up to fifty (50) feet above grade level

\$1.00 above the regular rate for heights over fifty (50) feet above grade level

## Ratio :

3 Journeymen to 1 Apprentice

## Jurisdiction ( \* denotes special jurisdictional note ) :

Ashland, Coshocton, Crawford, Delaware, Fairfield, Fayette, Franklin, Guernsey, Hocking, Knox, Licking, Madison, Marion, Morrow, Muskingum, Perry, Pickaway, Richland, Ross, Union, Vinton, Wyandot

## Special Jurisdictional Note :

## Details :

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Cement Mason Local 132 Hev Hwy (Columbus)

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Cement Mason

**Effective Date:**  
5/1/2026

**Effective Date:**  
5/1/2026

|                | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Cement Mason   | \$39.04 |         | \$9.38                  | \$7.05  | \$0.85  | \$0.00 | \$3.00  | \$0.09 | \$0.00           | \$0.00   | \$59.41   | \$78.93       |
| Apprentice     | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year       | \$27.33 | \$70.00 | \$9.38                  | \$7.05  | \$0.85  | \$0.00 | \$3.00  | \$0.09 | \$0.00           | \$0.00   | \$47.70   | \$61.36       |
| 2nd Year       | \$31.23 | \$80.00 | \$9.38                  | \$7.05  | \$0.85  | \$0.00 | \$3.00  | \$0.09 | \$0.00           | \$0.00   | \$51.60   | \$67.22       |
| 3rd Year       | \$35.14 | \$90.00 | \$9.38                  | \$7.05  | \$0.85  | \$0.00 | \$3.00  | \$0.09 | \$0.00           | \$0.00   | \$55.51   | \$73.08       |

## (\*)Special Calculation Note :

Other: International Training Fund

## Ratio :

- 1 Journeyman to 1 Apprentice
- 2 Journeymen to 1 Apprentice thereafter

## Jurisdiction ( \* denotes special jurisdictional note ) :

Ashland, Athens, Coshocton, Crawford, Delaware, Fairfield, Fayette, Franklin, Guernsey, Hocking, Knox, Licking, Madison, Marion, Meigs, Monroe, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Richland, Ross, Union, Vinton, Washington, Wyandot

## Special Jurisdictional Note :

## Details :

Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site, Heavy Construction, Airport Construction Or Railroad Construction Work, Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work, Pollution Control, Sewer Plant, Waste & Water Plant, Water Treatment Facilities Construction.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Electrical Local 683 Inside

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Electrical

**Effective Date:**  
6/10/2026

**Effective Date:**  
6/10/2026

|                                   | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|-----------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                   |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                    |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Electrician                       | \$46.00 |         | \$12.50                 | \$7.52  | \$1.06  | \$0.00 | \$4.50  | \$0.00 | \$0.00           | \$0.00   | \$71.58   | \$94.58       |
| Welding                           | \$47.00 |         | \$12.50                 | \$7.52  | \$1.06  | \$0.00 | \$4.50  | \$0.00 | \$0.00           | \$0.00   | \$72.58   | \$96.08       |
| Medium Voltage Splicing           | \$47.00 |         | \$12.50                 | \$7.52  | \$1.06  | \$0.00 | \$4.50  | \$0.00 | \$0.00           | \$0.00   | \$72.58   | \$96.08       |
| Over 100 feet                     | \$69.00 |         | \$12.50                 | \$7.52  | \$1.06  | \$0.00 | \$      | \$0.00 | \$0.00           | \$0.00   | \$94.68   | \$129.18      |
| Level 1 CW 0 to 2000 hours        | \$16.18 |         | \$6.99                  | \$0.49  | \$0.96  | \$0.00 | \$0.49  | \$0.10 | \$0.00           | \$0.00   | \$25.21   | \$33.30       |
| Level 2 CW 2001 to 4000 hours     | \$17.20 |         | \$6.99                  | \$0.52  | \$0.96  | \$0.00 | \$0.52  | \$0.10 | \$0.00           | \$0.00   | \$26.29   | \$34.89       |
| Level 3 CW 4001 to 6000 hours     | \$18.21 |         | \$6.99                  | \$0.55  | \$0.96  | \$0.00 | \$0.55  | \$0.10 | \$0.00           | \$0.00   | \$27.36   | \$36.47       |
| Level 4 CW 6001 to 8000 hours     | \$20.23 |         | \$6.99                  | \$0.61  | \$0.96  | \$0.00 | \$0.61  | \$0.10 | \$0.00           | \$0.00   | \$29.50   | \$39.61       |
| Level 1 CE 8001 to 10000 hours    | \$22.25 |         | \$6.99                  | \$0.67  | \$0.96  | \$0.00 | \$0.67  | \$0.10 | \$0.00           | \$0.00   | \$31.64   | \$42.77       |
| Level 2 CE 10,001 to 12,000 hours | \$24.28 |         | \$6.99                  | \$0.73  | \$0.96  | \$0.00 | \$0.73  | \$0.10 | \$0.00           | \$0.00   | \$33.79   | \$45.93       |
| Level 3 CE 12,001 to 14,000 hours | \$30.35 |         | \$6.99                  | \$0.91  | \$0.96  | \$0.00 | \$0.91  | \$0.10 | \$0.00           | \$0.00   | \$40.22   | \$55.40       |
| Apprentice                        | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 0-1000 hrs 1st Period             | \$23.00 | \$50.00 | \$12.50                 | \$3.76  | \$1.06  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$40.32   | \$51.82       |
| 1001-2000 hrs 2nd Period          | \$25.30 | \$55.00 | \$12.50                 | \$4.14  | \$1.06  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$43.00   | \$55.65       |
| 2001-3500 hrs 3rd Period          | \$27.60 | \$60.00 | \$12.50                 | \$4.51  | \$1.06  | \$0.00 | \$2.70  | \$0.00 | \$0.00           | \$0.00   | \$48.37   | \$62.17       |
| 3501-5000 hrs 4th Period          | \$29.90 | \$65.00 | \$12.50                 | \$4.89  | \$1.06  | \$0.00 | \$2.93  | \$0.00 | \$0.00           | \$0.00   | \$51.28   | \$66.23       |
| 5001-6500 hrs 5th Period          | \$32.20 | \$70.00 | \$12.50                 | \$5.26  | \$1.06  | \$0.00 | \$3.15  | \$0.00 | \$0.00           | \$0.00   | \$54.17   | \$70.27       |

|                                |         |         |         |        |        |        |        |        |        |        |         |         |
|--------------------------------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| 6501-8000<br>hrs 6th<br>Period | \$36.80 | \$80.00 | \$12.50 | \$6.02 | \$1.06 | \$0.00 | \$3.60 | \$0.00 | \$0.00 | \$0.00 | \$59.98 | \$78.38 |
|--------------------------------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|---------|---------|

**(\*)Special Calculation Note :**

Other for CW/CE: Education Fund

**Ratio :**

1 to 3 Journeymen to 2 Apprentices  
4 to 6 Journeymen to 4 Apprentices

Construction Wireman and Construction Electrician Ratio:  
1 Journeymen to 4 (CW/CE) Employees  
An Inside Journeyman Wireman is required on the project at the 5th worker or when apprentices are used.

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Champaign, Clark, Delaware, Fairfield, Franklin, Madison, Pickaway\*, Union

**Special Jurisdictional Note :**

In Pickaway County the following townships: Circleville, Darby, Harrison, Jackson, Madison, Monroe, Muhlenberg, Scioto, Walnut, Washington.

**Details :**

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Electrical Local 683 Inside Lt Commercial South West

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Electrical

**Effective Date:**  
2/4/2026

**Effective Date:**  
2/4/2026

|                                   | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|-----------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                   |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                    |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Electrician                       | \$43.00 |         | \$12.15                 | \$8.81  | \$1.16  | \$0.00 | \$4.25  | \$0.00 | \$0.00           | \$0.00   | \$69.37   | \$90.87       |
| Welding                           | \$44.00 |         | \$12.15                 | \$8.84  | \$1.16  | \$0.00 | \$4.25  | \$0.00 | \$0.00           | \$0.00   | \$70.40   | \$92.40       |
| Medium Voltage Splicing           | \$44.00 |         | \$12.15                 | \$8.84  | \$1.16  | \$0.00 | \$4.25  | \$0.00 | \$0.00           | \$0.00   | \$70.40   | \$92.40       |
| Over 100 feet                     | \$64.50 |         | \$12.15                 | \$9.46  | \$1.16  | \$0.00 | \$4.25  | \$0.00 | \$0.00           | \$0.00   | \$91.52   | \$123.77      |
| Level 1 CW 0 to 2000 hours        | \$16.18 |         | \$6.99                  | \$0.49  | \$0.96  | \$0.00 | \$0.49  | \$0.10 | \$0.00           | \$0.00   | \$25.21   | \$33.30       |
| Level 2 CW 2001 to 4000 hours     | \$17.20 |         | \$6.99                  | \$0.52  | \$0.96  | \$0.00 | \$0.52  | \$0.10 | \$0.00           | \$0.00   | \$26.29   | \$34.89       |
| Level 3 CW 4001 to 6000 hours     | \$18.21 |         | \$6.99                  | \$0.55  | \$0.96  | \$0.00 | \$0.55  | \$0.10 | \$0.00           | \$0.00   | \$27.36   | \$36.47       |
| Level 4 CW 6001 to 8000 hours     | \$20.23 |         | \$6.99                  | \$0.61  | \$0.96  | \$0.00 | \$0.61  | \$0.10 | \$0.00           | \$0.00   | \$29.50   | \$39.61       |
| Level 1 CE 8001 to 10000 hours    | \$22.25 |         | \$6.99                  | \$0.67  | \$0.96  | \$0.00 | \$0.67  | \$0.10 | \$0.00           | \$0.00   | \$31.64   | \$42.77       |
| Level 2 CE 10,001 to 12,000 hours | \$24.28 |         | \$6.99                  | \$0.73  | \$0.96  | \$0.00 | \$0.73  | \$0.10 | \$0.00           | \$0.00   | \$33.79   | \$45.93       |
| Level 3 CE 12,001 to14,000 hours  | \$30.35 |         | \$6.99                  | \$0.91  | \$0.96  | \$0.00 | \$0.91  | \$0.10 | \$0.00           | \$0.00   | \$40.22   | \$55.40       |
| Apprentice                        | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 0-1000 hrs 1st Period             | \$21.50 | \$50.00 | \$12.15                 | \$4.41  | \$1.16  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$39.22   | \$49.97       |
| 1001-2000 hrs 2nd Period          | \$23.65 | \$55.00 | \$12.15                 | \$4.85  | \$1.16  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$41.81   | \$53.63       |
| 2001-3500 hrs 3rd Period          | \$25.80 | \$60.00 | \$12.15                 | \$5.28  | \$1.16  | \$0.00 | \$2.55  | \$0.00 | \$0.00           | \$0.00   | \$46.94   | \$59.84       |
| 3501-5000 hrs 4th Period          | \$27.95 | \$65.00 | \$12.15                 | \$5.73  | \$1.16  | \$0.00 | \$2.76  | \$0.00 | \$0.00           | \$0.00   | \$49.75   | \$63.73       |
| 5001-6500 hrs 5th Period          | \$30.10 | \$70.00 | \$12.15                 | \$6.16  | \$1.16  | \$0.00 | \$2.98  | \$0.00 | \$0.00           | \$0.00   | \$52.55   | \$67.60       |

|                                |         |         |         |        |        |        |        |        |        |        |         |         |
|--------------------------------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| 6501-8000<br>hrs 6th<br>Period | \$34.40 | \$80.00 | \$12.15 | \$7.05 | \$1.16 | \$0.00 | \$3.40 | \$0.00 | \$0.00 | \$0.00 | \$58.16 | \$75.36 |
|--------------------------------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|---------|---------|

**(\*)Special Calculation Note :**

Other for CW/CE: Education Fund

**Ratio :**

1 to 3 Journeymen to 2 Apprentices  
4 to 6 Journeymen to 4 Apprentices

Construction Wireman and Construction Electrician Ratio:

1 Journeymen to 4 (CW/CE) Employees

An Inside Journeyman Wireman is required on the project at the 5th worker or when apprentices are used.

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Champaign, Clark, Delaware, Fairfield, Franklin, Madison, Pickaway\*, Union

**Special Jurisdictional Note :**

In Pickaway County the following townships: Circleville, Darby, Harrison, Jackson, Madison, Monroe, Muhlenberg, Scioto, Walnut, Washington.

**Details :**

The scope of work for the light commercial agreement shall apply to the following facilities not to exceed 200,000 square feet; office buildings, shopping centers, auto sales agencies and garages, churches, funeral homes, nursing homes, hotels, retail and wholesale facilities, small stand-alone manufacturing facilities when free standing and not part of a larger facility (not to exceed 50,000 square fee), solar projects (500 panels or less) unless otherwise covered under the agreement, lighting retrofits (when not associated with remodels involving branch re-circuiting) lighting retrofits shall be defined as the changing of lamps and ballasts in existing light fixtures and shall also include the one for one replacement of existing fixtures, warehouses, gas stations, food service centers, restaurants, entertainment facilities, hospitals, clinics, motels, residential buildings.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Electrical Local 683 Voice Data Video

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Electrical

**Effective Date:**  
6/10/2026

**Effective Date:**  
6/10/2026

|                                   | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|-----------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                   |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                    |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Electrical Installer Technician B | \$34.00 |         | \$11.07                 | \$4.50  | \$0.80  | \$0.00 | \$3.15  | \$0.74 | \$0.00           | \$0.00   | \$54.26   | \$71.26       |
| Installer Technician A            | \$35.50 |         | \$11.07                 | \$4.50  | \$0.80  | \$0.00 | \$3.15  | \$0.77 | \$0.00           | \$0.00   | \$55.79   | \$73.54       |
| Cable Puller                      | \$17.00 |         | \$11.07                 | \$4.50  | \$0.80  | \$0.00 | \$3.15  | \$0.37 | \$0.00           | \$0.00   | \$36.89   | \$45.39       |
| Apprentice                        | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Period<br>0 - 1000 hours      | \$20.40 | \$60.00 | \$11.07                 | \$4.50  | \$0.80  | \$0.00 | \$3.15  | \$0.44 | \$0.00           | \$0.00   | \$40.36   | \$50.56       |
| 2nd Period<br>1001 - 2000 hours   | \$22.10 | \$65.00 | \$11.07                 | \$4.50  | \$0.80  | \$0.00 | \$3.15  | \$0.48 | \$0.00           | \$0.00   | \$42.10   | \$53.15       |
| 3rd Period<br>2001 - 3000 hours   | \$23.80 | \$70.00 | \$11.07                 | \$4.50  | \$0.80  | \$0.00 | \$3.15  | \$0.52 | \$0.00           | \$0.00   | \$43.84   | \$55.74       |
| 4th Period<br>3001 - 4000 hours   | \$25.50 | \$75.00 | \$11.07                 | \$4.50  | \$0.80  | \$0.00 | \$3.15  | \$0.55 | \$0.00           | \$0.00   | \$45.57   | \$58.32       |
| 5th Period<br>4001 - 5000 hours   | \$27.20 | \$80.00 | \$11.07                 | \$4.50  | \$0.80  | \$0.00 | \$3.15  | \$0.59 | \$0.00           | \$0.00   | \$47.31   | \$60.91       |
| 6th Period<br>5001 - 6000 hours   | \$28.90 | \$85.00 | \$11.07                 | \$4.50  | \$0.80  | \$0.00 | \$3.15  | \$0.63 | \$0.00           | \$0.00   | \$49.05   | \$63.50       |

## (\*)Special Calculation Note :

Other is Holiday Pay

## Ratio :

1 Apprentice for every 1 Installer Technician  
Cable Pullers can only be employed after an apprentice is employed on the job

## Jurisdiction ( \* denotes special jurisdictional note ) :

Champaign, Clark, Delaware, Fairfield, Franklin, Madison, Pickaway\*, Union



**Special Jurisdictional Note :**

In Pickaway County the following townships: Circleville, Darby, Harrison, Jackson, Madison, Monroe, Muhlenberg, Scioto, Walnut, Washington.

**Details :**

TECHNICIAN (A) is a Technician B who holds a current Technician Certification from BICSI (Building Industry Consulting Service International, Inc.)

CABLE PULLERS are for the installation of cable from one termination point to another.

The work covered shall include the installation, testing, service, and maintenance of all VDV systems which utilize the transmission, and/or transference of voice, sound, vision, or digital for commercial, education, security, and entertainment purposes for the following: TV monitoring and surveillance, background/foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multimedia, multiplex, nurse call systems, radio page, school intercom and sound, burglar alarms, and low-voltage master clock systems.

This Agreement specially includes the following work:

#### SOUND AND VOICE TRANSMISSION/TRANSFERENCE SYSTEMS

1. Background/foreground music
2. Intercom and telephone interconnect systems
3. Telephone systems
4. Nurse Call systems
5. Radio page systems
6. School intercom and sound systems
7. Burglar alarm systems
8. Low-voltage master clock systems
9. Multimedia/multiplex systems
10. Sound and musical entertainment systems
11. RF systems
12. Antennas and wave guide
13. DAS (distributed antenna systems)
14. Cellular
15. ERRS (Emergency Responder Radio System)

#### TELEVISION AND VIDEO SYSTEMS

1. TV monitoring and surveillance systems
2. Video security systems
3. Video entertainment systems
4. Video educational systems
5. Microwave transmission systems
6. CATV and CCTV

#### SECURITY SYSTEMS

1. Perimeter security systems
2. Vibration sensor systems
3. Card access systems
4. Access control systems
5. Sonar/infrared monitoring equipment

#### COMMUNICATIONS SYSTEMS THAT TRANSMIT OR RECEIVE INFORMATION AND/OR CONTROL SYSTEMS THAT ARE INTRINSIC TO THE ABOVE LISTED SYSTEMS (IN THE "SCOPE")

6. SCADA (Supervisory Control and Data Acquisition)
7. PCM (Pulse code Modulation)
8. Inventory control systems
9. Digital data systems
10. Broadband and baseband and carriers
11. Point-of-sale systems
12. VSAT data systems
13. Data communication systems
14. RF and remote-control systems
15. Fiber-optic data systems

VDV support systems such as data-track, innerduct, cable, basket, center spine, ladder rack trays, or similar type raceways intended specifically for the above-listed systems. Chase, sleeves, and/or nipples (not to exceed 10 feet) may be installed on open wiring.

This Agreement specifically excludes the following work:

1. The complete installation of nonintegrated energy management systems, computer systems in industrial applications such as process controls, assembly lines, robotics, and computer controlled to the manufacturing systems, and all HVAC control work up to the first point of connection to the multipurpose integrated system if so connected shall not be part of this Agreement
2. Life safety systems [not intrinsic to nurse call systems listed in Item (A) above] shall be excluded from this Agreement.
3. SCADA (Supervisory control and Data Acquisition) where not intrinsic to the above listed systems (in the "Scope").
4. Fire alarm work is on all new construction sites or wherever the fire alarm system is installed in conduit.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Electrical Local 71 High Tension Pipe Type Cable

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Electrical

**Effective Date:**  
1/7/2026

**Effective Date:**  
1/7/2026

|                                  | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                  |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                   |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Electrical Lineman               | \$54.94 |         | \$7.50                  | \$1.65  | \$0.55  | \$0.00 | \$13.19 | \$1.00 | \$0.00           | \$0.00   | \$78.83   | \$106.30      |
| Certified Lineman Welder         | \$54.94 |         | \$7.50                  | \$1.65  | \$0.55  | \$0.00 | \$13.19 | \$1.00 | \$0.00           | \$0.00   | \$78.83   | \$106.30      |
| Certified Cable Splicer          | \$54.94 |         | \$7.50                  | \$1.65  | \$0.55  | \$0.00 | \$13.19 | \$1.00 | \$0.00           | \$0.00   | \$78.83   | \$106.30      |
| Operator A                       | \$49.20 |         | \$7.50                  | \$1.48  | \$0.49  | \$0.00 | \$11.81 | \$1.00 | \$0.00           | \$0.00   | \$71.48   | \$96.08       |
| Operator B                       | \$43.52 |         | \$7.50                  | \$1.31  | \$0.44  | \$0.00 | \$10.44 | \$1.00 | \$0.00           | \$0.00   | \$64.21   | \$85.97       |
| Operator C                       | \$34.93 |         | \$7.50                  | \$1.05  | \$0.35  | \$0.00 | \$8.38  | \$1.00 | \$0.00           | \$0.00   | \$53.21   | \$70.67       |
| Groundma n 0-12 months Exp       | \$27.47 |         | \$7.50                  | \$0.82  | \$0.27  | \$0.00 | \$6.59  | \$1.00 | \$0.00           | \$0.00   | \$43.65   | \$57.38       |
| Groundma n 0-12 months Exp w/CDL | \$30.22 |         | \$7.50                  | \$0.91  | \$0.30  | \$0.00 | \$7.25  | \$1.00 | \$0.00           | \$0.00   | \$47.18   | \$62.29       |
| Groundma n 1 yr or more          | \$30.22 |         | \$7.50                  | \$0.91  | \$0.30  | \$0.00 | \$7.25  | \$1.00 | \$0.00           | \$0.00   | \$47.18   | \$62.29       |
| Groundma n 1 yr or more w/CDL    | \$35.71 |         | \$7.50                  | \$1.07  | \$0.36  | \$0.00 | \$8.57  | \$1.00 | \$0.00           | \$0.00   | \$54.21   | \$72.06       |
| Equipment Mechanic A             | \$43.52 |         | \$7.50                  | \$1.31  | \$0.44  | \$0.00 | \$10.44 | \$1.00 | \$0.00           | \$0.00   | \$64.21   | \$85.97       |
| Equipment Mechanic B             | \$39.22 |         | \$7.50                  | \$1.18  | \$0.39  | \$0.00 | \$9.41  | \$1.00 | \$0.00           | \$0.00   | \$58.70   | \$78.31       |
| Equipment Mechanic C             | \$34.92 |         | \$7.50                  | \$1.05  | \$0.35  | \$0.00 | \$8.38  | \$1.00 | \$0.00           | \$0.00   | \$53.20   | \$70.66       |
| X-Ray Technicia n                | \$54.94 |         | \$7.50                  | \$1.65  | \$0.55  | \$0.00 | \$13.19 | \$1.00 | \$0.00           | \$0.00   | \$78.83   | \$106.30      |
| Apprentice                       | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st 1000 hrs                     | \$32.96 | \$60.00 | \$7.50                  | \$0.99  | \$0.33  | \$0.00 | \$7.91  | \$1.00 | \$0.00           | \$0.00   | \$50.69   | \$67.17       |
| 2nd 1000 hrs                     | \$35.71 | \$65.00 | \$7.50                  | \$1.07  | \$0.36  | \$0.00 | \$8.57  | \$1.00 | \$0.00           | \$0.00   | \$54.21   | \$72.06       |
| 3rd 1000 hrs                     | \$38.46 | \$70.00 | \$7.50                  | \$1.15  | \$0.38  | \$0.00 | \$9.23  | \$1.00 | \$0.00           | \$0.00   | \$57.72   | \$76.95       |

|              |         |         |        |        |        |        |         |        |        |        |         |         |
|--------------|---------|---------|--------|--------|--------|--------|---------|--------|--------|--------|---------|---------|
| 4th 1000 hrs | \$41.20 | \$75.00 | \$7.50 | \$1.24 | \$0.41 | \$0.00 | \$9.89  | \$1.00 | \$0.00 | \$0.00 | \$61.24 | \$81.84 |
| 5th 1000 hrs | \$43.95 | \$80.00 | \$7.50 | \$1.32 | \$0.44 | \$0.00 | \$10.55 | \$1.00 | \$0.00 | \$0.00 | \$64.76 | \$86.74 |
| 6th 1000 hrs | \$46.70 | \$85.00 | \$7.50 | \$1.39 | \$0.47 | \$0.00 | \$11.21 | \$1.00 | \$0.00 | \$0.00 | \$68.27 | \$91.62 |
| 7th 1000 hrs | \$49.45 | \$90.00 | \$7.50 | \$1.48 | \$0.49 | \$0.00 | \$11.87 | \$1.00 | \$0.00 | \$0.00 | \$71.79 | \$96.52 |

**(\*)Special Calculation Note :**

Other is Health Reimbursement Account

**Ratio :**

1 Journeyman to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

**Special Jurisdictional Note :**

**Details :**

Operator "A": John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater than 25 tons and less than 45 tons).

Operator "B": Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger- wheeled or tracked, all Tension wire Stringing equipment.

Operator "C": Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.

Special Notes:

When Cable Splicer helpers are used, they must be a Journeyman Lineman.

Pipe installation, holiday testing, welding, cable splicing operation of vacuum pumps and cable pulling equipment and all work requiring the use of hand tools shall be done by Journeymen and Apprentices. Pipe coating, manhole preparations and conditioning, nitrogen connections and flowmeter installation shall be done by or under the direct supervision of a Journeyman.

At least two (2) Journeyman Linemen in addition to certified lineman welders shall be employed to install high voltage pipe.

When pulling cable, at least six (6) of the workmen shall be no less than Journeyman classifications. When pumping oil, only Journeyman Lineman or equipment operators shall be permitted to operate degasifying and oil pumping equipment

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Electrical Local 71 Outside (Central OH Chapter)

**Type of Rate:** Commercial

**Change #:**  
LCN01-2025ib

**Craft:**  
Electrical

**Effective Date:**  
6/4/2025

**Effective Date:**  
6/4/2025

|                                      | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|--------------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                      |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                       |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Electrical Lineman                   | \$46.03 |         | \$7.50                  | \$1.38  | \$0.46  | \$0.00 | \$9.20  | \$0.50 | \$0.00           | \$0.00   | \$65.07   | \$88.09       |
| Traffic Signal & Lighting Journeyman | \$44.43 |         | \$7.50                  | \$1.33  | \$0.44  | \$0.00 | \$8.89  | \$0.50 | \$0.00           | \$0.00   | \$63.09   | \$85.31       |
| Equipment Operator                   | \$40.44 |         | \$7.50                  | \$1.21  | \$0.40  | \$0.00 | \$8.09  | \$0.50 | \$0.00           | \$0.00   | \$58.14   | \$78.36       |
| Groundman 0-12 months (W/O CDL)      | \$24.52 |         | \$7.50                  | \$0.74  | \$0.25  | \$0.00 | \$4.90  | \$0.50 | \$0.00           | \$0.00   | \$38.41   | \$50.67       |
| Groundman 0-12 Months W/CDL          | \$26.78 |         | \$7.50                  | \$0.80  | \$0.27  | \$0.00 | \$5.36  | \$0.50 | \$0.00           | \$0.00   | \$41.21   | \$54.60       |
| Groundman greater than 1 Year W/CDL  | \$29.07 |         | \$7.50                  | \$0.87  | \$0.29  | \$0.00 | \$5.81  | \$0.50 | \$0.00           | \$0.00   | \$44.04   | \$58.58       |
| Traffic Signal Apprentices           | \$      |         | \$                      | \$      | \$      | \$     | \$      | \$     | \$               | \$       | \$        | \$            |
| 1st 1,000 hours                      | \$26.66 |         | \$7.50                  | \$0.80  | \$0.27  | \$0.00 | \$5.33  | \$0.50 | \$0.00           | \$0.00   | \$41.06   | \$54.39       |
| 2nd 1,000 hours                      | \$28.88 |         | \$7.50                  | \$0.87  | \$0.29  | \$0.00 | \$5.78  | \$0.50 | \$0.00           | \$0.00   | \$43.82   | \$58.26       |
| 3rd 1,000 hours                      | \$31.10 |         | \$7.50                  | \$0.93  | \$0.31  | \$0.00 | \$6.22  | \$0.50 | \$0.00           | \$0.00   | \$46.56   | \$62.11       |
| 4th 1,000 hours                      | \$33.32 |         | \$7.50                  | \$1.00  | \$0.33  | \$0.00 | \$6.66  | \$0.50 | \$0.00           | \$0.00   | \$49.31   | \$65.97       |
| 5th 1,000 hours                      | \$35.54 |         | \$7.50                  | \$1.07  | \$0.36  | \$0.00 | \$7.11  | \$0.50 | \$0.00           | \$0.00   | \$52.08   | \$69.85       |
| 6th 1,000 hours                      | \$39.99 |         | \$7.50                  | \$1.20  | \$0.40  | \$0.00 | \$8.00  | \$0.50 | \$0.00           | \$0.00   | \$57.59   | \$77.59       |
| Apprentice                           | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st 1,000 Hours                      | \$27.62 | \$60.00 | \$7.50                  | \$0.83  | \$0.28  | \$0.00 | \$5.52  | \$0.50 | \$0.00           | \$0.00   | \$42.25   | \$56.06       |
| 2nd 1,000 Hours                      | \$29.92 | \$65.00 | \$7.50                  | \$0.90  | \$0.30  | \$0.00 | \$5.98  | \$0.50 | \$0.00           | \$0.00   | \$45.10   | \$60.06       |
| 3rd 1,000 Hours                      | \$32.22 | \$70.00 | \$7.50                  | \$0.97  | \$0.32  | \$0.00 | \$6.44  | \$0.50 | \$0.00           | \$0.00   | \$47.95   | \$64.06       |
| 4th 1,000 Hours                      | \$34.52 | \$75.00 | \$7.50                  | \$1.04  | \$0.35  | \$0.00 | \$6.90  | \$0.50 | \$0.00           | \$0.00   | \$50.81   | \$68.07       |

|                 |         |         |        |        |        |        |        |        |        |        |         |         |
|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| 5th 1,000 Hours | \$36.82 | \$80.00 | \$7.50 | \$1.10 | \$0.37 | \$0.00 | \$7.36 | \$0.50 | \$0.00 | \$0.00 | \$53.65 | \$72.07 |
| 6th 1,000 Hours | \$39.13 | \$85.00 | \$7.50 | \$1.17 | \$0.39 | \$0.00 | \$7.82 | \$0.50 | \$0.00 | \$0.00 | \$56.51 | \$76.07 |
| 7th 1,000 Hours | \$41.43 | \$90.00 | \$7.50 | \$1.24 | \$0.41 | \$0.00 | \$8.28 | \$0.50 | \$0.00 | \$0.00 | \$59.36 | \$80.07 |

**(\*)Special Calculation Note :**

Other is Health Reimbursement Account

**Ratio :**

1 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Adams, Ashland, Athens, Coshocton, Crawford, Delaware, Fairfield, Fayette, Franklin, Gallia, Guernsey, Highland, Hocking, Jackson, Knox, Lawrence, Licking, Madison, Marion, Meigs, Monroe, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Richland, Ross, Scioto, Tuscarawas, Union, Vinton, Washington

**Special Jurisdictional Note :**

**Details :**

A groundman when directed shall assist a Journeyman Lineman, Traffic Signal and Lighting Journeyman or Equipment Operator in the performance of his/her work on the ground, including the use of hand tools. Under no circumstances shall this classification climb poles, towers, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an Apprentice. No more than three (3) Groundmen shall work alone. Jobs with more than three Groundmen shall be supervised by a Groundcrew Foreman, Journeyman Lineman, Journeyman Traffic Signal Technician or an Equipment Operator. Scope of Work: installation and maintenance of highway and street lighting, highway and street sign lighting, electronic message boards and traffic control systems, camera systems, traffic signal work, substation and line construction including overhead and underground projects for private and industrial work as in accordance with the IBEW Constitution. This Agreement includes the operation of all tools and equipment necessary for the installation of the above projects.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Electrical Local 71 Outside Utility Power

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Electrical

**Effective Date:**  
1/7/2026

**Effective Date:**  
1/7/2026

|                                 | BHR     |         | Fringe Benefit Payments |         |         |        |         | Irrevocable Fund |           | Total PWR | Overtime Rate |          |
|---------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|------------------|-----------|-----------|---------------|----------|
|                                 |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other            | LECET (*) |           |               | MISC (*) |
| Classification                  |         |         |                         |         |         |        |         |                  |           |           |               |          |
| Electrical Lineman              | \$52.03 |         | \$7.50                  | \$1.56  | \$0.52  | \$0.00 | \$12.49 | \$1.00           | \$0.00    | \$0.00    | \$75.10       | \$101.12 |
| Substation Technician           | \$52.03 |         | \$7.50                  | \$1.56  | \$0.50  | \$0.00 | \$12.49 | \$1.00           | \$0.00    | \$0.00    | \$75.08       | \$101.09 |
| Cable Splicer                   | \$54.50 |         | \$7.50                  | \$1.64  | \$0.55  | \$0.00 | \$13.08 | \$1.00           | \$0.00    | \$0.00    | \$78.27       | \$105.52 |
| Operator A                      | \$46.61 |         | \$7.50                  | \$1.40  | \$0.47  | \$0.00 | \$11.19 | \$1.00           | \$0.00    | \$0.00    | \$68.17       | \$91.47  |
| Operator B                      | \$41.17 |         | \$7.50                  | \$1.23  | \$0.41  | \$0.00 | \$9.87  | \$1.00           | \$0.00    | \$0.00    | \$61.18       | \$81.77  |
| Operator C                      | \$33.00 |         | \$7.50                  | \$0.99  | \$0.33  | \$0.00 | \$7.92  | \$1.00           | \$0.00    | \$0.00    | \$50.74       | \$67.24  |
| Groundman 0-12 months Exp       | \$26.02 |         | \$7.50                  | \$0.78  | \$0.26  | \$0.00 | \$6.24  | \$1.00           | \$0.00    | \$0.00    | \$41.80       | \$54.81  |
| Groundman 0-12 months Exp w/CDL | \$28.62 |         | \$7.50                  | \$0.86  | \$0.29  | \$0.00 | \$6.87  | \$1.00           | \$0.00    | \$0.00    | \$45.14       | \$59.45  |
| Groundman 1 yr or more          | \$28.62 |         | \$7.50                  | \$0.86  | \$0.29  | \$0.00 | \$6.87  | \$1.00           | \$0.00    | \$0.00    | \$45.14       | \$59.45  |
| Groundman 1 yr or more w/CDL    | \$33.82 |         | \$7.50                  | \$1.01  | \$0.34  | \$0.00 | \$8.12  | \$1.00           | \$0.00    | \$0.00    | \$51.79       | \$68.70  |
| Equipment Mechanic A            | \$41.17 |         | \$7.50                  | \$1.23  | \$0.41  | \$0.00 | \$9.87  | \$1.00           | \$0.00    | \$0.00    | \$61.18       | \$81.77  |
| Equipment Mechanic B            | \$37.09 |         | \$7.50                  | \$1.11  | \$0.37  | \$0.00 | \$8.90  | \$1.00           | \$0.00    | \$0.00    | \$55.97       | \$74.52  |
| Equipment Mechanic C            | \$33.00 |         | \$7.50                  | \$0.99  | \$0.33  | \$0.00 | \$7.92  | \$1.00           | \$0.00    | \$0.00    | \$50.74       | \$67.24  |
| Line Truck w/auger              | \$36.40 |         | \$7.50                  | \$1.09  | \$0.36  | \$0.00 | \$8.71  | \$1.00           | \$0.00    | \$0.00    | \$55.06       | \$73.26  |
| Apprentice                      | BHR     | Percent |                         |         |         |        |         |                  |           |           |               |          |
| 1st 1000 hrs                    | \$31.22 | \$60.00 | \$7.50                  | \$0.94  | \$0.31  | \$0.00 | \$7.49  | \$1.00           | \$0.00    | \$0.00    | \$48.46       | \$64.07  |
| 2nd 1000 hrs                    | \$33.82 | \$65.00 | \$7.50                  | \$1.01  | \$0.34  | \$0.00 | \$8.12  | \$1.00           | \$0.00    | \$0.00    | \$51.79       | \$68.70  |
| 3rd 1000 hrs                    | \$36.42 | \$70.00 | \$7.50                  | \$1.09  | \$0.36  | \$0.00 | \$8.74  | \$1.00           | \$0.00    | \$0.00    | \$55.11       | \$73.32  |

|              |         |         |        |        |        |        |         |        |        |        |         |         |
|--------------|---------|---------|--------|--------|--------|--------|---------|--------|--------|--------|---------|---------|
| 4th 1000 hrs | \$39.02 | \$75.00 | \$7.50 | \$1.17 | \$0.39 | \$0.00 | \$9.37  | \$1.00 | \$0.00 | \$0.00 | \$58.45 | \$77.96 |
| 5th 1000 hrs | \$41.62 | \$80.00 | \$7.50 | \$1.25 | \$0.44 | \$0.00 | \$9.99  | \$1.00 | \$0.00 | \$0.00 | \$61.80 | \$82.61 |
| 6th 1000 hrs | \$44.23 | \$85.00 | \$7.50 | \$1.33 | \$0.44 | \$0.00 | \$10.61 | \$1.00 | \$0.00 | \$0.00 | \$65.11 | \$87.22 |
| 7th 1000 hrs | \$46.83 | \$90.00 | \$7.50 | \$1.40 | \$0.47 | \$0.00 | \$11.24 | \$1.00 | \$0.00 | \$0.00 | \$68.44 | \$91.86 |

**(\*)Special Calculation Note :**

Other: Health Reimbursement Account

**Ratio :**

(1) Journeyman Lineman to (1) Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

**Special Jurisdictional Note :**

**Details :**

Operator "A": John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater than 25 tons and less than 45 tons).

Operator "B": Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger- wheeled or tracked, all Tension wire Stringing equipment.

Operator "C": Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.



# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Electrical Local 71 Underground Residential Distribution

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Electrical

**Effective Date:**  
1/7/2026

**Effective Date:**  
1/7/2026

|                                 | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|---------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                 |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                  |         |         |                         |         |         |        |         |        |                  |          |           |               |
| URD Electrician                 | \$39.42 |         | \$7.50                  | \$1.18  | \$0.39  | \$0.00 | \$9.43  | \$1.00 | \$0.00           | \$0.00   | \$58.92   | \$78.63       |
| Equipment Operator A            | \$35.24 |         | \$7.50                  | \$1.06  | \$0.35  | \$0.00 | \$8.46  | \$1.00 | \$0.00           | \$0.00   | \$53.61   | \$71.23       |
| Equipment Operator B            | \$32.34 |         | \$7.50                  | \$0.97  | \$0.32  | \$0.00 | \$7.76  | \$1.00 | \$0.00           | \$0.00   | \$49.89   | \$66.06       |
| Directional Drill Locator       | \$35.24 |         | \$7.50                  | \$1.06  | \$0.35  | \$0.00 | \$8.46  | \$1.00 | \$0.00           | \$0.00   | \$53.61   | \$71.23       |
| Directional Drill Operator      | \$32.34 |         | \$7.50                  | \$0.97  | \$0.32  | \$0.00 | \$7.76  | \$1.00 | \$0.00           | \$0.00   | \$49.89   | \$66.06       |
| Groundman 0-12 months Exp       | \$25.50 |         | \$7.50                  | \$0.77  | \$0.26  | \$0.00 | \$6.12  | \$1.00 | \$0.00           | \$0.00   | \$41.15   | \$53.90       |
| Groundman 0-12 months Exp w/CDL | \$28.15 |         | \$7.50                  | \$0.84  | \$0.28  | \$0.00 | \$6.76  | \$1.00 | \$0.00           | \$0.00   | \$44.53   | \$58.60       |
| Groundman 1 yr or more          | \$28.15 |         | \$7.50                  | \$0.84  | \$0.28  | \$0.00 | \$6.76  | \$1.00 | \$0.00           | \$0.00   | \$44.53   | \$58.60       |
| Groundman 1 yr or more w/CDL    | \$33.47 |         | \$7.50                  | \$1.00  | \$0.33  | \$0.00 | \$8.03  | \$1.00 | \$0.00           | \$0.00   | \$51.33   | \$68.06       |
| Apprentice                      | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st 1000 hrs                    | \$31.54 | \$80.00 | \$7.50                  | \$0.95  | \$0.32  | \$0.00 | \$7.57  | \$1.00 | \$0.00           | \$0.00   | \$48.88   | \$64.65       |
| 2nd 1000 hrs                    | \$33.51 | \$85.00 | \$7.50                  | \$1.01  | \$0.34  | \$0.00 | \$8.04  | \$1.00 | \$0.00           | \$0.00   | \$51.40   | \$68.16       |
| 3rd 1000 hrs                    | \$35.48 | \$90.00 | \$7.50                  | \$1.06  | \$0.35  | \$0.00 | \$8.51  | \$1.00 | \$0.00           | \$0.00   | \$53.90   | \$71.64       |
| 4th 1000 hrs                    | \$37.45 | \$95.00 | \$7.50                  | \$1.12  | \$0.37  | \$0.00 | \$8.99  | \$1.00 | \$0.00           | \$0.00   | \$56.43   | \$75.16       |

**(\*)Special Calculation Note :**

Other: Health Reimbursement Account

**Ratio :**

(1) Journeyman Lineman to (1) Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

**Special Jurisdictional Note :**

**Details :**

This work applies to projects designated for any outside Underground Residential Distribution construction work for electrical utilities, municipalities and rural electrification projects.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Electrical Local 71 Voice Data Video Outside

**Type of Rate:** Commercial

**Change #:**  
LCN02-2024ib

**Craft:**  
Electrical

**Effective Date:**  
3/6/2024

**Effective Date:**  
3/6/2024

|                                   | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|-----------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                   |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                    |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Electrical Installer Technician I | \$35.39 |         | \$7.25                  | \$1.06  | \$0.00  | \$0.00 | \$1.77  | \$0.00 | \$0.00           | \$0.00   | \$45.47   | \$63.17       |
| Installer Technician II           | \$33.37 |         | \$7.25                  | \$1.00  | \$0.00  | \$0.00 | \$1.67  | \$0.00 | \$0.00           | \$0.00   | \$43.29   | \$59.98       |
| Installer Repairman               | \$33.37 |         | \$7.25                  | \$1.00  | \$0.00  | \$0.00 | \$1.67  | \$0.00 | \$0.00           | \$0.00   | \$43.29   | \$59.98       |
| Equipment Operator II             | \$24.98 |         | \$7.25                  | \$0.75  | \$0.00  | \$0.00 | \$1.25  | \$0.00 | \$0.00           | \$0.00   | \$34.23   | \$46.72       |
| Cable Splicer                     | \$35.39 |         | \$7.25                  | \$1.06  | \$0.00  | \$0.00 | \$1.77  | \$0.00 | \$0.00           | \$0.00   | \$45.47   | \$63.17       |
| Ground Driver W/CDL               | \$16.69 |         | \$7.25                  | \$0.50  | \$0.00  | \$0.00 | \$0.83  | \$0.00 | \$0.00           | \$0.00   | \$25.27   | \$33.62       |
| Groundman                         | \$14.57 |         | \$7.25                  | \$0.44  | \$0.00  | \$0.00 | \$0.73  | \$0.00 | \$0.00           | \$0.00   | \$22.99   | \$30.28       |
| Apprentice                        | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| Trainee F                         | \$17.70 | \$50.01 | \$7.25                  | \$0.53  | \$0.00  | \$0.89 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$26.37   | \$35.22       |
| Trainee E                         | \$20.53 | \$58.00 | \$7.25                  | \$0.62  | \$0.00  | \$1.03 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$29.43   | \$39.69       |
| Trainee D                         | \$23.36 | \$66.00 | \$7.25                  | \$0.70  | \$0.00  | \$1.17 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$32.48   | \$44.16       |
| Trainee C                         | \$26.19 | \$74.00 | \$7.25                  | \$0.79  | \$0.00  | \$1.31 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$35.54   | \$48.63       |
| Trainee B                         | \$29.02 | \$82.00 | \$7.25                  | \$0.87  | \$0.00  | \$1.45 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$38.59   | \$53.10       |
| Trainee A                         | \$31.85 | \$90.00 | \$7.25                  | \$0.96  | \$0.00  | \$1.59 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$41.65   | \$57.58       |

(\*)Special Calculation Note :

Ratio :

1Trainee to 1 Journeyman

Jurisdiction ( \* denotes special jurisdictional note ) :

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

### **Special Jurisdictional Note :**

### **Details :**

Cable Splicer: Inspect and test lines or cables, analyze results, and evaluate transmission characteristics. Cover conductors with insulation or seal splices with moisture-proof covering. Install, splice, test, and repair cables using tools or mechanical equipment. This will include the splicing of fiber. Installer Technician I: Must know all aspects of telephone and cable work. This is to include aerial, underground, and manhole work. Must know how to climb and run bucket. Must have all the tools required to perform these tasks. Must be able to be responsible for the safety of the crew at all times. Must also have CDL license and have at least 5 years experience. Installer Repairman: Perform tasks of repairing, installing, and testing phone and CATV services. Installer Technician II: Have at least three years of telephone and CATV experience. Must have the knowledge of underground, aerial, and manhole work. Must be able to climb and operate bucket. Must have CDL. Must have all tools needed to perform these tasks. Equipment Operator II: Able to operate a digger derrick or bucket truck. Have at least 3 years of experience and must have a valid CDL license. Groundman W/CDL: Must have a valid CDL license and be able to perform tasks such as: climbing poles, pulling down guys, making up material, and getting appropriate tools for the job. Must have at least 5 year's experience. Groundman: Perform tasks such as: climbing poles, pulling down guys, making up material, and getting appropriate tools for the job. Experience 0-5 years.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Elevator Local 37

**Type of Rate:** Commercial

**Change #:**  
LCN01-2025ib

**Craft:**  
Elevator

**Effective Date:**  
1/1/2026

**Effective Date:**  
1/1/2026

|                         | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|-------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                         |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification          |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Elevator Mechanic       | \$59.84 |         | \$16.37                 | \$11.06 | \$0.85  | \$4.79 | \$10.70 | \$0.00 | \$0.00           | \$0.00   | \$103.61  | \$133.53      |
| Helper                  | \$41.89 |         | \$16.37                 | \$11.06 | \$0.85  | \$3.35 | \$10.70 | \$0.00 | \$0.00           | \$0.00   | \$84.22   | \$105.16      |
| Apprentice              | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| Probationary Apprentice | \$29.92 | \$50.00 | \$0.00                  | \$0.00  | \$0.00  | \$1.80 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$31.72   | \$46.68       |
| 1st Year                | \$32.91 | \$55.00 | \$16.37                 | \$11.06 | \$0.85  | \$1.97 | \$10.70 | \$0.00 | \$0.00           | \$0.00   | \$73.86   | \$90.31       |
| 2nd Year                | \$38.90 | \$65.00 | \$16.37                 | \$11.06 | \$0.85  | \$2.33 | \$10.70 | \$0.00 | \$0.00           | \$0.00   | \$80.21   | \$99.66       |
| 3rd Year                | \$41.89 | \$70.00 | \$16.37                 | \$11.06 | \$0.85  | \$2.51 | \$10.70 | \$0.00 | \$0.00           | \$0.00   | \$83.38   | \$104.32      |
| 4th Year                | \$47.87 | \$80.00 | \$16.37                 | \$11.06 | \$0.85  | \$2.87 | \$10.70 | \$0.00 | \$0.00           | \$0.00   | \$89.72   | \$113.66      |
| Assistant Mechanic      | \$47.87 | \$80.00 | \$16.37                 | \$11.06 | \$0.85  | \$3.83 | \$10.70 | \$0.00 | \$0.00           | \$0.00   | \$90.68   | \$114.61      |

**(\*)Special Calculation Note :**

**Ratio :**

- 1 Journeyman to 1 Apprentice\*\*
- 1 Journeyman to 1 Helper\*\*
- 1 Journeyman to 1 Assistant Mechanic\*\*

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Athens, Champaign, Clark, Delaware, Fairfield, Fayette, Franklin, Gallia, Guernsey, Hocking, Jackson, Knox, Lawrence, Licking, Logan, Madison, Marion, Meigs, Monroe\*, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Ross, Union, Vinton

**Special Jurisdictional Note :**

Monroe County is shared by both Local 37 and Local 6.

**Details :**

**\*\*Art. 10 Par. 2 Apprentice Work Qualifications: Par 2-** The total number of Helpers and Apprentices employed shall not exceed the number of Mechanics on any one job, except on jobs where two teams or more are working, one extra Helper or Apprentice may be employed for the first two teams and an extra Helper or Apprentice for each additional three teams. Further, the Company may use as many Helpers and Apprentices as best suits his convenience under the direction of a Mechanic in wrecking old plants and in handling and hoisting material, and on foundation work. When removing old and installing new cable on existing elevator installations, the Company may use two Helpers or Apprentices to one Mechanic.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Glazier Local 372

Type of Rate: Commercial

Change #:  
LCN01-2025ib

Craft:  
Glazier

Effective Date:  
11/12/2025

Effective Date:  
11/12/2025

|                | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Glazier        | \$36.72 |         | \$6.80                  | \$10.14 | \$0.45  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$54.11   | \$72.47       |
| Apprentice     | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year       | \$25.70 | \$70.00 | \$6.80                  | \$2.84  | \$0.45  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$35.79   | \$48.64       |
| 2nd Year       | \$27.54 | \$75.00 | \$6.80                  | \$2.84  | \$0.45  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$37.63   | \$51.40       |
| 3rd Year       | \$31.21 | \$85.00 | \$6.80                  | \$6.55  | \$0.45  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$45.01   | \$60.61       |
| 4th Year       | \$34.88 | \$95.00 | \$6.80                  | \$6.55  | \$0.45  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$48.68   | \$66.12       |

(\*)Special Calculation Note :

A premium of one dollar (\$1.00) per hour above regular hourly rate of pay shall be paid for each hour worked by every employee from any mechanical lift or scaffold, either suspended or supported including the Hex type scaffolding.

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction ( \* denotes special jurisdictional note ) :

Delaware, Fairfield, Fayette\*, Franklin, Hocking, Jackson, Knox, Licking, Madison, Marion, Morrow, Muskingum, Perry, Pickaway, Pike, Ross, Union, Vinton

Special Jurisdictional Note :

Fayette County - locations west of State Route 62 ONLY.

Details :

# Prevailing Wage Rate Skilled Crafts

Name of Union: Ironworker Local 172

Type of Rate: Commercial

Change #:  
LCN01-2026ib

Craft:  
Ironworker

Effective Date:  
6/1/2026

Effective Date:  
6/1/2026

|                                                                       | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|-----------------------------------------------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                                                       |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                                                        |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Ironworker                                                            | \$44.07 |         | \$9.80                  | \$9.50  | \$0.71  | \$0.00 | \$4.00  | \$0.00 | \$0.00           | \$0.00   | \$68.08   | \$90.12       |
| Rigger, Welder, Reinforcing Sheeter, Fence Erector, & Machinery Mover | \$44.07 |         | \$9.80                  | \$9.50  | \$0.71  | \$0.00 | \$4.00  | \$0.00 | \$0.00           | \$0.00   | \$68.08   | \$90.12       |
| Apprentice                                                            | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year 0-1500 Hours                                                 | \$30.85 | \$70.00 | \$9.80                  | \$9.50  | \$0.71  | \$0.00 | \$4.00  | \$0.00 | \$0.00           | \$0.00   | \$54.86   | \$70.29       |
| 2nd Year 1501-3000 Hours                                              | \$35.26 | \$80.00 | \$9.80                  | \$9.50  | \$0.71  | \$0.00 | \$4.00  | \$0.00 | \$0.00           | \$0.00   | \$59.27   | \$76.90       |
| 3rd Year 3001-4500 Hours                                              | \$39.67 | \$90.02 | \$9.80                  | \$9.50  | \$0.71  | \$0.00 | \$4.00  | \$0.00 | \$0.00           | \$0.00   | \$63.68   | \$83.52       |

(\*)Special Calculation Note :

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction ( \* denotes special jurisdictional note ) :

Champaign\*, Clark\*, Crawford\*, Delaware, Fairfield, Fayette\*, Franklin, Hardin\*, Highland\*, Hocking, Jackson\*, Knox, Licking, Logan\*, Madison\*, Marion, Morrow, Muskingum\*, Perry, Pickaway, Pike, Ross, Union, Vinton, Wyandot\*

Special Jurisdictional Note :



Champaign County Twps included: Wayne, Rush, Goshen

Clark County Twps included: Vienna, Catawba and portions of Harmony and Pleasant

Crawford County Twps included: Bucyrus, Dallas, Jefferson, Jackson, Whetstone, Polk, Sandusky

Fayette County Twps included: Paint, Marion, Perry, Madison, Wayne, Union

Hardin County Twps included: McDonald, Taylorcreek, Hale, Dudley, Pleasant, Goshen, Blanchard, Lynn, Jackson, Buck, Cessna, Marion, Washington

Highland County Twps included: Madison. Jackson County Twps included: Liberty, Washington, Milton, Jackson, Coal, Wilkesville

Logan County Twps included: Monroe, Zane, Jefferson, Perry, Rush Creek, Bokes Creek

Madison County Twps included: Range, Paint, Fairfield, Sommerford, Jefferson, Pike, Canaan, Pleasant, Oak Run, Union, Deer Creek, Monroe, Darby

Muskingum County Twps include: Jackson, Licking, Hope Well, Newton, Clay, Cass, Muskingum falls, Springfield, Madison, Washington, Wayne, Brush Creek

Pike County Twps included: Perry, Benton, Mifflin, Sunfish, Newton, Prebble, Pee Pee, Seal, Beaver, Jackson

Wyandot County Twps included: Jackson, Marseilles, Mifflin, Pitt, Antrim

## **Details :**

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Labor HevHwy 3

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Laborer

**Effective Date:**  
5/1/2026

**Effective Date:**  
5/1/2026

|                    | BHR     |          | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|--------------------|---------|----------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                    |         |          | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification     |         |          |                         |         |         |        |         |        |                  |          |           |               |
| Laborer Group 1    | \$38.77 |          | \$9.45                  | \$4.60  | \$0.45  | \$0.00 | \$2.50  | \$0.00 | \$0.10           | \$0.00   | \$55.87   | \$75.25       |
| Group 2            | \$38.94 |          | \$9.45                  | \$4.60  | \$0.45  | \$0.00 | \$2.50  | \$0.00 | \$0.10           | \$0.00   | \$56.04   | \$75.51       |
| Group 3            | \$39.27 |          | \$9.45                  | \$4.60  | \$0.45  | \$0.00 | \$2.50  | \$0.00 | \$0.10           | \$0.00   | \$56.37   | \$76.00       |
| Group 4            | \$39.72 |          | \$9.45                  | \$4.60  | \$0.45  | \$0.00 | \$2.50  | \$0.00 | \$0.10           | \$0.00   | \$56.82   | \$76.68       |
| Watch Person       | \$33.50 |          | \$9.45                  | \$4.60  | \$0.45  | \$0.00 | \$2.50  | \$0.00 | \$0.10           | \$0.00   | \$50.60   | \$67.35       |
| Apprentice         | BHR     | Percent  |                         |         |         |        |         |        |                  |          |           |               |
| 0-1000 hrs         | \$31.02 | \$80.00  | \$9.45                  | \$4.60  | \$0.45  | \$0.00 | \$2.50  | \$0.00 | \$0.10           | \$0.00   | \$48.12   | \$63.63       |
| 1001-2000 hrs      | \$32.95 | \$85.00  | \$9.45                  | \$4.60  | \$0.45  | \$0.00 | \$2.50  | \$0.00 | \$0.10           | \$0.00   | \$50.05   | \$66.53       |
| 2001-3000 hrs      | \$34.89 | \$90.00  | \$9.45                  | \$4.60  | \$0.45  | \$0.00 | \$2.50  | \$0.00 | \$0.10           | \$0.00   | \$51.99   | \$69.44       |
| 3001-4000 hrs      | \$36.83 | \$95.00  | \$9.45                  | \$4.60  | \$0.45  | \$0.00 | \$2.50  | \$0.00 | \$0.10           | \$0.00   | \$53.93   | \$72.34       |
| More than 4000 hrs | \$38.77 | \$100.00 | \$9.45                  | \$4.60  | \$0.45  | \$0.00 | \$2.50  | \$0.00 | \$0.10           | \$0.00   | \$55.87   | \$75.25       |

## (\*)Special Calculation Note :

Tunnel Laborer rate with air-pressurized add \$1.00 to the above wage rate.

Commercial Driver's License – Any Laborer required to utilize a valid Commercial Driver's License (CDL), are in compliance with necessary FMCSA regulations and approved by the Contractor to operate a Commercial Motor Vehicle (CMV), shall be paid one dollar (\$1.00) per hour above the base rate for the entirety of their working shift.

## Ratio :

1 Journeyman to 1 Apprentice  
3 Journeymen to 1 Apprentice thereafter

Watchmen have no Apprentices

## Jurisdiction ( \* denotes special jurisdictional note ) :

Adams, Allen, Ashland, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Darke, Defiance, Delaware, Fairfield, Fayette, Franklin, Fulton, Gallia, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lawrence, Licking, Logan, Madison, Marion, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Paulding, Perry, Pickaway, Pike, Preble, Putnam, Richland, Ross, Scioto, Seneca, Shelby, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wyandot

## Special Jurisdictional Note :

Hod Carriers and Common Laborers - Heavy, Highway, Sewer, Waterworks, Utility, Airport, Railroad, Industrial and Building Site, Sewer Plant, Waste Water Treatment Facilities Construction

#### Details :

Group 1 Laborer (Construction); Plant Laborer or Yardman, Right-of-way Laborer, Landscape Laborer, Highway Lighting Worker, Signalization Worker, (Swimming) Pool Construction Laborer, Utility Man, \*Bridge Man, Handyman, Joint Setter, Flagperson, Carpenter Helper, Waterproofing Laborer, Slurry Seal, Seal Coating, Surface Treatment or Road Mix Laborer, Riprap Laborer & Grouter, Asphalt Laborer, Dump Man (batch trucks), Guardrail & Fence Installer, Mesh Handler & Placer, Concrete Curing Applicator, Scaffold Erector, Sign Installer, Hazardous Waste (level D), Diver Helper, Zone Person and Traffic Control. \*Bridge Man will perform work as per the October 31, 1949, memorandum on concrete forms, by and between the United Brotherhood of Carpenters and Joiners of America and the Laborers' International Union of North America, which states in; "the moving, cleaning, oiling and carrying to the next point of erection, and the stripping of forms which are not to be re-used, and forms on all flat arch work shall be done by members of the Laborers' International Union of North America."

Group 2 Asphalt Raker, Screwman or Paver, Concrete Puddler, Kettle Man (pipeline), All Machine-Driven Tools (Gas, Electric, Air), Mason Tender, Brick Paver, Mortar Mixer, Skid Steer, Sheeting & Shoring Person, Surface Grinder Person, Screedperson, Water Blast, Hand Held Wand, Power Buggy or Power Wheelbarrow, Paint Striper, Plastic fusing Machine Operator, Rodding Machine Operator, Pug Mill Operator, Operator of All Vacuum Devices Wet or Dry, Handling of all Pumps 4 inches and under (gas, air or electric), Diver, Form Setter, Bottom Person, Welder Helper (pipeline), Concrete Saw Person, Cutting with Burning Torch, Pipe Layer, Hand Spiker (railroad), Underground Person (working in sewer and waterline, cleaning, repairing and reconditioning). Tunnel Laborer (without air), Caisson, Cofferdam (below 25 feet deep), Air Track and Wagon Drill, Sandblaster Nozzle Person, Hazardous Waste (level B), \*\*\*Lead Abatement, Hazardous Waste (level C) \*\*\*Includes the erecting of structures for the removal, including the encapsulation and containment of Lead abatement process.

Group 3 Blast and Powder Person, Muckers will be defined as shovel men working directly with the miners, Wrencher (mechanical joints & utility pipeline), Yarnier, Top Lander, Hazardous Waste (level A), Concrete Specialist, Curb Setter and Cutter, Grade Checker, Concrete Crew in Tunnels. Utility pipeline Tappers, Waterline, Caulker, Signal Person will receive the rate equal to the rate paid the Laborer classification for which the Laborer is signaling.

Group 4 Miner, Welder, Gunite Nozzle Person A.) The Watchperson shall be responsible to patrol and maintain a safe traffic zone including but not limited to barrels, cones, signs, arrow boards, message boards etc. The responsibility of a watchperson is to see that the equipment, job and office trailer etc. are secure.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Labor Local 423

Type of Rate: Commercial

Change #:  
LCN01-2026ib

Craft:  
Laborer

Effective Date:  
6/1/2026

Effective Date:  
6/1/2026

|                    | BHR     |          | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|--------------------|---------|----------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                    |         |          | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification     |         |          |                         |         |         |        |         |        |                  |          |           |               |
| Laborer Group 1    | \$33.98 |          | \$9.45                  | \$4.60  | \$0.40  | \$0.00 | \$1.00  | \$0.00 | \$0.10           | \$0.00   | \$49.53   | \$66.52       |
| Group 2            | \$34.29 |          | \$9.45                  | \$4.60  | \$0.40  | \$0.00 | \$1.00  | \$0.00 | \$0.10           | \$0.00   | \$49.84   | \$66.98       |
| Group 3            | \$34.60 |          | \$9.45                  | \$4.60  | \$0.40  | \$0.00 | \$1.00  | \$0.00 | \$0.10           | \$0.00   | \$50.15   | \$67.45       |
| Group 4            | \$34.91 |          | \$9.45                  | \$4.60  | \$0.40  | \$0.00 | \$1.00  | \$0.00 | \$0.10           | \$0.00   | \$50.46   | \$67.91       |
| Apprentice         | BHR     | Percent  |                         |         |         |        |         |        |                  |          |           |               |
| 0-1000 hrs         | \$23.79 | \$70.00  | \$9.45                  | \$4.60  | \$0.40  | \$0.00 | \$1.00  | \$0.00 | \$0.10           | \$0.00   | \$39.34   | \$51.23       |
| 1001-2000 hrs      | \$27.18 | \$80.00  | \$9.45                  | \$4.60  | \$0.40  | \$0.00 | \$1.00  | \$0.00 | \$0.10           | \$0.00   | \$42.73   | \$56.32       |
| 2001-3000 hrs      | \$30.58 | \$90.00  | \$9.45                  | \$4.60  | \$0.40  | \$0.00 | \$1.00  | \$0.00 | \$0.10           | \$0.00   | \$46.13   | \$61.42       |
| 3001-4000 hrs      | \$32.28 | \$95.00  | \$9.45                  | \$4.60  | \$0.40  | \$0.00 | \$1.00  | \$0.00 | \$0.10           | \$0.00   | \$47.83   | \$63.97       |
| More than 4000 hrs | \$33.98 | \$100.00 | \$9.45                  | \$4.60  | \$0.40  | \$0.00 | \$1.00  | \$0.00 | \$0.10           | \$0.00   | \$49.53   | \$66.52       |

(\*)Special Calculation Note :

Ratio :

1 Journeymen to 1 Apprentice  
4 Journeymen to 1 Apprentice

Jurisdiction ( \* denotes special jurisdictional note ) :

Fairfield, Fayette, Franklin, Hocking, Licking, Madison, Pickaway, Union

Special Jurisdictional Note :

Details :

Group 1: General Laborers, Carpenter Tender, Cathodic Protection, Cleaning Debris, Cleaning of all Material, General Clean-up including Vacuum Cleaning, Scraping and Cleaning of Walls and Floors, Landscape, Installation and Removal of Fencing, Sod Layers, All Portable Heaters, Flagman, Loading and Unloading of all Trucks, Handling and conveying all Materials, Washing of all Windows, Conveyor Belt, All Water Pumps up to and including three (3) inch intake, Watchman, Water Boy and Tool Room Attendant. Group 1- Swimming Pools, Pool Decks, Surrounding Sidewalk and Parking Garages.

Group 2: Skid Steer, Concrete Specialists, Brick Tender, Stone Mason Tender, Plaster Tender, Mortar Mixer and Operator, Cement Mason Tender, Construction Specialist, All Scaffold Builders (Swinging Scaffolds), Lagging, Bush Hammering, Jack Hammer Operator, Air or Electric Pneumatic Tool Operator, Power Driven Tools, Power Buggy Operators, Pouring and Placement of all concrete, Fork Lift Operators, Power Wheelbarrow Operators, Asphalt and Blacktop Rakers, Wrecker/Demolition, Sand Blasting and Chipping, Welders on Demolition, Grade Checkers, a person on a bucket pouring concrete, Guniting Nozzle man, Wagon and Churn Drill Operator, Concrete Saw Operator, Brush Feeders on pulverizers, Pipe Layers, Bottom Man, Laser Gun, Burners, Sand Blasting of concrete, Vibrator Man, Steward, Signal Man, Caisson, Caisson Bottom Man, Piledrivers, Asbestos and Lead Abatement Laborers. Hazardous Waste (Level B): Any work requiring the following protective equipment must be paid at Group 2 rate, A protective suit and an Air Purifying Respirator (APR) with the appropriate filter canisters. The ensemble is used when contaminants are reliably known not to be hazardous to the skin and not IDLH (Immediately Dangerous To Life or Health) and correct filter protection is available. This ensemble offers adequate protection for many jobs. Heat stress may be a problem due to inherent restrictions to breathing in an APR. Also, normal job related injury risk will be nearly as high as for Level C Equipment.

Group 3 Hazardous (Level C:) Any work requiring the following protective equipment must be paid at Group 3 rate, A chemically resistant splash suit and a (SCBA) or Airline Respirator. This ensemble is required when the situation is very hazardous, such as oxygen deficient atmospheres, IDLH atmospheres, or confined space entries, but the risk of skin exposure is not as great as in Level D situations. Then Level C ensemble gives the second highest level of protection, but also puts physical stress on the worker; primarily heat stress, reduced vision, dexterity and mobility directly attributable to wearing of the protective equipment. Therefore, in addition to the hazardous material, the hazard of the normal job related injuries is greatly increased.

Group 4 Hazardous Waste (Level D) requiring the following protective equipment must be paid at Group 4 rate, Protective equipment is required when the area has been known to contain extremely toxic contaminants or contaminants unknown but may be expected to be extremely toxic and /or Immediately Dangerous to Life and Health (IDLH). This ensemble includes fully encapsulated chemical suit (moon suit), Self Contained Breathing Apparatus (SCBA), or Airline Fed Respirator, and various types and numbers of boots and gloves, cool vests and voice activated radios are optional equipment sometimes worn. Level D ensembles provide the highest level of protection from contaminants but places the greatest physical and mental stress on the worker. The claustrophobic environment of the moon suit causes anxiety in most people, which greatly increases the already inherent heat stress problems. Also, this ensemble reduces vision, mobility, dexterity, and communication capacity, all of which increase the risk of normal job related injuries, ie., slips, falls, caught between, etc. Hazardous Pay of \$0.25 per hour shall be paid in addition to classifications shown above Swing Scaffolds (suspended by rope or pulley), and swing scaffolds for grain storage tank or grain elevators, when the work is performed at a height of fifty (50) feet or more above the foundations or grade level, whichever is higher. Caisson work and tunnel work (depth being 15 feet or deeper) Hazardous Waste Removal & Lead Abatement Workers: Exclusive or "Hot" area with toxic or hazardous materials, when one of the following personal protective equipment ensembles will be required for necessary protection against toxic contaminants. All of the ensembles increase the risks of certain types of worker-related injuries. When Laborers complement another craft receiving premium rate of pay Laborers will also receive premium pay for this "HOT" type of work.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Operating Engineers - Building Local 18 - Zone III

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Operating Engineer

**Effective Date:**  
5/1/2026

**Effective Date:**  
5/1/2026

|                                              | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                              |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                               |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Operator Group A                             | \$47.29 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$64.74   | \$88.39       |
| Operator Group B                             | \$47.17 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$64.62   | \$88.20       |
| Operator Group C                             | \$46.13 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$63.58   | \$86.65       |
| Operator Group D                             | \$44.95 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$62.40   | \$84.88       |
| Operator Group E                             | \$39.49 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$56.94   | \$76.69       |
| Master Mechanic                              | \$48.29 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$65.74   | \$89.89       |
| Lift Director                                | \$48.29 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$65.74   | \$89.89       |
| Cranes & Mobile Concrete Pumps 150'-180'     | \$47.79 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$65.24   | \$89.14       |
| Cranes & Mobile Concrete Pumps 180'-249'     | \$48.29 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$65.74   | \$89.89       |
| Cranes & Mobile Concrete Pumps 249' and over | \$48.54 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$65.99   | \$90.26       |
| Apprentice                                   | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year                                     | \$23.65 | \$50.02 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$41.10   | \$52.92       |
| 2nd Year                                     | \$28.37 | \$60.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$45.82   | \$60.00       |
| 3rd Year                                     | \$33.10 | \$70.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$50.55   | \$67.10       |
| 4th Year                                     | \$37.83 | \$80.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$55.28   | \$74.19       |
| Field Mechanic Trainee                       | \$      | \$      | \$                      | \$      | \$      | \$     | \$      | \$     | \$               | \$       | \$        | \$            |
| 1st Year                                     | \$28.37 | \$60.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.00   | \$45.72   | \$59.91       |
| 2nd Year                                     | \$33.10 | \$70.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.00   | \$50.45   | \$67.00       |
| 3rd Year                                     | \$37.83 | \$80.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.00   | \$55.18   | \$74.09       |
| 4th Year                                     | \$42.56 | \$90.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.00   | \$59.91   | \$81.19       |

**(\*)Special Calculation Note :**

Other: Education & Safety  
Misc: National Training

Note: There will be a 10% increase for the apprentices on top of the percentages listed above provided they are operating mobile equipment.

**Ratio :**

For every (3) Operating Engineer Journeymen employed by the company there may be employed (1) Registered Apprentice or trainee Engineer through the referral when they are available. An apprenice, while employed as part of a crew per Article VIII, paragraph 77, will not be subject to the apprenticeship ratios in this collective bargaining agreement

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Adams, Allen, Ashland, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Coshocton, Crawford, Darke, Defiance, Delaware, Fairfield, Fayette, Franklin, Fulton, Gallia, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lawrence, Licking, Logan, Madison, Marion, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wyandot

**Special Jurisdictional Note :**

**Details :**

Group A- Barrier Moving Machines; Boiler Operators or Compressor Operators, when compressor or boiler is mounted on crane (Piggyback Operation); Boom Trucks (all types); Cableways Cherry Pickers; Combination - Concrete Mixers & Towers; All Concrete Pumps with Booms; Cranes (all types); Compact Cranes, track or rubber over 4,000 pounds capacity; Cranes self-erecting, stationary, track or truck (all configurations); Derricks (all types); Draglines; Dredges (dipper, clam or suction) 3-man crew; Elevating Graders or Euclid Loaders; Floating Equipment; Forklift (rough terrain with winch/hoist); Gradalls; Helicopter Operators, hoisting building materials; Helicopter Winch Operators, Hoisting building materials; Hoes (All types); Hoists (with two or more drums in use); Horizontal Directional Drill; Hydraulic Gantry (lift system); Laser Finishing Machines; Laser Screed and like equipment; Lift Slab or Panel Jack Operators; Locomotives (all types); Maintenance Operator/Technician (Mechanic Operator/Technician and/or Welder); Mixers, paving (multiple drum); Mobile Concrete Pumps, with booms; Panelboards, (all types on site); Pile Drivers; Power Shovels; Prentice Loader; Rail Tamper (with automatic lifting and aligning device); Rotary Drills (all), used on caissons for foundations and sub-structure; Side Booms; Slip Form Pavers; Straddle Carriers (Building Construction on site); Trench Machines (over 24" wide); Tug Boats.

Group B - Articulating/end dumps (minus \$4.00/hour from Group B rate); Asphalt Pavers; Bobcat-type and/or skid steer loader with hoe attachment greater than 7000 lbs.; Bulldozers; CMI type Equipment; Concrete Saw, Vermeer-type; Endloaders; Hydro Milling Machine; Kolman-type Loaders (Dirt Loading); Lead Greasemen; Mucking Machines; Pettibone-Rail Equipment; Power Graders; Power Scoops; Power Scrapers; Push Cats; Rotomills (all), grinders and planers of all types.

Group C - A-Frames; Air Compressors, Pressurizing Shafts or Tunnels; All Asphalt Rollers; Bobcat-type and/or Skid Steer Loader with or without attachments; Boilers (15 lbs. pressure and over); All Concrete Pumps (without booms with 5 inch system); Fork Lifts (except masonry); Highway Drills - all types (with integral power); Hoists (with one drum); House Elevators (except those automatic call button controlled), Buck Hoists, Transport Platforms, Construction Elevators; Hydro Vac/Excavator (when a second person is needed, the rate of pay will be "Class E"); Man Lifts; Material hoist/elevators; Mud Jacks; Pressure Grouting; Pump Operators (installing or operating Well Points or other types of Dewatering Systems); Pumps (4 inches and over discharge); Railroad Tie (Inserter/Remover); Rotovator (Lime-Soil Stabilizer); Submersible Pumps (4" and over discharge); Switch & Tie Tampers (without lifting and aligning device); Trench Machines (24" and under); Utility Operators.

Group D - Backfillers and Tampers; Ballast Re-locator; Batch Plant Operators; Bar and Joint Installing Machines; Bull Floats; Burlap and Curing Machines; Clefplanes; Compressors, on building construction; Concrete Mixers, more than one bag capacity; Concrete Mixers, one bag capacity (side loaders); All Concrete Pumps (without boom with 4" or smaller system); Concrete Spreader; Conveyors, used for handling building materials; Crushers; Deckhands; Drum Fireman (in asphalt plants); Farm type tractors pulling attachments; Finishing Machines; Form Trenchers; Generators; Gunite Machines; Hydro-seeders; Pavement Breakers (hydraulic or cable); Post Drivers; Post Hole Diggers; Pressure Pumps (over 1/2" discharge); Road Widening Trenchers; Rollers (except asphalt); Self-propelled sub-graders; Shotcrete Machines; Tire Repairmen; Tractors, pulling sheepsfoot post roller or grader; VAC/ALLS; Vibratory Compactors, with integral power; Welders.

Group E - Allen Screed Paver (concrete); Boilers (less than 15 lbs. pressure); Cranes-Compact, track or rubber (under 4,000 pounds capacity); Directional Drill "Locator"; Fueling and greasing +\$3.00; Inboard/outboard Motor Boat Launches; Light Plant Operators; Masonry Fork Lifts; Oilers/Helpers; Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Signalperson, Submersible Pumps (under 4" discharge).

Master Mechanics - Master Mechanic

Cranes 150' – 180' - Boom & Jib 150 - 180 feet    Cranes 180' – 249' - Boom & Jib 180 - 249 feet    Cranes 250' and over - Boom & Jib 250 feet or over



# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Operating Engineers - HevHwy Zone II

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Operating Engineer

**Effective Date:**  
5/1/2026

**Effective Date:**  
5/1/2026

|                                             | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|---------------------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                             |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                              |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Operator Class A                            | \$47.29 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$64.74   | \$88.39       |
| Operator Class B                            | \$47.17 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$64.62   | \$88.20       |
| Operator Class C                            | \$46.13 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$63.58   | \$86.65       |
| Operator Class D                            | \$44.95 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$62.40   | \$84.88       |
| Operator Class E                            | \$39.49 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$56.94   | \$76.69       |
| Master Mechanic                             | \$48.29 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$65.74   | \$89.89       |
| Lift Director                               | \$48.29 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$65.74   | \$89.89       |
| Crane and Mobile Concrete Pump 150' - 179'  | \$47.79 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$65.24   | \$89.14       |
| Crane and Mobile Concrete Pump 180' - 249'  | \$48.29 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$65.74   | \$89.89       |
| Crane and Mobile Concrete Pump 250' and Ove | \$48.54 |         | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$65.99   | \$90.26       |
| Apprentice                                  | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year                                    | \$23.64 | \$50.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$41.09   | \$52.91       |
| 2nd Year                                    | \$28.37 | \$60.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$45.82   | \$60.00       |
| 3rd Year                                    | \$33.10 | \$70.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$50.55   | \$67.10       |
| 4th Year                                    | \$37.83 | \$80.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.10   | \$55.28   | \$74.19       |
| Field Mech Trainee                          | \$      | \$      | \$                      | \$      | \$      | \$     | \$      | \$     | \$               | \$       | \$        | \$            |
| 1st year                                    | \$28.37 | \$60.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.00   | \$45.72   | \$59.91       |
| 2nd year                                    | \$33.10 | \$70.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.00   | \$50.45   | \$67.00       |
| 3rd year                                    | \$37.83 | \$80.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.00   | \$55.18   | \$74.09       |
| 4th year                                    | \$42.56 | \$90.00 | \$10.01                 | \$6.25  | \$1.00  | \$0.00 | \$0.00  | \$0.09 | \$0.00           | \$0.00   | \$59.91   | \$81.19       |

**(\*)Special Calculation Note :**

Other: Education & Safety Fund  
Misc: National Training

\*\*Apprentices will receive a 10% increase on top of the percentages listed above provided they are operating mobile equipment.

**Ratio :**

For every (3) Operating Engineer Journeymen employed by the company, there may be employed (1) Registered Apprentice or Trainee Engineer through the referral when they are available. An Apprentice, while employed as part of a crew per Article VIII, paragraph 68 will not be subject to the apprenticeship ratios in this collective bargaining agreement

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Adams, Allen, Ashland, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Coshocton, Crawford, Darke, Defiance, Delaware, Fairfield, Fayette, Franklin, Fulton, Gallia, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lawrence, Licking, Logan, Lucas, Madison, Marion, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wood, Wyandot

**Special Jurisdictional Note :**

**Details :**

Class A - Air Compressors on Steel Erection; Asphalt Plant Engineers (Cleveland District Only); Barrier Moving Machine; Boiler Operators, Compressor Operators, or Generators, when mounted on a rig; Boom Trucks (all types); Cableways; Cherry Pickers; Combination- Concrete Mixers & Towers; Concrete Plants (over 4 yd capacity); Concrete Pumps; Cranes (all types); Compact Cranes track or rubber over 4,000 pounds capacity; Cranes self-erecting stationary, track or truck; Derricks (all types); Draglines; Dredges dipper, clam or suction; Elevating Graders or Euclid Loaders; Floating Equipment (all types); Gradalls; Helicopter Crew (Operator- hoist or winch); Hoes (all types); Hoisting Engines; Hoisting Engines, on shaft or tunnel work; Hydraulic Gantry (lifting system); Industrial-type Tractors; Jet Engine Dryer (D8 or D9) diesel Tractors; Locomotives (standard gauge); Maintenance Operators/Technicians (class A); Mixers, paving (single or double drum); Mucking Machines; Multiple Scrapers; Piledriving Machines (all types); Power Shovels, Prentice Loader; Quad 9 (double pusher); Rail Tamper (with automatic lifting and aligning device); Refrigerating Machines (freezer operation); Rotary Drills, on caisson work; Rough Terrain Fork Lift with winch/hoist; Side Booms; Slip Form Pavers; Survey Crew Party Chiefs; Tower Derricks; Tree Shredders; Trench Machines (over 24" wide); Truck Mounted Concrete Pumps; Tug Boats; Tunnel Machines and /or Mining Machines; Wheel Excavators.

Class B - Asphalt Pavers; Automatic Subgrade Machines, self-propelled (CMI-type); Bobcat-type and /or Skid Steer Loader with hoe attachment greater than 7000 lbs.; Boring Machine Operators (more than 48 inches); Bulldozers; Concrete Saws, Vermeer type; Endloaders; Horizontal Directional Drill (50,000 ft. lbs. thrust and over); Hydro Milling Machine; Kolman-type Loaders (production type-dirt); Lead Greasemen; Lighting and Traffic Signal Installation Equipment includes all groups or classifications; Maintenance Operators/Technicians, Class B; Material Transfer Equipment (shuttle buggy) Asphalt; Pettibone-Rail Equipment; Power Graders; Power Scrapers; Push Cats; Rotomills (all), Grinders and Planners of all types, Groovers (excluding walk-behinds); Trench Machines (24 inch wide and under).

Class C - A-Frames; Air Compressors, on tunnel work (low Pressure); Articulating/straight bed end dumps if assigned (minus \$4.00 per hour); Asphalt Plant Engineers (Portage and Summit Counties only); Bobcat-type and/or skid steer loader with or without attachments; Drones; Highway Drills (all types); HydroVac/Excavator (when a second person is needed, the rate of pay will be "Class E"); Locomotives (narrow gauge); Material Hoist/Elevators; Mixers, concrete (more than one bag capacity); Mixers, one bag capacity (side loader); Power Boilers (over 15 lbs. pressure); Pump Operators (installing or operating well Points); Pumps (4 inch and over discharge); Railroad Tie Inserter/Remover; Rollers, Asphalt; Rotovator (lime-soil Stabilizer); Switch & Tie Tampers (without lifting and aligning device); Utilities Operators, (small equipment); Welding Machines and Generators.

Class D – Backfillers and Tampers; Ballast Re-locator; Bar and Joint Installing Machines; Batch Plant Operators; Boring Machine Operators (48 inch or less); Bull Floats; Burlap and Curing Machines; Concrete Plants (capacity 4 yds. and under); Concrete Saws (multiple); Conveyors (highway); Crushers; Deckhands; Farm type tractors, with attachments (highway); Finishing Machines; Firemen, Floating Equipment (all types); Fork Lifts (highway), except masonry; Form Trenchers; Hydro Hammers; Hydro Seeders; Pavement Breakers (hydraulic or cable); Plant Mixers; Post Drivers; Post Hole Diggers; Power Brush Burners; Power Form Handling Equipment; Road Widening Trenchers; Rollers (brick, grade, macadam); Self-Propelled Power Spreaders; Self-Propelled Sub-Graders; Steam Firemen; Survey Instrument men; Tractors, pulling sheepsfoot rollers or graders; Vibratory Compactors, with integral power.

Class E - Compressors (portable, Sewer, Heavy and Highway); Cranes-Compact, track or rubber under 4,000 pound capacity; Drum Firemen (asphalt plant); Fueling and greasing (Primary Operator with Specialized CDL Endorsement Add \$3.00/hr); Generators; Inboard-Outboard Motor Boat Launches; Masonry Fork Lifts; Oil Heaters (asphalt plant); Oilers/Helpers; Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Signalperson; Survey Rodmen or Chairmen; Tire Repairmen; VAC/ALLS.

Master Mechanic - Master Mechanic

Cranes and Mobile Concrete Pumps 150' -179' - Boom & Jib 150 - 179 feet    Cranes and Mobile Concrete Pumps 180' - 249' - Boom & Jib 180 - 249 feet    Cranes and Mobile Concrete Pumps 250' and over - Boom & Jib 250 feet or over

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Painter Local 1275

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Painter

**Effective Date:**  
6/24/2026

**Effective Date:**  
6/24/2026

|                                    | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|------------------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                    |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                     |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Painter Brush, Roll & Wall Washing | \$29.91 |         | \$6.80                  | \$10.30 | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$47.36   | \$62.32       |
| Apprentice                         | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 0-1500 hrs                         | \$23.93 | \$80.00 | \$6.80                  | \$0.95  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$32.03   | \$43.99       |
| 1501-3000 hrs                      | \$25.42 | \$85.00 | \$6.80                  | \$0.95  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$33.52   | \$46.23       |
| 3001-4500 hrs                      | \$26.92 | \$90.00 | \$6.80                  | \$0.95  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$35.02   | \$48.48       |
| 4501-6000 hrs                      | \$28.41 | \$95.00 | \$6.80                  | \$0.95  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$36.51   | \$50.72       |

## (\*)Special Calculation Note :

A premium for "Structural Steel, Swingstage" shall pay \$.30 per hour worked.

A premium for "Spray" shall pay \$.75 per hour worked.

A premium for "Vinyl Hanging" shall pay \$.75 per hour worked.

A premium for "Sandblast, steamclean, water blast (Above 3500 psi) and hazardous" shall pay \$.70 per hour worked.

## Ratio :

1 Journeyman to 1 Apprentice

## Jurisdiction ( \* denotes special jurisdictional note ) :

Delaware, Fairfield, Fayette, Franklin, Knox, Licking, Madison, Muskingum, Perry, Pickaway, Ross, Union

## Special Jurisdictional Note :

## Details :

# Prevailing Wage Rate Skilled Crafts

Name of Union: Painter Local 1275 Drywall

Type of Rate: Commercial

Change #:  
LCN01-2026ib

Craft:  
Painter

Effective Date:  
5/6/2026

Effective Date:  
5/6/2026

|                          | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|--------------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                          |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification           |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Painter Drywall Finisher | \$37.80 |         | \$6.80                  | \$8.31  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$53.26   | \$72.16       |
| Apprentice               | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st 0-1500 hrs           | \$28.35 | \$75.00 | \$6.80                  | \$2.30  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$37.80   | \$51.98       |
| 2nd 1501-3000 hrs        | \$32.13 | \$85.00 | \$6.80                  | \$2.30  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$41.58   | \$57.65       |
| 3rd 3001-4500 hrs        | \$35.91 | \$95.00 | \$6.80                  | \$2.30  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$45.36   | \$63.31       |

(\*)Special Calculation Note :

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction ( \* denotes special jurisdictional note ) :

Delaware, Fairfield, Fayette, Franklin, Knox, Licking, Madison, Muskingum, Perry, Pickaway, Ross, Union

Special Jurisdictional Note :

Details :

[illegible]

|                                                                                                                             |         |         |        |         |        |        |        |        |        |        |         |         |
|-----------------------------------------------------------------------------------------------------------------------------|---------|---------|--------|---------|--------|--------|--------|--------|--------|--------|---------|---------|
| Painter<br>Bridges<br>Class 4<br>Concrete<br>Sealing,<br>Concrete<br>Blasting<br>Power<br>Washing                           | \$28.97 |         | \$6.80 | \$10.30 | \$0.35 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$46.42 | \$60.91 |
| Painter<br>Bridges<br>Class 5<br>Quality<br>Control,<br>Quality<br>Assurance<br>, Traffic<br>Safety<br>Competen<br>t Person | \$32.97 |         | \$6.80 | \$10.30 | \$0.35 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$50.42 | \$66.91 |
| Apprentice                                                                                                                  | BHR     | Percent |        |         |        |        |        |        |        |        |         |         |
| 1st 0-1500<br>hrs                                                                                                           | \$31.98 | \$80.00 | \$6.80 | \$0.95  | \$0.35 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$40.08 | \$56.07 |
| 2nd<br>1501-3000<br>hrs                                                                                                     | \$33.97 | \$85.00 | \$6.80 | \$0.95  | \$0.35 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$42.07 | \$59.05 |
| 3rd<br>3001-4500<br>hrs                                                                                                     | \$35.97 | \$90.00 | \$6.80 | \$0.95  | \$0.35 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$44.07 | \$62.05 |
| 4th<br>4501-6000<br>hrs                                                                                                     | \$37.97 | \$95.00 | \$6.80 | \$0.95  | \$0.35 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$46.07 | \$65.05 |

**(\*)Special Calculation Note :**

**Ratio :**

1 Journeyman to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Delaware, Fairfield, Fayette, Franklin, Knox, Licking, Madison, Muskingum, Perry, Pickaway, Ross, Union

**Special Jurisdictional Note :**

**Details :**

Class 1 are qualified painters, blasters, riggers.  
Class 2 Equipment Tenders /or containment Builders are hired to tend employers equipment also engage in the building & moving of containment systems.  
Class 3 support personnel will perform Quality control duties, clean abrasive blast materials, load and unload trucks, handle all materials, man safety boats, & handle traffic control.

NACE Level I, II, III or equivalent with at least five (5) years Journeyman QC experience shall pay Class 5 rate plus premium of \$4.00 per hour worked.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Painter Local 1275 Industrial

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Painter

**Effective Date:**  
6/24/2026

**Effective Date:**  
6/24/2026

|                    | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|--------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                    |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification     |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Painter Brush Roll | \$31.36 |         | \$6.80                  | \$10.30 | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$48.81   | \$64.49       |
| Apprentice         | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 0-1500 hrs         | \$25.09 | \$80.00 | \$6.80                  | \$0.95  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$33.19   | \$45.73       |
| 1501-3000 hrs      | \$26.66 | \$85.00 | \$6.80                  | \$0.95  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$34.76   | \$48.09       |
| 3001-4500 hrs      | \$28.22 | \$90.00 | \$6.80                  | \$0.95  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$36.32   | \$50.43       |
| 4501-6000 hrs      | \$29.79 | \$95.00 | \$6.80                  | \$0.95  | \$0.35  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$37.89   | \$52.79       |

**(\*)Special Calculation Note :**

**Ratio :**

1 Journeyman to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Delaware, Fairfield, Fayette, Franklin, Knox, Licking, Madison, Muskingum, Perry, Pickaway, Ross, Union

**Special Jurisdictional Note :**

**Details :**

Definition of Industrial Classification: Industrial Facilities to be included in the Industrial Classification shall include; Water Treatment, Waste Water Treatment, Natural Gas and related facilities, refineries, transmission pipe lines, electrical transmission towers and or switching /sub stations and Power Plants. Exclusions from the industrial classification are Power Plants that generate power to a single customer; such as an emergency power supplier or a Hospital, Information Technology Facility, Sporting/Event or Arena/Stadium type facility. This exclusion would also be given to any commercial office space located within the facilities property. The excluded spaces shall be done under the Commercial Wage rates.



# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Painter Local 639 Sign and Display

**Type of Rate:** Commercial

**Change #:**  
LCN01-2025ib

**Craft:**  
Painter

**Effective Date:**  
6/18/2025

**Effective Date:**  
6/18/2025

|                      | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                      |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification       |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Top Mechanic Class A | \$27.53 |         | \$4.50                  | \$0.00  | \$0.00  | \$0.00 | \$0.00  | \$1.45 | \$0.00           | \$0.00   | \$33.48   | \$47.25       |
| Top Mechanic Class B | \$27.53 |         | \$4.50                  | \$0.75  | \$0.00  | \$0.53 | \$0.00  | \$1.45 | \$0.00           | \$0.00   | \$34.76   | \$48.53       |
| Top Helper Class A   | \$22.33 |         | \$4.50                  | \$0.00  | \$0.00  | \$0.00 | \$0.00  | \$1.20 | \$0.00           | \$0.00   | \$28.03   | \$39.20       |
| Top Helper Class B   | \$22.33 |         | \$4.50                  | \$0.75  | \$0.00  | \$0.43 | \$0.00  | \$1.20 | \$0.00           | \$0.00   | \$29.21   | \$40.38       |
| Helper Class A       | \$17.19 |         | \$4.50                  | \$0.00  | \$0.00  | \$0.00 | \$0.00  | \$0.90 | \$0.00           | \$0.00   | \$22.59   | \$31.19       |
| Helper Class B       | \$17.19 |         | \$4.50                  | \$0.75  | \$0.00  | \$0.30 | \$0.00  | \$0.90 | \$0.00           | \$0.00   | \$23.64   | \$32.24       |
| New Hire (90 Days)   | \$15.75 |         | \$4.50                  | \$0.00  | \$0.00  | \$0.00 | \$0.00  | \$0.55 | \$0.00           | \$0.00   | \$20.80   | \$28.68       |
| Apprentice           | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |

## (\*)Special Calculation Note :

Other: Sick, Personal & Holiday Pay Swing Stage Rate: Employees shall receive a differential of \$1.50 per hour for all hours worked on scaffolds four sections or higher, including any boom lifts and swing stage scaffolds. In addition, the rigging and derigging of hanging/suspended swing stage systems and rappelling/bolson chair work of a single employee will qualify for \$1.50 differential, will be paid to a single lead Top Mechanic or single lead Top Helper on any given swing stage job, even when it includes multiple running rigs on a single jobsite.

## Ratio :

## Jurisdiction ( \* denotes special jurisdictional note ) :

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Geauga, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wood, Wyandot

## Special Jurisdictional Note :

**Details :**

The work performed by employees covered by this rate shall include cleaning and refinishing of architectural metals using chemicals, solvents, coatings and hand-applied lacquer thinner, removing scratches from mirror finished metals, burnishing of bronze, statuary finishes on exterior and interior surfaces during the course of the restoration and maintenance of architectural metals, and other specialty metal finishing work, and the use of all tools required to perform such work, including but not limited to polishes, spray equipment and scaffolding. Class A: Less Than 1 Year of Service Class B: More Than 1 Year of Service Top Mechanic: Top Mechanic shall be responsible for ensuring the highest quality of workmanship by Helpers, and be highly competent and knowledgeable in the following areas: coatings, both solvent and waterborne, spraying ability, stainless steel, aluminum and bronze finishing, scaffolding and swing stage work. The Top Mechanic shall also be responsible for providing necessary training of employees in lower classifications and for directing all employees in his/her crew to perform their responsibilities in a productive and efficient manner. Top Helper: For existing Top Helpers at the time of this Agreement shall, in addition to performing the responsibilities of a Helper, be responsible and accountable for the setup, breakdown, safety and quality of the Company's product. Helper: A Helper shall be responsible for performing tasks in refinishing, compliance with safety procedures, setting up and breaking down job sites, setting up and breaking down scaffolding and swing stages, preparing surfaces for refinishing, including but not limited to masking and stripping, cleaning, oxidizing, polishing and scratch removal on various finishes.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Painter Local 639 Zone 2 Sign

Type of Rate: Commercial

Change #:  
LCN01-2025ib

Craft:  
Painter

Effective Date:  
5/28/2025

Effective Date:  
5/28/2025

|                                                  | BHR     | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|--------------------------------------------------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                                                  |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification                                   |         |                         |         |         |        |         |        |                  |          |           |               |
| Painter Sign Journeyman Tech/Team Leader Class A | \$26.56 | \$3.36                  | \$0.21  | \$0.00  | \$0.00 | \$0.00  | \$0.72 | \$0.00           | \$0.00   | \$30.85   | \$44.13       |
| Painter Sign Journeyman Tech/Team Leader Class B | \$26.56 | \$3.36                  | \$0.21  | \$0.00  | \$0.51 | \$0.00  | \$0.72 | \$0.00           | \$0.00   | \$31.36   | \$44.64       |
| Painter Sign Journeyman Tech/Team Leader Class C | \$26.56 | \$3.36                  | \$0.21  | \$0.00  | \$1.02 | \$0.00  | \$0.72 | \$0.00           | \$0.00   | \$31.87   | \$45.15       |
| Painter Sign Journeyman Tech/Team Leader Class D | \$26.56 | \$3.36                  | \$0.21  | \$0.00  | \$1.53 | \$0.00  | \$0.72 | \$0.00           | \$0.00   | \$32.38   | \$45.66       |
| Sign Journeyman Class A                          | \$26.27 | \$3.36                  | \$0.21  | \$0.00  | \$0.00 | \$0.00  | \$0.71 | \$0.00           | \$0.00   | \$30.55   | \$43.69       |
| Sign Journeyman Class B                          | \$26.27 | \$3.36                  | \$0.21  | \$0.00  | \$0.51 | \$0.00  | \$0.71 | \$0.00           | \$0.00   | \$31.06   | \$44.20       |
| Sign Journeyman Class C                          | \$26.27 | \$3.36                  | \$0.21  | \$0.00  | \$1.01 | \$0.00  | \$0.71 | \$0.00           | \$0.00   | \$31.56   | \$44.70       |
| Sign Journeyman Class D                          | \$26.27 | \$3.36                  | \$0.21  | \$0.00  | \$1.52 | \$0.00  | \$0.71 | \$0.00           | \$0.00   | \$32.07   | \$45.21       |
| Tech Sign Fabricator/ Erector Class A            | \$20.67 | \$3.36                  | \$0.21  | \$0.00  | \$0.00 | \$0.00  | \$0.56 | \$0.00           | \$0.00   | \$24.80   | \$35.14       |
| Tech Sign Fabricator/ Erector Class B            | \$20.67 | \$3.36                  | \$0.21  | \$0.00  | \$0.40 | \$0.00  | \$0.56 | \$0.00           | \$0.00   | \$25.20   | \$35.54       |

|                                        |         |         |        |        |        |        |        |        |        |        |         |         |
|----------------------------------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| Tech Sign Fabrication/ Erector Class C | \$20.67 |         | \$3.36 | \$0.21 | \$0.00 | \$0.80 | \$0.00 | \$0.56 | \$0.00 | \$0.00 | \$25.60 | \$35.94 |
| Tech Sign Fabrication/ Erector Class D | \$20.67 |         | \$3.36 | \$0.21 | \$0.00 | \$1.19 | \$0.00 | \$0.56 | \$0.00 | \$0.00 | \$25.99 | \$36.33 |
| Apprentice                             | BHR     | Percent |        |        |        |        |        |        |        |        |         |         |

(\*)Special Calculation Note :

Other is for paid holidays.

Ratio :

Jurisdiction ( \* denotes special jurisdictional note ) :

Adams, Allen, Auglaize, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Greene, Hamilton, Hancock, Hardin, Henry, Highland, Holmes, Huron, Jackson, Knox, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Mercer, Miami, Montgomery, Morrow, Muskingum, Ottawa, Paulding, Perry, Pickaway, Pike, Preble, Putnam, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Trumbull, Tuscarawas, Union, Van Wert, Warren, Wayne, Williams, Wood, Wyandot

Special Jurisdictional Note :

Details :

Class A: less that 1 year. Class B: 1-3 years. Class C; 3-10 years. Class D: More than 10 years.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Plasterer Local 132 (Columbus)

Type of Rate: Commercial

Change #:  
LCN01-2025ib

Craft:  
Plasterer

Effective Date:  
6/1/2025

Effective Date:  
6/1/2025

|                     | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|---------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                     |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification      |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Plasterer           | \$31.68 |         | \$8.20                  | \$4.70  | \$0.50  | \$0.00 | \$2.00  | \$0.06 | \$0.00           | \$0.00   | \$47.14   | \$62.98       |
| Fireproofing Gunner | \$32.68 |         | \$8.20                  | \$4.70  | \$0.50  | \$0.00 | \$2.00  | \$0.06 | \$0.00           | \$0.00   | \$48.14   | \$64.48       |
| Apprentice          | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st 800 hrs         | \$22.18 | \$70.00 | \$8.20                  | \$4.70  | \$0.50  | \$0.00 | \$2.00  | \$0.06 | \$0.00           | \$0.00   | \$37.64   | \$48.72       |
| 2nd 800 hrs         | \$23.44 | \$74.00 | \$8.20                  | \$4.70  | \$0.50  | \$0.00 | \$2.00  | \$0.06 | \$0.00           | \$0.00   | \$38.90   | \$50.62       |
| 3rd 800 hrs         | \$24.71 | \$78.00 | \$8.20                  | \$4.70  | \$0.50  | \$0.00 | \$2.00  | \$0.06 | \$0.00           | \$0.00   | \$40.17   | \$52.53       |
| 4th 800 hrs         | \$25.98 | \$82.00 | \$8.20                  | \$4.70  | \$0.50  | \$0.00 | \$2.00  | \$0.06 | \$0.00           | \$0.00   | \$41.44   | \$54.43       |
| 5th 800 hrs         | \$27.24 | \$86.00 | \$8.20                  | \$4.70  | \$0.50  | \$0.00 | \$2.00  | \$0.06 | \$0.00           | \$0.00   | \$42.70   | \$56.33       |
| 6th 800 hrs         | \$28.51 | \$90.00 | \$8.20                  | \$4.70  | \$0.50  | \$0.00 | \$2.00  | \$0.06 | \$0.00           | \$0.00   | \$43.97   | \$58.23       |
| 7th 800 hrs         | \$29.78 | \$94.00 | \$8.20                  | \$4.70  | \$0.50  | \$0.00 | \$2.00  | \$0.06 | \$0.00           | \$0.00   | \$45.24   | \$60.13       |
| 8th 800 hrs         | \$31.05 | \$98.00 | \$8.20                  | \$4.70  | \$0.50  | \$0.00 | \$2.00  | \$0.06 | \$0.00           | \$0.00   | \$46.51   | \$62.03       |

(\*)Special Calculation Note :

\*Other is International Training Fund

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction ( \* denotes special jurisdictional note ) :

Ashland, Coshocton, Crawford, Delaware, Fairfield, Fayette, Franklin, Guernsey, Hocking, Knox, Licking, Madison, Marion, Morrow, Muskingum, Perry, Pickaway, Richland, Ross, Union, Vinton, Wyandot

Special Jurisdictional Note :

Details :

Fireproofing Gunner: If any mechanical means is used in the gauging of lime for any finish coat, the mixing shall be gauged by a member of the crew who is to apply the respective gauging. This clause applies on jobs where cementitious and fibrous type fireproofing is the material being applied. There shall be an equal number of plasterers to nozzles used. Working on swing stage, slip scaffold or window jack scaffold shall receive the following rates: \$0 above the regular rate for heights up to forty-nine (49) feet above grade level \$0.75 above the regular rate for heights over fifty (50) feet above grade level

# Prevailing Wage Rate Skilled Crafts

Name of Union: Plumber Pipefitter Local 189

Type of Rate: Commercial

Change #: LCN01-2025ib

Craft: Plumber Pipefitter

Effective Date: 12/10/2025

Effective Date: 12/10/2025

|                    | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|--------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                    |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification     |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Plumber Pipefitter | \$53.00 |         | \$10.39                 | \$7.49  | \$1.45  | \$0.00 | \$8.26  | \$0.00 | \$0.00           | \$0.00   | \$80.59   | \$107.09      |
| Apprentice         | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year           | \$23.85 | \$45.00 | \$5.00                  | \$0.00  | \$1.45  | \$0.00 | \$0.00  | \$0.10 | \$0.00           | \$0.00   | \$30.40   | \$42.33       |
| 2nd Year           | \$26.50 | \$50.00 | \$10.39                 | \$5.60  | \$1.45  | \$0.00 | \$0.00  | \$0.10 | \$0.00           | \$0.00   | \$44.04   | \$57.29       |
| 3rd Year           | \$29.15 | \$55.00 | \$10.39                 | \$5.60  | \$1.45  | \$0.00 | \$0.00  | \$0.10 | \$0.00           | \$0.00   | \$46.69   | \$61.27       |
| 4th Year           | \$34.45 | \$65.00 | \$10.39                 | \$5.60  | \$1.45  | \$0.00 | \$5.76  | \$0.10 | \$0.00           | \$0.00   | \$57.75   | \$74.98       |
| 5th Year           | \$42.40 | \$80.00 | \$10.39                 | \$5.60  | \$1.45  | \$0.00 | \$7.76  | \$0.10 | \$0.00           | \$0.00   | \$67.70   | \$88.90       |

(\*)Special Calculation Note :

\*Other is International Training

Ratio :

- 1 Journeyman to 1 Apprentice
- 2 Journeymen to 1 Apprentices thereafter

Jurisdiction ( \* denotes special jurisdictional note ) :

Delaware, Fairfield, Franklin, Hocking, Licking, Madison, Marion, Perry, Pickaway, Ross, Union

Special Jurisdictional Note :

Details :

# Prevailing Wage Rate Skilled Crafts

Name of Union: Roofer Local 86

Type of Rate: Commercial

Change #:  
LCN01-2025ib

Craft:  
Roofer

Effective Date:  
9/3/2025

Effective Date:  
9/3/2025

|                | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Roofer         | \$38.33 |         | \$8.20                  | \$7.40  | \$0.88  | \$0.00 | \$0.30  | \$0.09 | \$0.00           | \$0.00   | \$55.20   | \$74.36       |
| Apprentice     | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year       | \$24.91 | \$65.00 | \$0.00                  | \$0.00  | \$0.88  | \$0.00 | \$0.25  | \$0.09 | \$0.00           | \$0.00   | \$26.13   | \$38.59       |
| 2nd Year       | \$27.60 | \$72.00 | \$8.20                  | \$1.85  | \$0.88  | \$0.00 | \$0.25  | \$0.09 | \$0.00           | \$0.00   | \$38.87   | \$52.67       |
| 3rd Year       | \$30.66 | \$80.00 | \$8.20                  | \$3.33  | \$0.88  | \$0.00 | \$0.25  | \$0.09 | \$0.00           | \$0.00   | \$43.41   | \$58.74       |
| 4th Year       | \$33.73 | \$88.00 | \$8.20                  | \$4.81  | \$0.88  | \$0.00 | \$0.25  | \$0.09 | \$0.00           | \$0.00   | \$47.96   | \$64.83       |

(\*)Special Calculation Note :

Other: Education & Research Fund

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction ( \* denotes special jurisdictional note ) :

Champaign, Delaware, Fairfield, Fayette, Franklin, Hardin, Hocking, Knox, Licking, Logan, Madison, Marion, Morrow, Perry, Pickaway, Pike, Ross, Union, Wyandot

Special Jurisdictional Note :

Details :



# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Sheet Metal Local 24 (Columbus)

**Type of Rate:** Commercial

**Change #:**  
LCN01-2025ib

**Craft:**  
Sheet Metal Worker

**Effective Date:**  
6/11/2025

**Effective Date:**  
6/11/2025

|                    | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|--------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                    |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification     |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Sheet Metal Worker | \$41.10 |         | \$10.23                 | \$12.56 | \$1.26  | \$0.00 | \$4.12  | \$0.00 | \$0.00           | \$0.00   | \$69.27   | \$89.82       |
| Apprentice         | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| 1st Year           | \$23.43 | \$57.00 | \$8.42                  | \$2.19  | \$1.05  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$35.09   | \$46.80       |
| 2nd Year           | \$26.72 | \$65.00 | \$9.61                  | \$8.17  | \$1.05  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$45.55   | \$58.90       |
| 3rd Year           | \$30.83 | \$75.00 | \$9.84                  | \$9.42  | \$1.26  | \$0.00 | \$3.09  | \$0.00 | \$0.00           | \$0.00   | \$54.44   | \$69.85       |
| 4th Year           | \$34.94 | \$85.00 | \$9.99                  | \$10.67 | \$1.26  | \$0.00 | \$3.50  | \$0.00 | \$0.00           | \$0.00   | \$60.36   | \$77.82       |

**(\*)Special Calculation Note :**

**Ratio :**

1 Journeyman to 1 Apprentice 2 Journeymen to 2 Apprentices 3 Journeymen to 3 Apprentices 4 Journeymen to 4 Apprentices 5-7 Journeymen to 5 Apprentices 8-10 Journeymen to 6 Apprentices 11-13 Journeyman to 7 Apprentices 14-16 Journeyman to 8 Apprentices 17-19 Journeymen to 9 Apprentices 20-22 Journeymen to 10 Apprentices 23-25 Journeymen to 11 Apprentices 26-28 Journeymen to 12 Apprentices 29-31 Journeymen to 13 Apprentices 32-34 Journeymen to 14 Apprentices 35-37 Journeymen to 15 Apprentices 38-40 Journeymen to 16 Apprentices and so on

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Adams, Athens, Delaware, Fairfield, Fayette, Franklin, Gallia, Guernsey, Hocking, Jackson, Knox, Lawrence, Licking, Madison, Marion, Meigs, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Ross, Scioto, Union, Vinton

**Special Jurisdictional Note :**

**Details :**

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Sprinkler Fitter Local 669

**Type of Rate:** Commercial

**Change #:**  
LCR01-2025ib

**Craft:**  
Sprinkler Fitter

**Effective Date:**  
8/6/2025

**Effective Date:**  
8/6/2025

|                  | BHR     |         | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|------------------|---------|---------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                  |         |         | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification   |         |         |                         |         |         |        |         |        |                  |          |           |               |
| Sprinkler Fitter | \$48.28 |         | \$12.40                 | \$7.40  | \$0.54  | \$0.00 | \$7.74  | \$0.00 | \$0.00           | \$0.00   | \$76.36   | \$100.50      |
| Apprentice       | BHR     | Percent |                         |         |         |        |         |        |                  |          |           |               |
| CLASS 1          | \$24.14 | \$50.00 | \$9.03                  | \$0.00  | \$0.54  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$33.71   | \$45.78       |
| CLASS 2          | \$27.04 | \$56.00 | \$9.03                  | \$0.00  | \$0.54  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$36.61   | \$50.13       |
| CLASS 3          | \$29.45 | \$61.00 | \$12.40                 | \$7.40  | \$0.54  | \$0.00 | \$1.15  | \$0.00 | \$0.00           | \$0.00   | \$50.94   | \$65.66       |
| CLASS 4          | \$31.38 | \$65.00 | \$12.40                 | \$7.40  | \$0.54  | \$0.00 | \$1.15  | \$0.00 | \$0.00           | \$0.00   | \$52.87   | \$68.56       |
| CLASS 5          | \$33.31 | \$69.00 | \$12.40                 | \$7.40  | \$0.54  | \$0.00 | \$1.40  | \$0.00 | \$0.00           | \$0.00   | \$55.05   | \$71.70       |
| CLASS 6          | \$36.21 | \$75.00 | \$12.40                 | \$7.40  | \$0.54  | \$0.00 | \$1.40  | \$0.00 | \$0.00           | \$0.00   | \$57.95   | \$76.05       |
| CLASS 7          | \$38.14 | \$79.00 | \$12.40                 | \$7.40  | \$0.54  | \$0.00 | \$1.40  | \$0.00 | \$0.00           | \$0.00   | \$59.88   | \$78.95       |
| CLASS 8          | \$40.56 | \$84.00 | \$12.40                 | \$7.40  | \$0.54  | \$0.00 | \$1.40  | \$0.00 | \$0.00           | \$0.00   | \$62.30   | \$82.58       |
| CLASS 9          | \$42.97 | \$89.00 | \$12.40                 | \$7.40  | \$0.54  | \$0.00 | \$1.40  | \$0.00 | \$0.00           | \$0.00   | \$64.71   | \$86.19       |
| CLASS 10         | \$44.90 | \$93.00 | \$12.40                 | \$7.40  | \$0.54  | \$0.00 | \$1.40  | \$0.00 | \$0.00           | \$0.00   | \$66.64   | \$89.09       |

**(\*)Special Calculation Note :**

**Ratio :**

1 Journeyman to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lawrence, Licking, Logan, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wood, Wyandot

**Special Jurisdictional Note :**

**Details :**

Sprinkler Fitter work shall consist of the installation, dismantling, maintenance, repairs, adjustments, and corrections of all fire protection and fire control systems including the unloading, handling by hand, power equipment and installation of all piping or tubing, appurtenances and equipment pertaining thereto, including both overhead and underground water mains, fire hydrants and hydrant mains, standpipes and hose connections to sprinkler systems used in connection with sprinkler and alarm systems. Also all tanks and pumps connected thereto, also included shall be CO-2 and Cardox Systems, Dry Chemical Systems, Foam Systems and all other fire protection systems.

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Truck Driver Locals 20,40,92,100,175,284,348,377,637,697,908,957 - Bldg & HevHwy Class 1

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Truck Driver

**Effective Date:**  
5/1/2026

**Effective Date:**  
5/1/2026

|                      | BHR     |          | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------------|---------|----------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                      |         |          | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification       |         |          |                         |         |         |        |         |        |                  |          |           |               |
| Truck Driver CLASS 1 | \$34.90 |          | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$55.75   | \$73.20       |
| Apprentice           | BHR     | Percent  |                         |         |         |        |         |        |                  |          |           |               |
| First 6 months       | \$27.92 | \$80.00  | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$48.77   | \$62.73       |
| 7-12 months          | \$29.67 | \$85.02  | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$50.52   | \$65.36       |
| 13-18 months         | \$31.41 | \$90.00  | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$52.26   | \$67.97       |
| 19-24 months         | \$33.16 | \$95.02  | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$54.01   | \$70.59       |
| 25-30 months         | \$34.90 | \$100.00 | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$55.75   | \$73.20       |

**(\*)Special Calculation Note :**

**Ratio :**

3 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wood, Wyandot

**Special Jurisdictional Note :**

**Details :**

CLASS 1: Drivers on trucks, including but not limited to: 4-wheel service trucks; 4-wheel dump trucks; batch trucks; drivers on tandems; truck sweepers (not to include power sweepers and scrubbers) Drivers on tractor – trailer combinations including but not limited to the following: Semi-tractor trucks; pole trailers; ready-mix trucks; fuel trucks; all trucks five (5) axle and over; drivers on belly dumps; truck mechanics (when needed).

# Prevailing Wage Rate Skilled Crafts

**Name of Union:** Truck Driver Locals 20,40,92,100,175,284,348,377,637,697,908,957 - Bldg & HevHwy Class 2

**Type of Rate:** Commercial

**Change #:**  
LCN01-2026ib

**Craft:**  
Truck Driver

**Effective Date:**  
5/1/2026

**Effective Date:**  
5/1/2026

|                      | BHR     |          | Fringe Benefit Payments |         |         |        |         |        | Irrevocable Fund |          | Total PWR | Overtime Rate |
|----------------------|---------|----------|-------------------------|---------|---------|--------|---------|--------|------------------|----------|-----------|---------------|
|                      |         |          | H&W                     | Pension | App Tr. | Vac.   | Annuity | Other  | LECET (*)        | MISC (*) |           |               |
| Classification       |         |          |                         |         |         |        |         |        |                  |          |           |               |
| Truck Driver CLASS 2 | \$35.91 |          | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$56.76   | \$74.72       |
| Apprentice           | BHR     | Percent  |                         |         |         |        |         |        |                  |          |           |               |
| First 6 months       | \$28.72 | \$79.99  | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$49.57   | \$63.93       |
| 7-12 months          | \$30.52 | \$85.00  | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$51.37   | \$66.63       |
| 13-18 months         | \$32.32 | \$90.00  | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$53.17   | \$69.33       |
| 19-24 months         | \$34.11 | \$95.00  | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$54.96   | \$72.02       |
| 25-30 months         | \$35.91 | \$100.00 | \$10.75                 | \$9.60  | \$0.50  | \$0.00 | \$0.00  | \$0.00 | \$0.00           | \$0.00   | \$56.76   | \$74.72       |

**(\*)Special Calculation Note :**

**Ratio :**

3 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wood, Wyandot

**Special Jurisdictional Note :**

**Details :**

CLASS 2: Drivers on articulated dump trucks; rigid-frame rock trucks; distributor trucks; low boys/drag driver on the construction site only and heavy duty equipment (irrespective of load carried) when used exclusively for transportation on the construction site only.



Applies to: Faculty, staff, students, vendors, volunteers and visitors

## **POLICY**

Issued: 07/01/1987 Nonsmoking  
Revised: 01/01/2014 Tobacco Free Ohio State  
Edited: 04/15/2014

Ohio State strives to enhance the general health and wellbeing of its faculty, staff, students and visitors, to become the world's healthiest university. We desire to support individuals to be tobacco free, achieve their highest state of health and to launch students into their careers at a high level of health and wellbeing. To support this commitment, we intend to provide a tobacco free environment. Smoking and the use of tobacco are prohibited in or on all university owned, operated or leased property including vehicles.

## **Definitions**

| Term           | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tobacco</b> | Tobacco is defined as all tobacco-derived or containing products, including and not limited to, cigarettes (e.g., clove, bidis, kreteks), electronic cigarettes, cigars and cigarillos, hookah smoked products, pipes and oral tobacco (e.g., spit and spitless, smokeless, chew, snuff) and nasal tobacco. It also includes any product intended to mimic tobacco products, contain tobacco flavoring or deliver nicotine other than for the purpose of cessation. |

## **Policy Details**

- I. The university is strongly committed to supporting individuals to become tobacco free.
  - A. Tobacco cessation programs and support will be available to faculty, staff and students as identified below.
  - B. Nicotine replacement therapy products for the purpose of cessation are permitted.
- II. The success of this policy depends upon the thoughtfulness, consideration and cooperation of tobacco users and non-tobacco users. Leaders and those to whom this policy applies share the responsibility for adhering to and enforcing the policy.
  - A. Concerns about tobacco use should be respectfully addressed in the moment whenever feasible.
  - B. Continued concerns should be referred to the appropriate unit for review and action. For faculty, staff and student employees, issues should be referred to the employing unit head. For students in the non-employment setting, issues should be referred to Student Conduct. For volunteers and visitors, issues should be referred to the hosting unit head.
- III. The university will not advertise tobacco on university owned, operated or leased property or at any university sponsored event or university owned or sponsored media.
- IV. Sale of tobacco is prohibited on university owned, operated or leased property.
- V. Research involving tobacco is an exception from this policy. Acceptance of tobacco-funded research grants will be evaluated by the vice president for research and the appropriate dean/administrator prior to acceptance of the funds.
- VI. Additional exceptions are identified in Tobacco Free Policy Exceptions.



# **Tobacco Free Ohio State Policy 7.20**

## **Office of Human Resources**

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Applies to: Faculty, staff, students, vendors, volunteers and visitors

### **PROCEDURE**

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Issued: 07/01/1987 Nonsmoking  
Revised: 01/01/2014 Tobacco Free Ohio State  
Edited: 04/15/2014

- I. Cessation
  - A. The university is committed to supporting all faculty, staff and students who wish to stop using tobacco or nicotine products.
  - B. Assistance to faculty and staff to overcome tobacco or nicotine addiction is available through The Ohio State University Health Plan and the resources identified below.
  - C. Assistance to students to overcome tobacco or nicotine addiction is available through the Student Health Center, Student Wellness Center, student health insurance and the resources identified below.
- II. Communication
  - A. Leaders, managers, supervisors and building coordinators are responsible for leading by example and respectfully communicating the policy to faculty, staff, students, volunteers and visitors.
  - B. Faculty, staff, students, volunteers and visitors who observe individuals using tobacco on university property are encouraged and empowered to respectfully explain that its use is prohibited.
- III. Signage
  - A. Installation and maintenance of signage are the responsibility of Facilities Operations and Development (FOD), in consultation with the Office of Human Resources.
  - B. Signage must be placed appropriately on entrances to and exits from buildings, including parking garages and on university owned and leased vehicles.
  - C. Areas that experience difficulties with tobacco use may request supplemental signage from FOD.
- IV. Compliance with Ohio Smoke Free Workplace Law (Ohio Revised Code [ORC] Chapter 3794)
  - A. The Office of Human Resources is available to consult with and support units that receive a complaint from a public health department (see Addressing Violations of the Ohio Smoke Free Workplace Law).
  - B. When complaints are sent directly to a unit by a public health department, the unit must:
    - 1. Make a good faith effort to find out what behaviors are occurring or occurred to trigger the complaint.
    - 2. Follow up with involved faculty, staff, students, vendors, volunteers and/or visitors to ensure that prohibited behavior stops.
    - 3. Issue a letter of response to the public health department (see Letter of Response to an Allegation of Violation of the Ohio Smoke Free Workplace Law) within 30 days of the university receipt of the complaint.
    - 4. Ensure that state law and university policy are being followed.
    - 5. Communicate to faculty, staff, students, vendors, volunteers and/or visitors the requirements of our tobacco free policy and/or state law (see Sample Email Regarding Tobacco Free Policy and Ohio Smoke Free Workplace Law).
    - 6. Work with FOD to ensure that signage is appropriately displayed on building entrances and exits.

# Tobacco Free Ohio State Policy 7.20

## Office of Human Resources

Applies to: Faculty, staff, students, vendors, volunteers and visitors

- C. When complaints are received by the Office of Human Resources or other units not the subject of the alleged violation, by a public health department:
  1. The Office of Human Resources or other receiving unit must forward the complaint within five days to the head of the appropriate unit for response.
  2. The unit head must respond to the complaint as described in IV-B above.

### V. Compliance

- A. All students, faculty, staff, vendors, volunteers and visitors are expected to comply with this policy. Individuals are encouraged and empowered to respectfully inform others about the policy in an ongoing effort to support individuals to be tobacco free, improve individual health and encourage a culture of compliance.
- B. University leaders, managers, supervisors and building coordinators are expected to support individuals becoming tobacco free and to promote compliance in their areas of responsibility and on the larger campus.
- C. Student Life staff have a special responsibility to promote compliance among students.

### Responsibilities

| Position or Office                                           | Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| University leaders, managers and supervisors                 | <ol style="list-style-type: none"> <li>1. Communicate policy expectations to the university community.</li> <li>2. Hold individuals responsible for compliance with the policy.</li> <li>3. Communicate policy violations to leaders and managers in specific areas where problems occur.</li> <li>4. Forward complaints of violation of the Ohio Smoke Free Workplace Law to the appropriate unit within five days.</li> <li>5. Address and respond to complaints of violation of the Ohio Smoke Free Workplace Law and this policy.</li> </ol>                                                                         |
| Office of Human Resources                                    | <ol style="list-style-type: none"> <li>1. Communicate policy expectations to the university community.</li> <li>2. Consult with units on this policy.</li> <li>3. Forward complaints of violation of the Ohio Smoke Free Workplace Law to the appropriate unit within five days.</li> <li>4. Consult with &amp; support units that receive complaints of violation of the Ohio Smoke Free Workplace Law.</li> </ol>                                                                                                                                                                                                      |
| OSU Health Plan                                              | Offer tobacco cessation support through the health plans.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Office of Student Life                                       | <ol style="list-style-type: none"> <li>1. Communicate policy expectations to the university community.</li> <li>2. Address policy violations with students in the non-employment setting.</li> <li>3. Offer tobacco cessation support to students.</li> </ol>                                                                                                                                                                                                                                                                                                                                                            |
| Employing or volunteer sponsoring unit                       | <ol style="list-style-type: none"> <li>1. Communicate policy expectations to individuals.</li> <li>2. Work with FOD to ensure that signage is appropriately displaced on building entrances and exits.</li> <li>3. Provide information on tobacco cessation resources.</li> <li>4. Address policy violations with faculty, staff and student employees.</li> <li>5. Forward complaints of violation of the Ohio Smoke Free Workplace Law to the appropriate unit within five days.</li> <li>6. Respond to complaints from a public health department about the Ohio Smoke Free Workplace Law and this policy.</li> </ol> |
| Facilities Operations and Development, building coordinators | <ol style="list-style-type: none"> <li>1. Communicate policy expectations to individuals.</li> <li>2. Install and maintain signage.</li> <li>3. Communicate policy violations to leaders and managers in specific areas where problems occur.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                 |
| Individuals                                                  | <ol style="list-style-type: none"> <li>1. Comply with the policy.</li> <li>2. Inform others about the policy when possible.</li> <li>3. Use cessation resources as desired.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                   |

# Tobacco Free Ohio State Policy 7.20

## Office of Human Resources

Applies to: Faculty, staff, students, vendors, volunteers and visitors

### Resources

- Addressing Violations of the Ohio Smoke Free Workplace Law, [hr.osu.edu/public/documents/policy/resources/720smokefreelaw.pdf](http://hr.osu.edu/public/documents/policy/resources/720smokefreelaw.pdf)
- Approved Exceptions, [hr.osu.edu/public/documents/policy/resources/720exceptions.pdf](http://hr.osu.edu/public/documents/policy/resources/720exceptions.pdf)
- Boundary Map, [hr.osu.edu/public/documents/policy/resources/720map.pdf](http://hr.osu.edu/public/documents/policy/resources/720map.pdf)
- Engaging the University Community, [hr.osu.edu/public/documents/policy/resources/720community.pdf](http://hr.osu.edu/public/documents/policy/resources/720community.pdf)
- Frequently Asked Questions, [hr.osu.edu/public/documents/policy/resources/720faq.pdf](http://hr.osu.edu/public/documents/policy/resources/720faq.pdf)
- Guide to Successful Implementation, [hr.osu.edu/policy/resources/720implementation.pdf](http://hr.osu.edu/policy/resources/720implementation.pdf)
- Leader/Supervisor Toolkit, [hr.osu.edu/public/documents/policy/resources/720toolkit.pdf](http://hr.osu.edu/public/documents/policy/resources/720toolkit.pdf)
- Ohio Smoke Free Workplace Law (ORC 3794), [codes.ohio.gov/orc/3794](http://codes.ohio.gov/orc/3794)
- Sample Email Regarding Tobacco Free Policy and Ohio Smoke Free Workplace Law, [hr.osu.edu/public/documents/policy/resources/720email-policylaw.pdf](http://hr.osu.edu/public/documents/policy/resources/720email-policylaw.pdf)
- Sample Letter of Response to an Allegation of Violation of the Ohio Smoke Free Workplace Law, [hr.osu.edu/public/documents/policy/resources/720letter-smokefreelaw.pdf](http://hr.osu.edu/public/documents/policy/resources/720letter-smokefreelaw.pdf)
- Talking With Individuals Who Use Tobacco on University Property, [hr.osu.edu/public/documents/policy/resources/720talkwithusers.pdf](http://hr.osu.edu/public/documents/policy/resources/720talkwithusers.pdf)
- Tobacco Cessation and Stress Management Resources, [hr.osu.edu/public/documents/policy/resources/720cessation.pdf](http://hr.osu.edu/public/documents/policy/resources/720cessation.pdf)

### Contacts

| Subject                                                          | Office                                                                | Telephone    | E-mail/URL                                                                                                                               |
|------------------------------------------------------------------|-----------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Concerns regarding faculty                                       | Office of Academic Affairs                                            | 614-292-5881 | <a href="http://oaa.osu.edu">oaa.osu.edu</a>                                                                                             |
| Policy questions, concerns regarding staff and student employees | Employee and Labor Relations;<br>Office of Human Resources            | 614-292-2800 | <a href="mailto:hr-elr@osu.edu">hr-elr@osu.edu</a><br><a href="http://hr.osu.edu">hr.osu.edu</a>                                         |
| Policy questions, corrective action for Health System staff      | Employee Relations,<br>Health System Human Resources                  | 614-293-4988 |                                                                                                                                          |
| Concerns regarding students in the non-employment setting        | Student Conduct,<br>Office of Student Life                            | 614-292-0748 | <a href="mailto:studentconduct@osu.edu">studentconduct@osu.edu</a><br><a href="http://studentconduct.osu.edu">studentconduct.osu.edu</a> |
| Signage and other facilities issues                              | Facilities Operations and Development,<br>Administration and Planning | 614-292-4357 | <a href="mailto:service2facilities@osu.edu">service2facilities@osu.edu</a><br><a href="http://fod.osu.edu">fod.osu.edu</a>               |

### History

Issued: 07/01/1987 Issued as Nonsmoking  
 Adopted: 06/01/2013 Name changed to Tobacco Free Ohio State  
 Edited: 10/25/2013  
 Effective: 01/01/2014 As Tobacco Free Ohio State  
 Edited: 03/21/2014  
 Edited: 04/15/2014

# Contractor Parking

## Permit Request Form

### Project Information

Completed by University Project Manager or Coordinator

Project Name Project Number

OSU Project Manager Office Phone

Email Mobile Phone

### Contractor Information

Employee Name Company

License Plate Make/Model State

Job Start Date Job End Date Permit Type  
CVA-G CVA CVB

Employee Name Company

License Plate Make/Model State

Job Start Date Job End Date Permit Type  
CVA-G CVA CVB

Employee Name Company

License Plate Make/Model State

Job Start Date Job End Date Permit Type  
CVA-G CVA CVB

### University Approval

Signature/Date University Project Manager or Coordinator

### Contractor Permit Information

Contractor vehicles (except for heavy machinery such as cranes, dump trucks, and front-end loaders) must have a valid contractor parking permit at all times, whether parked inside or outside of the project's construction fence. There is no parking in designated patient garages in the medical center.

### Instructions

The primary coordinator for contractor parking approval is the university project manager or coordinator. The university representative should complete and sign this form and return it to the contractor. The completed form should then be taken by the contractor to the CampusParc Customer Service Center to complete the permit purchase.

Cash, business or certified checks, and credit cards are accepted.

*If additional space is required, attach the requested information on a separate sheet of paper.*

### Permit Types

Contractor permits are available for purchase in monthly and permit-year (August 1 – July 31) increments.

**CVA-G** - Permit provides access to fenced project site and any unrestricted<sup>†</sup> surface lot space. Additionally, garage access is provided. Keycard-specific access information is available in the *Documents* section at [osu.campusparc.com](http://osu.campusparc.com).

*Available to the primary contractor's project supervisors, managers, and foreman*

**CVA** - Permit provides access to fenced project site and any unrestricted<sup>†</sup> surface lot space.

*Available to the primary contractor's project supervisors, managers, and foreman*

**CVB** - Permit provides access to any unrestricted<sup>†</sup> Buckeye Lot or West Campus surface lot space. Off-peak<sup>††</sup> access to any unrestricted surface lot space is also provided.

<sup>†</sup>Accessible, state vehicle, and reserved spaces are restricted to authorized vehicles only.

<sup>††</sup>4 p.m. – 3 a.m. weekdays, all day weekends and holidays



See Digital IDs vs. electronic signatures [to understand bidding methods](#). If a Digital ID is required, [Create your Digital ID](#).

## General Info

---

Digital ID required

---

### Deadline

08/26/2026 02:00 PM EDT

### Advertised

07/29/2026 06:01 AM EDT

### Business Name

The Ohio State University

### Location(s)

Marion, Ohio



Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Powered by Esri

### Number

OSU-250050 Marion - Morrill Hall Fire Panel/Elevator Upgrades

### Description

Fire alarm and elevator upgrades within Morrill Hall at the OSU Marion campus.

Allows zero unit prices and labor

Yes

Allows negative unit prices and labor

Yes



Solicitation Summary

AI generated | Quality may vary

This is a fire alarm system and elevator upgrade project involving installation of new fire detection equipment and hydraulic elevator improvements at a university building. May require asbestos abatement and specialized elevator/fire protection capabilities.

Work Types

Installation   Building System



Procurement Documents

00 10 00\_EB-Solicitation-GC-2025-OCTv2.pdf   (187 KB)  
Notice to Bidders

OSU-250050\_Marion\_MorrillElevatorUpgrades\_BidProjectManual.pdf   (14.9 MB)  
Procurement & Contracting Requirements and Specifications

OSU-250050\_Marion\_MorrillElevatorUpgrades\_BidDrawings.pdf   (15.9 MB)  
Plans, elevations, sections, details, and schedules

Contract Times and Addenda

Contract Times

The time for Substantial Completion of all Work is 234 consecutive days from the Notice to Proceed.

## Acknowledgement of receipt of Addenda

Date Addendum #1  
Received

Date Addendum #2  
Received

Date Addendum #3  
Received

Date Addendum #4  
Received

## Instructions for Entering Bid Amounts (General Contract - Single Bid Package)

### Base Bid

Enter the amount of the Base Bid for ALL LABOR AND MATERIALS to complete the scope of Work. INCLUDE THE AMOUNT OF EACH ALLOWANCE (if applicable) AND THE SUBTOTAL OF UNIT PRICE EXTENSIONS (if applicable) IN THE BASE BID AMOUNT. FAILURE TO INCLUDE ALLOWANCES OR UNIT PRICE EXTENSIONS IN THE BASE BID IS THE RESPONSIBILITY OF THE BIDDER AND WILL NOT BE SUFFICIENT REASON FOR ADJUSTMENT OF THE BID AMOUNT AFTER THE BID DEADLINE. DO NOT include Alternates (if applicable) in the Base Bid amount.

### Alternates

Enter the amount of each and every Alternate to ADD TO or DEDUCT FROM the Base Bid. Indicate amounts to DEDUCT FROM the Base Bid by entering a minus sign (-) before the amount entered. DO NOT include Alternate amounts in the Base Bid.

### BID TOTAL WARNING

PLEASE FOLLOW THE INSTRUCTIONS ABOVE for including ALLOWANCES and UNIT PRICES in your BASE BID. DISREGARD the "Component is not included in bid total." warning below. It indicates that the Allowances and Unit Price extensions are not included in the BID TOTAL AMOUNT that appears at the top of the Bid Form. It has no bearing on your inclusion of these amounts in your Base Bid.

## Base Bid (General Contract)

| Item     | Description                                                                    | Quantity | Unit Price |
|----------|--------------------------------------------------------------------------------|----------|------------|
| Base Bid | All Labor and Materials (including Allowances and Unit Price Extensions above) | 1.0      |            |

## Alternates (General Contract)

| Item        | Description                                                      | Quantity | Unit Price |
|-------------|------------------------------------------------------------------|----------|------------|
| i           | Alternate: Owner-agency may award independently from entire bid. |          |            |
|             | Component is not included in bid total.                          |          |            |
| Alternate 1 | Replace existing fire alarm on 3rd floor.                        | 1.0      |            |

## Bidder Affirmation and Disclosure

The Bidder acknowledges that by submitting its Bid, the Bidder affirms, understands, and will abide by the requirements of Executive Order 2019-12D. If awarded a Contract, the Bidder will become the Contractor and affirms that both the Contractor and its Subcontractors shall perform no services requested under this Contract outside of the United States.

The Bidder shall provide the locations where services under this Contract will be performed in the spaces provided below or by attachment. Failure to provide this information as part of its Bid may cause the Bidder to be deemed non-responsive and no further consideration will be given to its Bid. If the Bidder will not be using Subcontractors, indicate "Not Applicable" ☐ in the appropriate spaces.

### 1. Principal business location of Contractor

**Address\*** **City\*** **State\*** **Zip\***

### 2. Location where services will be performed by Contractor and Subcontractors (Project Site)

**Address\*** **City\*** **State\*** **Zip\***

### 3. Location where state data will be stored, accessed, tested, maintained, or backed-up by Contractor

**Address\*** **City\*** **State\*** **Zip\***



**Locations where state data will be stored, accessed, tested, maintained, or backed-up by Subcontractors if known at time of Bid deadline**

**Address**

**City**

**State**

**Zip**

**Address**

**City**

**State**

**Zip**

## EDGE Program Commitment to Participate

### Option A

The Bidder commits to meet or exceed the advertised EDGE Participation Goal of the Contract award amount, calculated as a portion of the Base Bid plus all accepted Alternates, by using certified EDGE Business Enterprise(s). The Bidder agrees that if selected for consideration of the Contract, it shall provide (if not provided with the Bidder's Bid) to the Contracting Authority, at the location required and within 3 business days after receiving notice from the Contracting Authority, its fully-completed Bidder's Qualification Form, including an EDGE Affidavit form for each certified EDGE Business Enterprise proposed for use by the Bidder if awarded the Contract for this Project.

### Option B (indicate percentage of participation below)

The Bidder declares that it does not meet the advertised EDGE Participation Goal percentage, but, if awarded the Contract for this Project, commits to provide the percentage of the Contract award amount, indicated above, calculated as a portion of the Base Bid plus all accepted Alternates, by using certified EDGE Business Enterprise(s). The Bidder acknowledges it understands the requirement for it to provide and agrees to provide to the Contracting Authority, if selected for consideration of the Contract, within 3 business days after notice from the Contracting Authority, a detailed Demonstration of Good Faith form describing its efforts undertaken prior to submitting its Bid to meet the advertised EDGE Participation Goal percentage for the Contract for this Project. The Bidder commits to provide to the Contracting Authority at the location required, and within 3 days after receiving notice from the Contracting Authority, its fully-completed Bidder's Qualifications Form, including an EDGE Affidavit form for each certified EDGE Business Enterprise proposed for use by the Bidder if awarded the Contract for this Project.

### Option C

The Bidder declares that the Bidder is a certified EDGE Business Enterprise and that if awarded this Contract, the EDGE Participation percentage will be 100 percent of the Contract award amount.

**Select EDGE Option above\***

**If Option B selected, enter percentage**

Choices...

## Certifications (State Prevailing Wages)

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1. The Bidder has read and understands the proposed Contract Documents and agrees to comply with all requirements of the proposed Contract Documents, regardless of whether the Bidder has actual knowledge of the requirements and regardless of any statement or omission made by the Bidder, which might indicate a contrary intention. 2. The Bidder represents that the Bid is based upon the Basis of Design and Acceptable Components specified by the proposed Contract Documents. 3. The Bidder has visited the Site, become familiar with local conditions, and has correlated personal observations about the requirements of the proposed Contract Documents. The Bidder has no outstanding questions regarding the interpretation or clarification of the proposed Contract Documents.

4. The Bidder understands that the execution of the Project will require sequential, coordinated, and interrelated operations, which may involve interference, disruption, hindrance, or delay in the progress of the Bidder's Work. The Bidder agrees that the Contract Sum, as amended from time to time, shall cover all amounts due from the State resulting from interference, disruption, hindrance, or delay that is not caused by the State or its agents and employees. The Bidder agrees that any such interference, disruption, hindrance, or delay is within the contemplation of the Bidder and the State and that the Contractor's sole remedy from the State for any such interference, disruption, hindrance, or delay shall be an extension of time in accordance with the proposed Contract Documents. 5. During the performance of the Contract, the Bidder agrees to comply with Ohio Administrative Code ("OAC"□) Chapters 123:2-3 through 123:2-9 and agrees to incorporate the monthly reporting provisions of OAC Section 123:2-9-01 into all subcontracts on the Project, regardless of tier. The Bidder understands the State's Equal Opportunity Coordinator or the Contracting Authority may conduct pre-award and post-award compliance reviews to determine if the Bidder maintains nondiscriminatory employment practices, maintains an affirmative action program, and is exerting good faith efforts to accomplish the goals of the affirmative action program. For a full statement of the rules regarding Equal Employment Opportunity in the Construction Industry, see OAC Chapters 123:2-1 through 123:2-9.

6. The Bidder and each Person submitting a Bid on behalf of the Bidder certifies, and in the case of a Bid by a joint venture each member thereof certifies as to such member's entity, under penalty of perjury, that to the best of the undersigned's knowledge and belief: (a) the Base Bid, any Unit Prices, and any Alternate bid in the Bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition as to any matter relating to such Base Bid, Unit Prices or Alternate bid with any other Bidder; (b) unless otherwise required by law, the Base Bid, any Unit Prices and any Alternate bid in the Bid have not been knowingly disclosed by the Bidder and shall not knowingly be disclosed by the Bidder prior to the bid opening, directly or indirectly, to any other Bidder who would have any interest in the Base Bid, Unit Prices, or Alternate bid; (c) no attempt has been made or shall be made by the Bidder to induce any other Person to submit or not to submit a Bid for the purpose of restricting competition. 7. The Bidder shall execute the Agreement with the Contracting Authority, if a Contract is awarded on the basis of this Bid, and if the Bidder does not execute the Agreement for any reason, other than as authorized by law, the Bidder and the Bidder's Surety are liable to the State as provided in Article 5 of the Instructions to Bidders.

8. The Bidder certifies that the upon the award of a Contract, as the Contractor it shall make a good faith effort to ensure that all of the Contractor's employees, while working on the Site, shall not purchase, transfer, use, or possess illegal drugs or alcohol or abuse prescription drugs in any way. 9. The Bidder acknowledges that it read all of the Instructions to Bidders, and in particular, Section 2.10 - Submittals With Bid Form, and by submitting its Bid certifies that it has read the Instructions to Bidders and it understands and agrees to the terms and conditions stated in them. 10. The Bidder agrees to furnish any information requested by the Contracting Authority or Architect/Engineer to evaluate the responsibility of the Bidder.

11. The Bidder agrees to furnish the submittals required by Section 6.1 of the Instructions to Bidders for execution of the Agreement within 10 days of the date of the Notice of Intent to Award. 12. When the Bidder is a corporation, partnership or sole proprietorship, an officer, partner or principal of the Bidder, as applicable, shall enter the legal name of the Bidder and the name of the officer, partner or principal of the Bidder (in lieu of signing the Bid Form) in the data fields provided. 13. When the Bidder is a joint venture, an officer, partner or principal, as applicable, of each member of the joint venture shall enter the legal name of the applicable member and the name of the officer, partner or principal (in lieu of signing the Bid Form) in the data fields provided.

14. The Bidder understands that the Contract is subject to all the provisions, duties, obligations, remedies and penalties of Ohio Revised Code Chapter 4115 and that the Bidder shall pay any wage increase in the locality during the term of the Contract. 15. The Bidder represents that the individual that is submitting and digitally signing the electronic Bid is legally authorized to do so. 16. Bidder acknowledges that by the act of submitting an electronic Bid that it is digitally signing the actual Bid, which shall serve as the Bidder's authorization for the further consideration and activity in the bidding and contract process.

☐ **The Bidder hereby acknowledges that the above representations in this Bid are material and not mere recitals:**

## Procurement Forms

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### Document 00 43 13 - Bid Security Form

Upload below and provide original document within 3 days

---

### 00 45 13\_Bidders\_Qualifications\_2025-OCT\_w CPWE.pdf (2.31 MB)

Upload below or provide within 3 days of request

---

### Document 00 45 39 - EDGE Affidavit

Upload below or provide within 3 days of request

## Instructions for Providing Bid Submittals

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### Submission of Electronic Facsimile of Bid Guaranty with Electronic Bid

The Bidder SHALL UPLOAD and ATTACH TO ITS BID an ELECTRONIC FACSIMILE (scanned PDF document) OF ITS BID GUARANTY, payable to the Contracting Authority, in the form of either: (1) the signed Document 00 43 13 - "Bid Security Form" contained in the Contract Documents (and provided for the Bidder's convenience in the block above) for the amount of the Base Bid plus all additive Alternates; or (2) a certified check, cashier's check, or letter of credit, for 10 percent of the Base Bid, plus all additive Alternates – a letter of credit shall expressly provide that it is revocable only by the Contracting Authority. Refer to Sections 2.10.1.1 and 5.1 of Document 00 21 13 - "Instructions to Bidders."

---

### Submission of Original Bid Guaranty

In addition to the Electronic Facsimile above, the Bidder SHALL DELIVER ITS ORIGINAL UNALTERED BID GUARANTY to the Contracting Authority WITHIN 3 BUSINESS DAYS AFTER THE BID DEADLINE as provided in Ohio Administrative Code Section 153:1-8-01(H). THIS REQUIREMENT APPLIES TO ALL BIDDERS. Refer to Section 2.10.1.2 of the Instructions to Bidders.

---

### Non-responsive Bid for Failure to Submit Bid Guaranty

Each Bidder MUST SUBMIT BOTH THE ELECTRONIC FACSIMILE AND THE ORIGINAL UNALTERED BID GUARANTY as described above. The Contracting Authority SHALL REJECT A BID AS NON-RESPONSIVE if the Bidder fails to submit BOTH elements of the Bid Guaranty. The checkboxes below are to identify that you have uploaded the other form of Bid Guaranty. DO NOT CHECK ALL BOXES. Refer to Section 2.10.1 of the Instructions to Bidders.

---

### Submission of Bidder's Qualifications and EDGE Affidavit

The Bidder is encouraged to submit background information with its Bid using Document 00 45 13 - "Bidder's Qualifications" and Document 00 45 39 - "EDGE Affidavit" with the EDGE-certified Businesses the Bidder proposes to use on the Project (forms provided for the Bidder's convenience in the block above). If the Bidder does not submit the Bidder's Qualifications form and/or the EDGE Affidavit form and related information attached to the electronic Bid Form, the Bidder shall provide it within 3 days of request. Refer to Sections 2.10.3 and 3.5.4 of the Instructions to Bidders.

---

## Required Bid Guaranty Upload

| Name                                                                                                                                     | Omission Terms                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Document 00 43 13 - Bid Security Form<br>Upload a scan of the fully executed Bid Security Form AND submit the original document to th... | Bidder submitted a Cashier's Check below                                              |
| Power of Attorney<br>Upload a scan of the fully executed Power of Attorney AND submit the original document to th...                     | Bidder submitted a Cashier's Check below OR included with the Bid Security Form above |
| Cashier's Check for 10% of the Bid<br>Upload a scan of the Cashier's Check AND submit the original check to the Contracting Autho...     | Bidder submitted the Bid Security Form AND Power of Attorney above                    |

3 Required Documents

## Bidder's Qualifications and EDGE Affidavit Upload

| Name                                                                                       | Omission Terms                             |
|--------------------------------------------------------------------------------------------|--------------------------------------------|
| Document 00 45 13 - Bidder's Qualifications<br>Upload fully completed form and attachments | Must be submitted within 3 days of request |
| Document 00 45 39 - Edge Affidavit<br>Upload a completed form for each EDGE Business       | Must be submitted within 3 days of request |

2 Required Documents

## Bidder Signatory and Information

**Name of Bidder's Authorized Signatory (First Joint Venturer if applicable)\***

---

**Title\***

**Company Name\***

---

---

**Mailing Address\***

---

**Telephone Number**  
\*

**Facsimile Number**

**E-Mail Address\***

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Where Incorporated\***

**Federal Tax Identification Number\***

\_\_\_\_\_

\_\_\_\_\_

**Date enrolled in an OBWC-approved DFSP (month/date/year)**

\_\_\_\_\_

**Contact person for Contract processing\***

\_\_\_\_\_

**President's or Chief Executive Officer's Name / Title\***

\_\_\_\_\_

## **Joint Venture Signatory and Information**

---

**Name of Bidder's Authorized Signatory (Second Joint Venturer)**

\_\_\_\_\_

**Title**

**Company Name**

\_\_\_\_\_

\_\_\_\_\_

**Mailing Address**

\_\_\_\_\_

**Telephone Number**

**Facsimile Number**

**E-Mail Address**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Where Incorporated**

**Federal Tax Identification Number**

\_\_\_\_\_

\_\_\_\_\_

**Date enrolled in an OBWC-approved DFSP (month/date/year)**

---

**Contact person for Contract processing**

---

**President's or Chief Executive Officer's Name / Title**

---

# Document 00 10 00 - Solicitation (General Contracting / Electronic Bid) State of Ohio Standard Requirements for Public Facility Construction

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Electronic bids will be received by:

The Ohio State University  
<https://bidexpress.com>

for the following Project:

Project 250050  
Marion – Morrill Hall Fire Panel / Elevator Upgrades  
The Ohio State University  
Marion, Marion County

in accordance with the Contract Documents prepared by:

Wellogy  
6767 Longshore St., Dublin, OH 43017  
614.785.0505  
Jim Kinney  
[jkinney@wellogydesign.com](mailto:jkinney@wellogydesign.com)  
[www.wellogydesign.com](http://www.wellogydesign.com)

In compliance with Section 153.08 of the Ohio Revised Code and Section 153:1-8-01 of the Ohio Administrative Code, Bids for this Project are being received, opened, and published through electronic means using the State's electronic bidding service.

To access this Project through the electronic bidding service, you must first register at <https://bidexpress.com> by clicking on the "REGISTER FOR FREE" button and following the instructions. In order to bid, you must create and enable a digital ID within the service. This process requires the submission of notarized paperwork and may take up to five business days to complete. There are no fees to register, create and enable a digital ID, or to download bid documents. There is a small expense on a monthly or per bid basis to submit a bid. The electronic bidding service offers customer support that may be reached at (888) 352-2439 or via email at [support@bidexpress.com](mailto:support@bidexpress.com).

Bidders may submit requests for consideration of a proposed Substitution for a specified product, equipment, or service to the Architect/Engineer ("A/E") no later than 10 days prior to the bid opening. Additional products, equipment, and services may be accepted as approved Substitutions only by written Addendum.

From time to time, the Commission issues new editions of the "State of Ohio Standard Requirements for Public Facility Construction" and may issue interim changes. Bidders must submit Bids that comply with the version of the Standard Requirements included in the Contract Documents.

Prevailing Wage rates and Equal Employment Opportunity requirements are applicable to this Project.

This Project is subject to the State of Ohio's Encouraging Diversity, Growth, and Equity ("EDGE") Business Development Program. A Bidder is required to submit with its Bid and with its Bidder's Qualifications form, certain information about the EDGE-certified Business(es) participating on the Project with the Bidder. Refer to **Section 6.1.10** of the **Instructions to Bidders**.

The EDGE Participation Goal for the Project is **5.0 percent**.

The percentage is determined by the contracted value of goods, services, materials, and labor that are provided by EDGE-certified Business(es). The participation is calculated on the total amount of each awarded contract. For more information about EDGE, contact the State of Ohio Department of Development at <http://development.ohio.gov/business>; or by telephone at (800) 848-1300.

The Bidder must indicate on the electronic Bid Form, in the spaces provided or by attachment, the locations where its services will be performed, in accordance with the requirements of Executive Order 2019-12D related to providing services only within the United States. The Bidder must also affirm its compliance with Executive Order 2022-02D prohibiting purchases from or investment in any Russian institution or company. Failure to do so may cause the Bid to be rejected as non-responsive.

**DOMESTIC STEEL USE REQUIREMENTS AS SPECIFIED IN OHIO REVISED CODE SECTION 153.011 APPLY TO THIS PROJECT. COPIES OF OHIO REVISED CODE SECTION 153.011 CAN BE OBTAINED FROM ANY OF THE OFFICES OF THE OHIO FACILITIES CONSTRUCTION COMMISSION.**

Bidders are encouraged to be enrolled in and to be in good standing in a Substance Use Prevention and Recovery (SUPR) Program approved by the Ohio Bureau of Workers' Compensation ("OBWC") prior to submitting a Bid and provide, on the Electronic Bid Form with its Bid, certain information relative to their enrollment in such a program; and, if awarded a Contract, shall comply with other SUPR criteria described in **Section 1.6** of the **General Conditions**.

Electronic bids will be received for:

| <u>Trade</u>                  | <u>Estimate</u>     |
|-------------------------------|---------------------|
| <b>General Contract</b> ..... | <b>\$645,563.00</b> |
| <b>Alternate 1</b> .....      | <b>\$50,000.00</b>  |

until **August 26, 2026**, at **2:00 p.m.**, when all Bids will be electronically opened. Bid tabulations will be posted no later than 5:00 p.m. on the day Bids are opened.

All Bidders are strongly encouraged to attend the Pre-Bid Meeting on **August 12, 2026**, at **10:00 a.m.** until approximately **11:00 a.m.**, at the following location: Morrill Hall elevator lobby, 1465 Mt Vernon Ave, Marion, OH 43302

The Contractor is responsible for scheduling the Project, coordinating the Subcontractors, and providing other services identified in the Contract Documents.

The Contract Documents are available for purchase from **DC Alphagraphics**, 1254 Courtland Ave, Columbus, OH 43201, 614-297-1200, dcplanroom.com at the non-refundable cost of \$160.00 per set, plus shipping, if requested.

The Contract Documents may be downloaded as electronic PDF files from the State's electronic bidding service at <https://bidexpress.com> at no charge.

**END OF DOCUMENT**



# Document 00 21 13 - Instructions to Bidders (General Contracting / Electronic Bid)

## State of Ohio Standard Requirements for Public Facility Construction

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### ARTICLE 1 - GENERAL INSTRUCTIONS

#### 1.1 Applicable Law and Forum

**1.1.1** The rights of any Bidder or any party to a subsequent Contract shall be governed by the laws of the state of Ohio and only Ohio courts shall have jurisdiction over any action or proceeding related to the Bid or any subsequent Contract. The Bidder irrevocably consents to such jurisdiction.

#### 1.2 Project Scheduling and Coordination

**1.2.1** When the Contract Documents refer to a period of time by a number of days, it excludes the first day and includes the last day of the period. If the last day of the period falls on a Saturday, Sunday, or a legal holiday, that day shall be omitted and the period shall end on the next day which is not a Saturday, Sunday, or legal holiday.

**1.2.2** The time for completion of the Project indicated on the electronic **Bid Form** is the time for Substantial Completion of all Work applicable to the Bidder.

**1.2.3** The State may assign all or any portion of its interest in a Contract with one or more of the successful Bidders to another successful Bidder as an agreed condition for an award of the Contract for the respective Bid. The assignment may include, without limitation, the duty to schedule, coordinate, and administer the Contract.

**1.2.4** The Contractor is responsible for scheduling the Project, coordinating the Subcontractors, and providing other services identified in the Contract Documents.

**1.2.5** By submitting its Bid, the Bidder indicates its understanding that the Contract Sum, based on its Bid and as amended by Change Orders, includes all costs that the Contracting Authority owes the Bidder.

#### 1.3 Written Notice

**1.3.1** Notice under the Contract Documents shall be validly given if:

**1.3.1.1** delivered personally to a member of the organization for whom the notice is intended;

**1.3.1.2** delivered, or sent by registered or certified mail, to the last known business address of the organization; or

**1.3.1.3** sent by facsimile, email, or web-based project management software, provided the original signed document is delivered within 3 business days after the date of the electronic transmission.

**1.3.2** Notices provided to one Project Participant from another shall be simultaneously copied to the prospective Bidders, the Owner, the Contracting Authority, and the A/E.

#### 1.4 Use of the State's Electronic Bidding Software

**1.4.1** The Bidder shall use the State's Electronic Bidding Software to submit its Bid for this Project. Paper Bids will not be accepted.

**1.4.2** Bidders, Subcontractors, and Material Suppliers may download the Contract Documents as PDF files from the State's Electronic Bidding Software at no charge by registering and associating with a company at <https://bidexpress.com>.

**1.4.3** Bidders are encouraged to create and obtain approval of their Digital ID well in advance of the bid deadline. Approval may take up to seven business days.

**1.4.4** Bidders are also encouraged to click the “Select for Bidding” link on the electronic **Bid Form** to be listed on the electronic Plan Holder’s list and submit payment to receive notifications regarding Addenda and other announcements.

**1.4.5** Subcontractors and Material Suppliers may view the electronic Plan Holder’s list to determine potential Bidders.

**1.4.6** Bidders, Subcontractors, and Material Suppliers are encouraged to attend a contractor webinar or contact the vendor’s help desk through the means identified at <https://bidexpress.com> to increase their knowledge of using the State’s Electronic Bidding Software.

## ARTICLE 2 - BIDDING PROCEDURES

### 2.1 Examination of Contract Documents and the Site

**2.1.1** Before submitting a Bid, the Bidder shall examine all Contract Documents, including, but not limited to, the Drawings, Specifications, and Addenda for all divisions of Work for the Project, noting in particular all requirements that may affect its Work in any way.

**2.1.2** The Bidder’s failure to become acquainted with the extent and nature of Work required to complete any portion of the Work in conformity with the requirements of the Contract Documents, shall not be a basis for additional compensation.

**2.1.3** Before submitting a Bid, the Bidder should not only examine and evaluate the Site and related Project conditions where the Work will be performed, but shall also consider when the Work will be performed including, but not limited to, the following:

**2.1.3.1** the condition, layout, and nature of the Site and surrounding area;

**2.1.3.2** the availability and cost of labor;

**2.1.3.3** the availability and cost of materials, supplies, and equipment;

**2.1.3.4** the cost of temporary utilities required in the Bid;

**2.1.3.5** the cost of any permit or license required by a local or regional authority having jurisdiction over the Project;

**2.1.3.6** the usual weather conditions of the Project location;

**2.1.3.7** conditions bearing upon transportation, disposal, handling, and storage of equipment, materials, and waste; and

**2.1.3.8** subsurface and concealed physical conditions and related information provided in the Contract Documents.

### 2.2 Pre-Bid Meeting

**2.2.1** The Bidder is encouraged to attend the pre-bid meeting, where the A/E, the Contracting Authority, and the Owner will receive questions regarding the Contract Documents. If not given in **Document 00 10 00 - Solicitation**, the A/E shall issue notice of the time and place of any pre-bid meeting to each registered Plan Holder.

**2.2.2** The A/E shall prepare minutes of the pre-bid meeting for the Project record. If questions raised by the prospective Bidders require changes to, or clarifications of, the Contract Documents, the A/E shall issue the changes by written Addendum, along with a list of pre-bid meeting attendees.

**2.2.3** Additional compensation shall not be based upon the Bidder’s failure to attend the pre-bid meeting, which results in the Bidder’s incomplete knowledge and familiarity of the Project requirements.

### 2.3 Request for Interpretation

**2.3.1** If the Bidder finds any perceived ambiguity, conflict, error, omission, or discrepancy within the Contract Documents, including the Drawings, Specifications, and Addenda, or between any of the Contract Documents and Applicable Law, the Bidder shall submit a written Request for Interpretation (“RFI”) to the A/E for an interpretation or clarification.

**2.3.1.1** The Bidder is responsible for prompt delivery of the RFI.

**2.3.1.2** The A/E shall respond to RFIs received more than 7 days before the bid opening.

**2.3.2** The A/E shall issue Addenda in response to RFIs that modify or clarify the Contract Documents. Any Addenda issued within 72 hours before any bid opening (excluding Saturdays, Sundays, and legal holidays) shall extend the bid opening date by 7 days pursuant to **Section 3.3.1**.

**2.3.2.1** The Addenda may be delivered via the State's Electronic Bidding Software, e-mail, posted to a web or FTP site, or otherwise furnished to each registered Plan Holder.

**2.3.3** Any interpretation or clarification of the Contract Documents made by any Person other than the A/E, in any manner other than a written Addendum, shall not be binding, and the Bidder shall not rely upon the interpretation or clarification.

**2.3.4** The successful Bidder shall not be compensated for a claim alleging insufficient data, incomplete, ambiguous, conflicting, or erroneous Contract Documents or proposed Contract Documents, or assumed conditions regarding the nature, extent, or character of the Work, if the Bidder did not submit a related RFI prior to the bid opening.

## **2.4 Basis of Design and Acceptable Components**

**2.4.1** The Contract Documents may list components produced by specific manufacturers to denote kind, quality, or performance requirements.

**2.4.2** The component listed first is the Basis of Design Component.

**2.4.3** Other listed components are Acceptable Components.

**2.4.3.1** If the Bidder includes an Acceptable Component in its Bid, the Bidder is responsible for the costs of coordination and modification required.

## **2.5 Substitutions Prior to Bid Opening**

**2.5.1** If the Bidder proposes to use an article, device, material, equipment, form of construction, fixture, or item other than the Basis of Design or Acceptable Components named in the Specifications, the Bidder shall certify that the proposed item is equal in quality and all aspects of performance and appearance, to the item specified.

**2.5.1.1** If approval of a Substitution requires changes to the Contract Documents or affects the work of other trades, the Bidder is responsible for the additional costs, including, but not limited to, changes to the design by the A/E.

**2.5.2** The Bidder shall submit its request for Substitution to the A/E **no later than 10 days prior to the bid opening**, which must include:

**2.5.2.1** the name and complete description of the proposed Substitution, including Drawings, performance and test data, and other information necessary for a complete evaluation; and

**2.5.2.2** a statement setting forth any changes that the Proposed Substitution will require in the Contract Documents or the Project.

**2.5.3** If the A/E approves the Proposed Substitution, the A/E shall issue an Addendum.

**2.5.4** If the A/E does not approve the Proposed Substitution, the A/E shall inform the Bidder of its decision, which is final. The A/E may reject a proposed Substitution because the Bidder failed to provide sufficient information to enable the A/E to completely evaluate the Proposed Substitution without causing a delay in the bid deadline.

**2.5.5** Proposed Substitutions received by the A/E less than 10 days prior to the bid deadline shall not be considered.

## **2.6 Electronic Bid Form**

**2.6.1** Each Bid shall be submitted on the electronic **Bid Form** through the State's Electronic Bidding Software.

**2.6.1.1** All sections of the electronic **Bid Form**, including a completed "Bidder Affirmation and Disclosure" section acknowledging that the Bidder affirms, understands, and will abide by the requirements of Executive Order 2019-12D related to providing services only within the United States and Executive Order 2022-02D prohibiting purchases from or investment in any Russian institution or company, and a completed "Commitment to Participate in the EDGE Business Assistance Program" page, shall be submitted with the Bid. Failure to do so may cause the Bid to be rejected as non-responsive.

**.1** If the names, locations, and service locations of Subcontractors are not known at the time of the Bid deadline, the Bidder must provide the information requested with its **Subcontractor and Material Supplier Declaration**.

**2.6.1.2** Unless the Bidder withdraws the Bid as provided in **Article 4**, the Bidder is required to comply with all requirements of the Contract Documents, regardless of whether the Bidder had actual knowledge of the requirements and regardless of any statement or omission made by the Bidder that might indicate a contrary intention.

**2.6.2** The Bidder shall fill in all relevant spaces on the electronic **Bid Form**. The State's Electronic Bidding Software will identify any incomplete required fields.

**2.6.3** If the Bidder is a corporation, partnership, or sole proprietorship, an officer, partner or principal of the Bidder shall enter the legal name of the Bidder in the space provided on the electronic **Bid Form**. If the Bidder is a joint venture, an officer, partner or principal, as applicable, of each member of the joint venture shall enter the legal name of the applicable member in the space provided.

## 2.7 Allowances

**2.7.1** If Allowances are provided on the electronic **Bid Form**, the amount of each Allowance shall be included in the Base Bid amount. Allowances shall be used solely for the purpose of determining the adjustment to the Contract Sum for the difference between the amount of the Allowance and the actual cost of the related Work provided. Allowances shall not include the Contractor's Fee.

## 2.8 Unit Prices

**2.8.1** If Unit Prices are requested on the electronic **Bid Form**, the amount of the scheduled quantities shall be included in the Base Bid amount. Unit prices shall be used solely for the purpose of determining the adjustment to the Contract Sum for the difference between the estimated quantities on the electronic **Bid Form** and the actual quantities provided.

**2.8.2** Unit Prices shall include all materials, equipment, labor, delivery, installation, and any other cost or expense, in connection with, or incidental to, the performance of that portion of the Work. Unit Prices shall not include the Contractor's Fee on account of the associated Unit Price Work. The Bidder shall submit Unit Prices for all items listed.

## 2.9 Alternates

**2.9.1** If an Alternate is listed on the electronic **Bid Form**, the Bidder shall fill in the applicable space with a positive or negative bid amount as applicable. The Contracting Authority reserves the right to accept or reject any or all bid amounts for Alternates, in whole or in part, and in any order.

**2.9.1.1** If no change in the bid amount is required, indicate "\$0."

**2.9.1.2** Failure to make an entry on any Alternate shall cause the Bid to be rejected as non-responsive if that Alternate is selected.

**2.9.1.3** Failure to indicate a negative number will indicate the Bidder's intent to increase the Base Bid by the amount entered in the applicable space.

**2.9.1.4** If an Alternate is not selected, an entry as listed in **Section 2.9.1.2** on that Alternate shall not, by itself, render a Bid non-responsive.

## 2.10 Submittals with Electronic Bid Form

**2.10.1** The Contracting Authority shall reject a Bid as non-responsive if the Bidder fails to submit the following with the Bid:

**2.10.1.1** An electronic facsimile of the Bid Guaranty as provided in **Article 5**, meeting the requirements of Ohio Revised Code ("ORC") Sections 153.54 and 153.571.

**2.10.1.2** The original unaltered Bid Guaranty shall be delivered to the Contracting Authority **within 3 business days after the public bid opening** as provided in Ohio Administrative Code ("OAC") Section 153:1-8-01(H).

**2.10.2** If the apparent low Bidder does not submit a valid Power of Attorney of the agent signing for the Surety with its Bid, the Contracting Authority shall direct the apparent low Bidder to deliver a valid and appropriate Power of Attorney to the Contracting Authority within a period determined by the Contracting Authority. The Contracting Authority shall not enter into a Contract without a valid Power of Attorney.

**2.10.3** The Bidder is encouraged to submit background information with its Bid using the **Bidder's Qualifications** form and including, but not limited to, the information listed in this **Section 2.10**. If the apparent low Bidder does not submit the **Bidder's Qualifications** form and related information attached to the electronic **Bid Form**, the Bidder shall provide it upon request in accordance with **Section 3.5.4**, including, but not limited to:

**2.10.3.1** the overall experience of the Bidder, including number of years in business under present and former business names;

**2.10.3.2** a complete listing of all the Bidder's ongoing construction projects and a listing of construction projects which are similar in cost and type to the Project completed by the Bidder in the last 5 years. Include information of

the scope of work and value of each contract, a description of Encouraging Diversity Growth and Equity (“EDGE”) participation and performance, and a project name/contact Person/address/phone number for the owner and the architect or engineer for each project;

**2.10.3.3** a complete listing of Prevailing Wage, EPA, OSHA, or other regulatory entity issues or violations in the last 5 years;

**2.10.3.4** a complete listing of judgments, claims, arbitration proceedings or suits pending or outstanding in the last 5 years;

**2.10.3.5** a complete listing of Substance Use Prevention and Recovery (“SUPR”) violations in the last 5 years;

**2.10.3.6** upon request of the Contracting Authority, the apparent low Bidder shall submit the following information, which is not a public record under ORC Section 149.43; and shall remain confidential, except under proper order of a court:

- .1** an annual financial statement prepared within the 12 months prior to the bid opening by an independent licensed accounting firm; and the name, address, contact Person, and phone number of the bank normally used by the Bidder for its primary banking; or
- .2** a financial report generated within 30 days prior to the bid opening from Standard and Poor, Dun and Bradstreet or a similar company acceptable to the Contracting Authority documenting the financial condition of the Bidder; and the name, address, contact Person, and phone number of the bank normally used by the Bidder for its primary banking.

**2.10.3.7** a description of the Bidder’s relevant facilities and major equipment, whether leased or owned;

**2.10.3.8** a description of the management experience of the Bidder’s project manager(s) and superintendent(s) and a comprehensive resume for each;

**2.10.3.9** a description of the EDGE-certified Business(es) the Bidder proposes as Subcontractors for this Project by attaching a fully completed **EDGE Affidavit** form for each EDGE-certified Business;

**2.10.3.10** to support a Bond, a current and signed Certificate of Compliance issued by the Ohio Department of Insurance, showing the Surety is licensed to do business as a surety in Ohio;

**2.10.3.11** a current Ohio Workers' Compensation Certificate;

**2.10.3.12** if the Bidder is a foreign corporation not incorporated under the laws of Ohio, a Certificate of Good Standing from the Ohio Secretary of State; or, if the Bidder is a foreign person or partnership, evidence that the Bidder filed, with the Ohio Secretary of State, a Power of Attorney designating the Ohio Secretary of State as the Bidder's agent for the purpose of accepting service of summons in any action brought under ORC Section 153.05 or under ORC Sections 4123.01 to 4123.94, inclusive;

**2.10.3.13** evidence that the Bidder is enrolled in, and in good standing in, a SUPR program approved by the Ohio Bureau of Workers' Compensation (“OBWC”); and

**2.10.3.14** any other data or information which the A/E may request concerning the responsibility of the Bidder, including a complete list of major Subcontractors with an estimated contract value of \$200,000 or more, which the Bidder proposes to employ on the Project.

## **2.11 Changes in the Bid Amount**

**2.11.1** Any change to a previously submitted Bid shall be resubmitted through the State’s Electronic Bidding Software prior to the deadline for submission of Bids.

## **ARTICLE 3 - BID OPENING AND EVALUATION**

### **3.1 Delivery of Bid**

**3.1.1** The Bidder shall submit its Bid to the Contracting Authority prior to the time of the bid deadline.

**3.1.2** Bids that are submitted after the time of the bid deadline shall not be considered.

### **3.2 Bid Opening**

**3.2.1** Electronic Bids shall be received until the time stated when all Bids shall be electronically opened and the Bid tabulation made public by posting on the State’s Electronic Bidding Software.

**3.2.2** The posting of Bid tabulations is for informational purposes only and is not to be construed as an acceptance or rejection of any Bid submitted.

**3.2.3** The contents of the electronic **Bid Form** and its attachments are public records and shall be available for inspection, upon request, at any time after the bid deadline, except for any information that is not defined as a public record under Ohio law.

### 3.3 Bid Deadline Extension

**3.3.1** If an Addendum is issued within 72 hours prior to the published time for the bid deadline, excluding Saturdays, Sundays and legal holidays, the bid deadline shall be extended 7 days. If the Contracting Authority approves, the bid deadline may be extended for more than 7 days, and consideration for additional advertising may be recommended.

**3.3.2** As part of issuing any Addendum earlier than 72 hours prior to the published time for the bid deadline, excluding Saturdays, Sundays and legal holidays, only the Contracting Authority may approve a revised bid deadline or additional advertising.

### 3.4 Bid Evaluation Criteria

**3.4.1** The Contracting Authority reserves the right to accept or reject any or all Bids, in whole or in part, and reserves the right to award the Contract to any remaining Bidder the Contracting Authority determines, in its sole discretion, to have submitted the lowest responsive and responsible Bid.

**3.4.2** The Contracting Authority reserves the right to accept or reject any or all Alternates. Alternates may be accepted or rejected in any order.

**3.4.3** If any Bidder has engaged in collusive bidding, the Contracting Authority shall reject that Bidder's Bid as non-responsive for the Contract. A collusive bidder may also be debarred from future State Contracts.

**3.4.4** The Contracting Authority reserves the right to waive, or to allow any Bidder a reasonable opportunity to cure a minor irregularity or technical deficiency in a Bid, provided the irregularity or deficiency does not affect the bid amount, or otherwise give the Bidder a competitive advantage. Noncompliance with any material requirements of the Contract Documents shall cause a Bid to be rejected as non-responsive.

**3.4.5** If, in the opinion of the Owner, the award of the Contract to the lowest Bidder is not in the best interest of the State, with the written consent of the Contracting Authority, the Owner may accept, in its discretion, another Bid so opened, or the Contracting Authority may reject all Bids and solicit for other Bids. The solicitation shall be for the period, in the form, and in the manner directed by the Contracting Authority.

### 3.5 Bid Evaluation Procedure

**3.5.1** The Contract shall be awarded to the lowest responsive and responsible Bidder as determined in the discretion of the Contracting Authority, or all Bids may be rejected in accordance with Applicable Law.

**3.5.1.1** In determining which Bid is the lowest, the Contracting Authority shall consider the Base Bid and the bid amounts for any Alternate, or Alternates, which the Owner decides, in its sole discretion, to accept.

**3.5.1.2** The total of the bid amounts for the accepted Alternate(s) shall be added to, or deducted from, the Base Bid, as applicable, for determining the lowest Bidder.

**3.5.1.3** If two Bidders submit the same bid amount and both are determined to be responsive and responsible, the Contracting Authority may select one Bidder by the flip of a coin, which shall be conducted in the presence of both Bidders and shall be final.

- .1** If one of the Bidders refuses to participate in, or fails to be present at, the flip of a coin, the remaining Bidder shall be selected.

**3.5.2** A Bidder for a Contract shall be considered responsive if the Bidder's Bid responds to the Contract Documents in all material respects and contains no irregularities or deviations from the Contract Documents that would affect the amount of the Bid or otherwise give the Bidder a competitive advantage.

**3.5.2.1** A Bid shall be rejected as non-responsive if the Bid contains a Bid Guaranty executed by a Surety not licensed in Ohio or a Bid Guaranty that is otherwise determined to be insufficient by the Contracting Authority.

**3.5.2.2** If the lowest Bidder is non-responsive, the Bidder shall be notified according to **Section 3.6**.

**3.5.3** In determining whether a Bidder is responsible, factors to be considered include, without limitation:

- 3.5.3.1** preferences required by law, where applicable;

**3.5.3.2** the experience of the Bidder;

**3.5.3.3** the financial condition of the Bidder;

**3.5.3.4** the conduct and performance of the Bidder on previous Contracts, including compliance with Equal Employment Opportunity in the Construction Industry Administrative Rules, OSHA and Prevailing Wage laws, and demonstration of good faith effort to participate in the EDGE Business Development program, or actual participation in the EDGE Business Development program, or both, as indicated in the ORC and the Ohio Administrative Code;

**3.5.3.5** the facilities of the Bidder;

**3.5.3.6** the management skills of the Bidder, including the capability of the Bidder to construct and manage the entire Project, including but not limited to the plumbing, fire protection, heating, ventilating and air conditioning, and electrical branches or classes of the Work; and

**3.5.3.7** the Bidder's ability to execute the Contract properly, including past performance of the Bidder and the Subcontractors that the Bidder proposes to use on the Project.

**3.5.4** The A/E shall obtain from the lowest responsive Bidder any information the Contracting Authority determines appropriate to consideration of factors showing responsibility. If the lowest responsive Bidder is responsible, the Contract shall be awarded to that Bidder, unless all Bids are rejected. **The Bidder shall provide all requested information within 3 days of a request** from the A/E, or a longer period, if the Contracting Authority consents in writing.

**3.5.5** If the lowest responsive Bidder is not responsible, the Contracting Authority shall evaluate the next lowest Bidder according to the procedures set forth in this **Section 3.5** until the Contract is awarded, all Bids are rejected, or all responsive Bidders are determined to be not responsible.

### **3.6 Rejection of Bid**

**3.6.1** If the lowest Bidder is not responsive or responsible, the Contracting Authority shall reject the Bid and notify the Bidder in writing of the finding and the reasons for the finding. The notice shall be given by email, or by certified mail if no email address is available.

#### **3.6.2 Ten Percent Rule.**

**3.6.2.1** If the lowest responsive and responsible Bid for the Contract, including the Base Bid and accepted Alternates if any, exceeds an amount 10 percent greater than the published Estimated Construction Cost for the Contract, the Contracting Authority shall reject all Bids.

**3.6.3** A Bidder notified in accordance with **Section 3.6.1** may object to its rejection by filing a written protest, which must be received by the Contracting Authority within 5 days of the notification provided pursuant to **Section 3.6.1**.

**3.6.4** Upon receipt of a timely protest, the Contracting Authority shall meet with the protesting Bidder to hear its objections. ORC Chapter 119 administrative hearing requirements are not applicable to the bid protest meeting.

**3.6.4.1** No Contract award shall become final until after the Contracting Authority has met with all Bidders who have timely filed protests and the award of the Contract is affirmed by the Contracting Authority.

**3.6.4.2** If all protests are rejected, the Contract shall be awarded to the lowest responsive and responsible Bidder, or all Bids shall be rejected.

### **3.7 Notice of Intent to Award**

**3.7.1** The Contracting Authority shall notify the apparent successful Bidder that upon satisfactory compliance with all conditions precedent for execution of the Contract, within the time specified, the Bidder shall be awarded the Contract.

**3.7.2** The Contracting Authority reserves the right to rescind any Notice of Intent to Award if the Contracting Authority determines it issued the Notice of Intent to Award in error, or if the conditions precedent for execution of Contract set forth in **Article 6** are not met.

## **ARTICLE 4 - WITHDRAWAL OF BID**

### **4.1 Withdrawal prior to Bid Opening**

**4.1.1** A Bidder may withdraw a Bid after submitting the Bid through the State's Electronic Bidding Software, provided the Bidder submits its request through the State's Electronic Bidding Software prior to the bid deadline.

## 4.2 Withdrawal after Bid Opening

**4.2.1** The Bid shall remain valid and open for acceptance for a period of 60 days after the bid opening; provided, however, a Bidder may withdraw a Bid from consideration after the bid opening if the bid amount was substantially lower than the amounts of other Bids, providing the Bid was submitted in good faith, and the reason for the bid amount being substantially lower was a clerical mistake, as opposed to a judgment mistake, and was actually due to an unintentional and substantial arithmetic error or an unintentional omission of a substantial quantity of Work, labor, or material made directly in the compilation of the bid amount.

**4.2.1.1** Notice of a request to withdraw a Bid shall be made in writing filed with the Contracting Authority within 2 business days after the bid opening. The Contracting Authority reserves the right to request the Bidder to submit evidence substantiating the Bidder's request to withdraw the Bid.

**4.2.1.2** No Bid may be withdrawn under **Section 4.2.1** which would result in awarding a Contract involving the same item on another Bid to the same Bidder.

**4.2.2** If a Bidder withdraws its Bid under **Section 4.2.1**, the Contracting Authority may award the Contract to the next lowest responsive and responsible Bidder, or reject all Bids and advertise for other Bids. In the event the Contracting Authority advertises for other Bids, the withdrawing Bidder shall pay the costs, in connection with the re-bidding, of printing new Contract Documents, required advertising, and printing and mailing of notices to prospective Bidders, if the Contracting Authority finds that these costs would not have been incurred but for the withdrawal.

**4.2.3** A Bidder may withdraw the Bidder's Bid at any time after the 60-day period described in **Section 4.2.1** by giving written notice to the Contracting Authority.

## 4.3 Refusal to Accept Withdrawal

**4.3.1** If the Contracting Authority contests the right of a Bidder to withdraw a Bid pursuant to **Section 4.2.1**, a hearing shall be held within 10 days after the bid opening and the Contracting Authority shall issue an order allowing or denying the claim of this right within 5 days after the hearing is concluded. The Contracting Authority shall give the withdrawing Bidder timely notice of the time and place of the hearing.

**4.3.1.1** The Contracting Authority shall make a stenographic record of all testimony, other evidence, and rulings on the admissibility of evidence presented at the hearing. The Bidder shall pay the costs of the hearing.

**4.3.1.2** Pursuant to ORC Section 119.12, the Bidder may appeal the order of the Contracting Authority required by **Section 4.3.1**.

## 4.4 Refusal to Perform

**4.4.1** In the event the Contracting Authority denies the request for withdrawal and the Bidder refuses to perform the Contract, the Contracting Authority may reject all Bids or award the Contract to the next lowest responsive and responsible Bidder.

## 4.5 Effect of Withdrawal

**4.5.1** A Bidder, who is permitted to withdraw a Bid under **Section 4.2.1**, shall not supply material or labor to, or perform a subcontract or other work for, the Person to whom the Contract is awarded. The Bidder shall not otherwise benefit, directly or indirectly, from the performance of the Project for which the withdrawn Bid was submitted without the Contracting Authority's prior written consent.

# ARTICLE 5 - BID GUARANTY AND BOND

## 5.1 Bid Guaranty

**5.1.1** The Bidder shall submit a Bid Guaranty with the Bidder's Bid, payable to the Contracting Authority, in the form of any of the following:

**5.1.1.1** the signed **Document 00 43 13 - Bid Security Form** contained in the Contract Documents for the amount of the Base Bid plus all additive Alternates; or

**5.1.1.2** a certified check, cashier's check, or letter of credit, for 10 percent of the Base Bid, plus all additive Alternates – a letter of credit shall expressly provide that it is revocable only by the Contracting Authority; or

**5.1.1.3** an electronic verification through an electronic verification and security system described in ORC section 153.08.



**5.1.2** The Bid Guaranty shall be in form and substance satisfactory to the Contracting Authority and shall serve as an assurance that upon acceptance of the Bid, the Bidder shall comply with all conditions precedent for Contract execution, within the time specified by the Contracting Authority.

**5.1.3** If the blank line on the **Bid Security Form** is not filled in, the penal sum shall be the full amount of the Base Bid plus all additive Alternates. If the blank line is filled in, the amount shall not be less than the full amount of the Base Bid plus all additive Alternates, stated in dollars and cents. A percentage is not acceptable. In the event the blank line is filled in for an amount less than the full amount of the Base Bid plus all additive alternates, the Bid shall be rejected as non-responsive.

**5.1.4** An authorized agent must sign the **Bid Security Form**, and the Bidder shall provide a Power of Attorney from the Surety. A Surety authorized by the Ohio Department of Insurance to transact business in Ohio must issue the **Bid Security Form**.

**5.1.5** The requirements of ORC Section 3901.86 may be applicable requiring an Ohio resident agent countersign the **Bid Security Form**. The Bidder shall determine the applicability of this provision.

**5.1.6** Bid Guaranties in the form of a certified check, cashier's check, or letter of credit shall be returned to unsuccessful Bidders 60 days after the bid opening. Bid Guaranties in the form of a certified check, cashier's check, or letter of credit shall be returned to the successful Bidder upon providing **Document 00 61 13 - Performance and Payment Bond Form** from a Surety satisfactory to the Contracting Authority.

## **5.2 Forfeiture of Bid Guaranty**

**5.2.1** If for any reason, other than as authorized by **Section 4.2.1** or **Section 5.3**, the Bidder fails to execute the Agreement, and the Contracting Authority awards the Contract to another Bidder, which the Contracting Authority determines is the lowest responsive and responsible Bidder:

**5.2.1.1** The Bidder who failed to execute the Agreement is liable to the State for the difference between its Bid and the Bid of the next lowest responsive and responsible Bidder, or for a penal sum not to exceed ten percent of the bid amount, whichever is less.

**5.2.2** If the Contracting Authority then awards a Contract to another Bidder, which the Contracting Authority determines is the lowest responsive and responsible Bidder and that Bidder fails or refuses to execute the Agreement:

**5.2.2.1** The liability of the lowest responsive and responsible Bidder shall be the difference between the bid amount of the lowest responsive and responsible Bidder and another Bidder which the Contracting Authority determines is the lowest responsive and responsible Bidder, except as provided in **Section 5.3**, but not in excess of the liability specified in **Section 4.2.2**.

**5.2.2.2** The liability on account of an award to the lowest responsive and responsible Bidder beyond the third lowest responsive and responsible Bidder shall be determined in like manner.

**5.2.3** If the Contracting Authority does not award the Contract to another Bidder under **Section 5.2.2**, but submits the Project for re-bidding:

**5.2.3.1** The Bidder failing or refusing to execute the Agreement is liable to the State for a penal sum not to exceed 10 percent of the Bidder's bid amount or the costs in connection with the resubmission of printing new Contract Documents, required advertising, and printing and mailing notices to prospective Bidders, whichever is less, except as provided in **Section 5.3**.

## **5.3 Exception to Forfeiture**

**5.3.1** A Bidder for a Contract with the State costing less than \$500,000 may withdraw its Bid from consideration if its Bid for another Contract with the State for less than \$500,000 has already been accepted if:

**5.3.1.1** the Bidder certifies in good faith that the total amount of its current contracts is less than \$500,000; and

**5.3.1.2** the Bidder's Surety certifies in good faith that the Bidder is unable to perform the subsequent Contract because such performance would exceed the Bidder's bonding capacity.

**5.3.2** If a Bid is withdrawn pursuant to **Section 5.3.1**:

**5.3.2.1** the Contracting Authority may award the Contract to another Bidder which the Contracting Authority determines is the lowest responsive and responsible Bidder or reject all Bids and submit the Project for re-bidding; and

**5.3.2.2** neither the withdrawing Bidder nor the Bidder's Surety shall be liable for the difference between the Bidder's Bid and that of the next lowest responsive and responsible Bidder for a penal sum, or for the costs of printing new Contract Documents, required advertising, and printing and mailing notices to prospective Bidders.

## **5.4 Bond**

**5.4.1** Prior to signing the Agreement, the Bidder shall provide the Bond required by law in form and substance satisfactory to the Contracting Authority, and from a Surety licensed to do business in the state of Ohio and satisfactory to the Contracting Authority.

**5.4.1.1** If the Bidder provided **Document 00 43 13 - Bid Security Form**, described in **Section 5.1.1.1**, as its Bid Guaranty then that form shall be the Bond.

**5.4.1.2** If the Bidder provided another form of Bid Guaranty, described in **Section 5.1.1.2**, then **Document 00 61 13 - Performance and Payment Bond Form**, described in **Section 5.1.6**, shall be the Bond.

**5.4.1.3** The Bidder shall not be required to provide both forms described above.

**5.4.2** The Bond must be in the full amount of the Contract to indemnify the State against all direct and consequential damages suffered by failure of the Contractor to perform according to the provisions of the Contract and in accordance with the Plans, Specifications, details, and bills of material therefore and pay all lawful claims of Subcontractors, Material Suppliers, and laborers for labor performed or materials furnished in performing and completing the Contract.

## **ARTICLE 6 - CONTRACT AWARD AND EXECUTION**

### **6.1 Conditions Precedent for Execution of Contract**

**6.1.1** The successful Bidder must submit the items in this **Section 6.1** to the Contracting Authority before executing the Agreement.

**6.1.2** Bond, and to support the Bond, a Certificate of Compliance issued by the Ohio Department of Insurance, showing the Surety is licensed to do business in the state of Ohio.

**6.1.3** Ohio Workers' Compensation Certificate

**6.1.4** Certificate of Insurance (ACORD form is acceptable) and copy of additional insured or loss payee endorsement. The Contracting Authority reserves the right to request and receive a certified copy of the Contractor's insurance policies.

**6.1.5** If a Bidder is a foreign corporation (e.g., not incorporated under the laws of Ohio) it must submit a Certificate of Good Standing from the Ohio Secretary of State showing the right of the Bidder to do business in the state of Ohio.

**6.1.6** If a Bidder is an individual or partnership, nonresident of the State, it must submit a Power of Attorney designating the Ohio Secretary of State as the Bidder's agent for accepting service of summons in any action brought under ORC Section 153.05 or under ORC Sections 4123.01 to 4123.94, inclusive.

**6.1.7** Evidence that the Bidder is enrolled in, and in good standing in, a SUPR program approved by the OBWC.

**6.1.8** Required Notice of Unresolved Findings for Recovery.

**6.1.8.1** By submitting its Bid, the Bidder warrants that it is not subject to an unresolved findings for recovery under ORC Section 9.24. ORC Section 9.24 prohibits the State from awarding a Contract to any Bidder against whom the Auditor of State has issued a finding for recovery if the finding for recovery is unresolved at the time of award. If the Contract is awarded to a Bidder subject to an unresolved finding for recovery under ORC Section 9.24, the Contract is void on its face and the Contractor shall immediately repay to the Owner any funds paid under the Contract.

**6.1.9** EDGE Program – Supporting Documentation Required.

**6.1.9.1** The Bidder shall provide evidence acceptable to the Contracting Authority of the Bidder's participation in the EDGE Program by contracting with EDGE-certified Business(es) for the Project by submitting a fully completed EDGE Affidavit for each EDGE-certified Business, by requesting a waiver or partial waiver of the advertised EDGE Program participation goal for the Project on the Bidder's company letterhead including full documentation of the Bidder's good faith effort to contract with EDGE-certified Business(es) for this Project, or both.

**6.1.10** If the Bidder is a joint venture, it must submit the executed agreement between the joint venturers describing the division of services/work and percentage of contract for each company, and a Power of Attorney which authorizes one or more individuals to bind the joint venture and each individual joint venturer to Contract Modifications.

## **6.2 Non-compliance with Conditions Precedent**

**6.2.1** The award of the Contract and execution of the Agreement require the Contractor to comply with:

**6.2.1.1** all conditions precedent for execution of the Contract within 10 days of the date of the Notice of Intent to Award; and

**6.2.1.2** the **Bidder's Qualifications** form, including a fully completed **EDGE Affidavit** for each EDGE-certified Business, not previously provided **within 3 business days of receiving the Contracting Authority's request**.

**6.2.2** Non-compliance with the conditions precedent for execution of the Contract as stated in **Section 6.1** within the timelines stated in **Section 6.2.1** following the date of the Notice of Intent to Award shall be sufficient cause to permit the Contracting Authority to cancel the Notice of Intent to Award, for the Bidder's lack of responsibility and award the Contract to another Bidder, which the Contracting Authority determines is the lowest responsive and responsible Bidder; or the Contracting Authority may re-bid the Work at its sole discretion.

**6.2.3** The Contracting Authority may extend the time for complying with the conditions precedent for execution of the Contract for good cause. The extension is not a waiver of the conditions precedent for execution of the Contract.

## **6.3 Time Limits**

**6.3.1** The Contracting Authority's failure to award the Contract and execute the Agreement within 60 days of the bid opening invalidates the entire bid process and all Bids submitted, unless the time is extended by written consent of the apparent lowest responsive and responsible Bidder and the Contracting Authority.

**6.3.1.1** If the Contracting Authority awards the Contract within 60 days of the bid opening, increases in material, labor, and subcontract costs shall be borne by the Bidder.

**6.3.1.2** If failure to execute the Contract within 60 days of the bid opening is due to matters for which the State is solely responsible, the Contractor is entitled to a Change Order authorizing payment of verifiable increased costs in materials, labor, or subcontracts. This increase shall not exceed the difference in price between the successful Bidder and the price of the next lowest responsive and responsible Bidder.

**6.3.1.3** If failure to execute the Contract within 60 days of the bid opening is due to matters for which the Contractor is responsible, the Contracting Authority shall not grant a request for increased costs.

## **6.4 Notice to Proceed**

**6.4.1** The Contracting Authority shall issue a Notice to Proceed to the Contractor, which establishes the date for commencement and the calendar days allocated for Substantial Completion of all Work. Within 10 days of the date of the Notice to Proceed, or other period as mutually agreed by the Contractor and the Contracting Authority, the Contractor shall furnish the following submittals to the A/E:

**6.4.1.1** Schedule of Values;

**6.4.1.2** preliminary schedule of Shop Drawings and other Submittals;

**6.4.1.3** **Subcontractor and Material Supplier Declaration** form, with completed "Bidder Affirmation and Disclosure" forms acknowledging that the Contractor affirms, understands, and will abide by the requirements of Executive Order 2019-12D and Executive Order 2022-02D for Subcontractors that were not identified in the electronic **Bid Form**;

**6.4.1.4** qualifications of proposed project manager(s) and superintendent(s) and a comprehensive resume of each; and

**6.4.1.5** evidence that an authorization agreement for automatic deposit of state warrants has been submitted to Ohio Shared Services using the electronic funds transfer form provided on the Internet at <http://supplier.ohio.gov>.

## **6.5 Prevailing Wage Rates**

**6.5.1** The Bidder shall base its Bid upon the prevailing rates of wages as ascertained by the Ohio Department of Commerce, Wage and Hour Bureau for the Project as provided in ORC Sections 4115.03 through 4115.14. Refer to **Document 00 73 43 - Wage Rate Requirements** for related information and the Project's prevailing rates of wages with an appropriate ratio of registered apprentices.

**6.5.2** The Bidder shall not be entitled to an increase in the Contract Sum on account of an increase in prevailing wage rates, except as otherwise provided by Applicable Law. The Bidder is responsible for compliance of its Subcontractors with prevailing wage requirements.

**6.5.3 Within 10 days of the date of the Notice to Proceed,** the Contractor shall provide the Contracting Authority's Prevailing Wage Coordinator with a schedule of dates during the term of the Contract when the Contractor shall pay wages to its employees for the Project.

**END OF DOCUMENT**

# Document 00 22 00 - Supplementary Instructions (General Contracting/Electronic Bid)

## State of Ohio Standard Requirements for Public Facility Construction

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### Certifications

These Supplementary Instructions amend and supplement the Instructions to Bidders and other provisions of the Contract Documents as indicated below. All provisions not amended remain in full force and effect. The terms in these Supplementary Instructions defined in the Contracting Definitions or the Instructions to Bidders shall have the meanings assigned to them in those documents.

These Supplementary Instructions are authorized, by the Ohio Facilities Construction Commission, for use on projects constructed by and for The Ohio State University ("University").

### Contracting Authority

The Ohio State University  
Facilities Design and Construction  
400 Enarson Classroom Building  
2009 Millikin Road  
Columbus, Ohio 43210  
<https://fdc.osu.edu/>

### MODIFICATIONS TO INSTRUCTIONS TO BIDDERS

*Revise Sections 2.10.2 and 2.10.3 as follows:*

**2.10.2** If the apparent low Bidder does not submit a valid Power of Attorney of the agent signing for the Surety with its Bid, the apparent low Bidder shall deliver a valid and appropriate Power of Attorney to the Contracting Authority **within 3 business days after public bid opening**. The Contracting Authority shall not enter into a Contract without a valid Power of Attorney.

**2.10.3** The Bidder is encouraged to submit background information with its Bid using the **Bidder's Qualifications** form and including, but not limited to, the information listed in this **Section 2.10**. If the apparent low Bidder does not submit the **Bidder's Qualifications** form and related information attached to the electronic **Bid Form**, the Bidder shall provide it **within 3 business days of request** from the A/E or Contracting Authority, or a longer period, if the Contracting Authority consents in writing in accordance with **Section 3.5.4**, including, but not limited to:

*Revise Section 3.5.4 as follows:*

**3.5.4** The A/E shall obtain from the lowest responsive Bidder any information the Contracting Authority determines appropriate to consideration of factors showing responsibility. If the lowest responsive Bidder is responsible, the Contract shall be awarded to that Bidder, unless all Bids are rejected. **The Bidder shall provide all requested information within 3 days of a request from the A/E or Contracting Authority**, or a longer period, if the Contracting Authority consents in writing.

*Revise Section 6.1.1 as follows:*

**6.1.1** The successful Bidder must submit the items in this **Section 6.1** to the Contracting Authority **within 10 days of the Notice of Intent to Award** and before executing the Agreement.

*Insert Section 6.5.1.1 as follows:*

**6.5.1.1** If the project is financed with Federal funding it is subject to the Davis-Bacon Act and Related Provisions. The Davis-Bacon Act prevailing wage provisions apply to the "Related Acts," under which federal agencies assist construction projects through grants, loans, loan guarantees, and insurance. The Bidder shall base its Bid upon prevailing wages as ascertained by the U.S. Department of Labor. Refer to **Document 00 73 43 - Wage Rate Requirements** for related information and the Project's prevailing rates of wages.

**END OF DOCUMENT**

**SECTION 00 31 26**  
**EXISTING ASBESTOS INFORMATION**

**PART 1 – GENERAL**

**1.01 SUMMARY**

**A. Section Includes:**

1. Attachment: Limited Hazardous Materials Inspection Report, Fire Suppression & Elevator Upgrades, The Ohio State University Marion Campus- Morrill Hall, revised submission dated November 11, 2025, prepared by Lawhon & Associates, Inc. Contractor shall not bid on materials and quantities listed in this report, but rather the materials and quantities listed in Section 02 82 20 and the hazardous materials abatement drawings. This report is to be used as a reference only.

**B. Related Sections:** The following Sections contain requirements that relate to this Section:

1. Division 02 Section 02 82 20 "HAZARDOUS MATERIALS ABATEMENT".

**PART 2 – PRODUCTS**

Not Used

**PART 3 – EXECUTION**

Not Used

END OF SECTION

# ***LIMITED HAZARDOUS MATERIALS INSPECTION REPORT***

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***The Ohio State University Marion Campus– Morrill Hall (0627)  
Fire Suppression & Elevator Upgrades  
1465 Mount Vernon Avenue  
Marion, Ohio 43302***

***OSU Project #: OSU-250050  
L&A Project #: 25-0235  
OSU Notification Number: OSUEHS-CN-LA00399***



***Prepared for:***

***Jim Kinney  
Senior Associate, AIA, NCARB  
Wellogy Design, LLC  
6767 Longshore Street, Suite 540  
Dublin, Ohio 43017  
(614) 785-0505***

***Prepared by:  
Lawhon & Associates, Inc.  
1441 King Avenue  
Columbus, Ohio 43212  
(614) 481-8600***

***Original Submission: July 17, 2025  
Revised Submission: November 11, 2025***



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**Limited Hazardous Materials Inspection Report  
Fire Suppression & Elevator Upgrades  
The Ohio State University Marion Campus- Morrill Hall  
(OSU-250050)**

**1.0 Introduction**

Lawhon & Associates, Inc. (L&A) conducted a limited hazardous materials inspection for the Fire Suppression & Elevator Upgrades Project located at The Ohio State University-Marion Campus, Morrill Hall, 1465 Mount Vernon Avenue, Marion, Ohio 43302. The inspections was conducted on June 11, 2025 by Mr. Josh Rankin, Ohio Environmental Protection Agency (OEPA) Certified Asbestos Hazard Evaluation Specialist (CAHES) [AHES #ES 36263] of L&A. The consultant's certifications are attached in **Appendix A**.

This report was amended and revised on November 11, 2025, to rectify a reporting discrepancy identified by OSU EH&S. The original report concluded the asbestos containing drywall joint compound and drywall system composite samples were further analyzed and determined to contain less than 1% asbestos via composited point count analysis. However, point count analyses were not performed on these material samples and thus they cannot be categorized as a less than 1% asbestos containing material by composite. Per OSU Building Design Standards, all materials containing any concentration of asbestos must be treated as asbestos containing materials by a properly trained abatement contractor during removal, but need not be disposed of at an EPA regulated landfill if point count analysis determines the material to be less than 1% asbestos containing. Additional sampling and analysis will be required for the asbestos containing drywall systems to be categorized as a material containing 1% or less asbestos for disposal purposes.

The Hazardous Materials Inspection was limited to the areas and materials projected to be impacted by the Fire Suppression & Elevator Upgrades Project (OSU-250050). This report should not be used as a full building inspection or bidding document. Existing historical asbestos containing materials information/sampling was utilized for this report. L&A conducted a limited survey of materials not previously assessed within the work area. Materials previously sampled as part of the historical reports (see **Section 2.0**) were not re-sampled as a part of this effort. Should the scope of work change to include materials/areas not assessed as a part of this effort, a subsequent inspection and additional sampling may be required to maintain compliance with the OSU BDS and EPA NESHAP.

**2.0 Historical ACM Survey Reports**

L&A was provided with historical asbestos containing materials survey reports to use as a baseline for this assessment. The original inspection and report titled "Asbestos Inspection Report- Morrill Hall", dated January 27, 2025, was completed at the initial commencement of this project by Terracon Consultants, Inc. Terracon also generated a supplemental report to that original report, dated May 7, 2025, to include previously unaccounted for assumed suspect asbestos containing materials related to the elevator scope of the project. These reports shall be referenced in conjunction with L&A's report and in combination shall serve as the NESHAPs assessment for the project. L&A field verified the findings of the historical reports to the extent feasible while on site, however, shall not be held responsible for any errors, omissions, or conclusions made, related to Terracon's initial inspection and supplemental reports. L&A has incorporated pertinent

historical findings into this assessment; full copies of the historical reports are maintained on file at Lawhon & Associates and OSU EHS, and can be provided upon request.

### **3.0 Asbestos Containing Materials**

Asbestos containing materials are governed by the Environmental Protection Agency's (EPA) National Emission Standards of Hazardous Air Pollutants (NESHAP) during a demolition. These materials are defined as containing greater than one percent asbestos. The Occupational Safety and Health Administration (OSHA) govern building materials containing any amount of asbestos.

The Clean Air Act (CAA) of 1970 required the EPA to develop and enforce regulations to protect the general public from exposure to airborne contaminants that are known to be hazardous to human health; therefore, EPA promulgated the National Emission Standards for Hazardous Air Pollutants (NESHAP) (Title 40, CFR Part 61) on April 6, 1973. NESHAP is intended to minimize the release of asbestos fibers during certain activities (i.e., renovations, demolition, and installations). It specifies work practices to be followed during renovations of buildings (except apartment buildings that have no more than four dwelling units), which contain a specific amount of friable asbestos. NESHAP requires that buildings be inspected for asbestos containing building materials (ACBM) prior to renovation/demolition projects regardless of the age of the structure.

NESHAP also requires owners and operators subject to the asbestos rules to notify delegated state and local agencies and/or the regional EPA offices before demolition or renovation activities begin. In addition, NESHAP requires the removal of all regulated asbestos containing materials (RACM) prior to demolition. Regulated Asbestos-Containing Materials (RACM) are (a) friable asbestos material, which are materials easily reduced to powder with hand pressure (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations. (Category I non-friable materials consist of materials such as resilient floor covering products, roofing products, gaskets, and packing. Category II non-friable materials consist of all other non-friable materials such as transite.). NESHAP also requires all ACM (including Category I and II) be removed prior to intentional burning, such as for a fire department training exercise.

The State of Ohio Environmental Protection Agency regulates asbestos activities within the state. Professionals performing asbestos related activities must be certified/licensed by EPA.

### **3.1 Methodology**

A list of suspect ACMs was compiled from the investigation of the survey areas. The furnace was opened in order to inspect interior components. Materials were categorized into RACM, Category I, and Category II materials. L&A inventoried and procured confirmatory samples of suspect asbestos containing materials.

Materials suspected of containing asbestos were grouped into homogeneous areas for bulk sampling purposes. A homogeneous area is composed of specific

material that appears to be the same in color, texture, date of installation or location (e.g., grey spray-applied fireproofing in a specific construction unit).

The number of bulk samples to be procured for each identified homogeneous area of suspected Surfacing Materials, Thermal System Insulations, and Miscellaneous Materials were determined in accordance with 40 CFR 763.

Specifically, Friable and Nonfriable Surfacing Materials (i.e., fireproofing, acoustical plaster, decorative plaster, hard plaster, and textured coatings) were sampled following the guidelines set forth by the USEPA in the document "Asbestos in Buildings - Simplified Sampling Scheme Friable Surfacing Materials." Based upon the square footage of the homogenous surfacing materials, either a minimum of 3, 5, or 7 bulk samples were randomly procured and analyzed. For Thermal System Insulation (TSI), at least 3 random samples of each homogeneous area of TSI were procured and analyzed and 1 sample of patched TSI if it was <6 linear or square feet. For Miscellaneous Materials (MM), at least 2 random samples of each homogeneous area of MM were procured and analyzed.

Bulk sample locations for suspect materials sampled by L&A, and the name and signature and asbestos hazard evaluation specialist number of each person who collected samples are shown on the Asbestos Bulk Sample Diagram found in **Appendix B**.

Samples were placed into clean sealed containers and identified with a unique sample number. Sampling tools were decontaminated between each sampling episode.

All bulk samples were sent to a laboratory certified under the National Voluntary Lab Accreditation Program (NVLAP). The lab used for sample analysis of asbestos on this project was SanAir Technologies Laboratory (NVLAP #600227-0) located at 11709 Chesterdale Road, Cincinnati, Ohio 45246. Laboratory Accreditation Certificates can be found in **Appendix E**. Samples were analyzed by the EPA Polarized Light Microscopy (PLM) 600 Method. Samples reported with low concentrations of asbestos, <3% asbestos content, were reanalyzed using the EPA Point Count Method to determine a more accurate content.

#### **4.0 Asbestos Containing Materials Summaries**

The following tables present ACM summaries. A site diagram depicting bulk sample locations can be found in **Appendix B**. A bulk sample summary form summarizing the asbestos bulk samples collected and analyzed is attached in **Appendix C**. An Inventory of asbestos containing materials can be found in **Appendix D**. Laboratory analysis certificates and chain of custody information can be found in **Appendix E**. Historically referenced information can be found in **Appendix F**.

#### 4.1 Confirmed Asbestos Containing Materials

The following is a list of materials confirmed to contain asbestos:

| Confirmed Asbestos Containing Materials              |                                                                                                 |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Elevator Cab Door Insulation (2)                     | Exterior Elevator Cab- Tar Coating (2)                                                          |
| Older Drywall Systems with Tan Joint Compound (2)(5) | Black Mastic (2) Beneath Non-ACM 12"x12" Beige with White Flecks Floor Tile & Tan Mastic (4)(5) |
| Acoustical Plaster on Concrete Deck (1)(4)(5)        | Silver Paint Associated with Non-Asbestos Containing Duct Wrap Insulation (1)(4)(5)             |
| Block Insulation on 20" Pipe (1)(4)(5)               |                                                                                                 |

Notes: (1) RACM  
(2) Category II Non-Friable  
(3) Category I Non-Friable  
(4) Previously reported as ACM in Historical ACM Survey Reports.  
(5) Not Projected to be Impacted by the project; included for reporting purposes only.

#### 4.2 Assumed Asbestos Containing Materials

The following is a list of materials assumed to contain asbestos. These materials should either be further sampled to determine asbestos content if impacted by the renovation project or assumed to be asbestos and handled accordingly.

| Assumed Asbestos Containing Materials               |                   |
|-----------------------------------------------------|-------------------|
| Cementitious (Transite™) Contact Switches (2)(4)(5) | Fire Doors (2)(5) |
| Electrical Switchgear Components (2)(5)             |                   |

(1) RACM  
(2) Category II Non-Friable  
(3) Category I Non-Friable  
(4) Previously reported as assumed ACM in Historical ACM survey reports.  
(5) Not Projected to be Impacted by the project; included for reporting purposes only.

#### 4.3 Non Asbestos Containing Materials

The following table lists materials sampled by L&A with laboratory analysis revealing no asbestos detected. If any additional suspect materials not listed in this table or already confirmed or assumed to contain asbestos, that material must be assumed to contain asbestos until further testing proves otherwise. Historical materials are not included; refer to historical reports.

| Non Asbestos Containing Materials                              |                                                    |
|----------------------------------------------------------------|----------------------------------------------------|
| Hard Plaster Ceiling- Grey Base Coat<br>(<1,000 square feet)   | Elevator Hoist-Way Door Insulation                 |
| Elevator Cab Floor Glue beneath Rubber<br>Vinyl Plank Flooring | Newer Drywall Systems with White Joint<br>Compound |

## 5.0 Other Hazardous Materials

The following sub-sections describe additional hazardous/potential hazardous materials which were inspected for and projected to be impacted by the Fire Suppression & Elevator Upgrades Project.

### 5.1 Light Bulbs and Ballasts

L&A observed fluorescent light bulbs and associated ballasts throughout the buildings. It is unclear if these bulbs will be impacted by the renovation; however, if they are impacted they should be removed and recycled because the fluorescent bulbs are assumed to contain mercury, or other potentially hazardous heavy metals. Furthermore, light ballasts potentially contain PCB oils and are normally labeled "Contains No PCBs" if PCBs are not present. All light ballasts will need to be investigated prior to impact from renovation activities. Ballasts not identified with a "Contains No PCBs" label, will need to be disposed of as a regulated hazardous material; ballasts containing a "Contains No PCBs" label should be containerized and recycled. All removal, packaging, and handling of these materials should be performed by properly trained workers.

### 5.2 Elevator Oils

Oils associated with hydraulic elevator motors and bumper stop pads in the pit may contain oil containing PCBs. The demolition contractor should inspect for any oil associated with elevator components and test accordingly. The oil should be disposed of or recycled in accordance with regulations based on the PCB sampling data. The elevator at Morrill Hall is a hydraulic elevator with an oil reserve tank. L&A also observed some oil staining in the elevator pit at the bottom of the elevator shaft.

### 5.3 Lead Based Paint

Due to the ages of construction, it is assumed that lead based paint is present within the structure. All work procedures impacting or disturbing paint covering any components, surfaces, or structures throughout the structure needs to be performed by all contractors/ workers in accordance with OSHA Standard 29 Code of Federal Regulations (CFR) 1926.62 lead exposure in construction. Each contractor is responsible to ensure that employees are not exposed to lead in excess of the Permissible Exposure Limit (PEL).

## 6.0 Conclusions

Lawhon & Associates, Inc. (L&A) conducted a limited hazardous materials inspection for the Fire Suppression & Elevator Upgrades Project located at The Ohio State University Marion Campus- Morrill Hall, 1465 Mount Vernon Avenue, Marion, Ohio 43302. The inspection was conducted on June 11, 2025 by Mr. Josh Rankin on L&A.

### 6.1 Asbestos Containing Materials

As a result of the inspection, the following confirmed and assumed asbestos containing materials are present in the scope of work areas:

#### RACM (not projected to be impacted)

- Acoustical Plaster on Concrete Deck
- Silver Paint associated with Non-Asbestos Containing Duct Wrap Insulation
- Block Insulation on 20" Pipe

#### Category II Non-Friable ACM

- Elevator Cab Door Insulation
- Exterior Elevator Cab- Tar Coating
- Black Mastic Beneath Non-Asbestos Containing 12"x12" Beige with White Flecks Floor Tile and Tan Mastic (Not Projected to be Impacted)
- Older Drywall Systems with Tan Joint Compound (Not Projected to be Impacted)

The Hazardous Materials inspection was limited to the areas projected to be impacted by the Fire Suppression & Elevator Upgrades Project (OSU-250050). This report should not be used as a full building inspection or bidding document. Existing historical asbestos containing materials information/sampling was utilized for this report. Impact to additional materials not included in this report or the historical information will require further testing. L&A conducted limited surveys of the work areas, utilizing historical reports where applicable, as well as field verifying conditions/collecting bulk samples where required. The full historical reports can be made available upon request from L&A and/or OSU EHS.

If you have any questions concerning our report, please contact Josh Rankin or Chuck Wilson at (614) 481-8600.

Sincerely,



Josh Rankin  
Project Manager



Chuck Wilson  
Vice President

## **APPENDIX A**

### **Inspector's Certifications**



**Mike DeWine**, Governor  
**Jon Husted**, Lt. Governor  
**Anne M. Vogel**, Director

2/27/2025

Joshua Rankin  
Lawhon & Associates, Inc.  
1441 King Avenue  
Columbus, OH 43212

RE: Evaluation Specialist  
Certification Number: ES36263  
Expiration Date: 3/26/2026

Dear Joshua Rankin:

This letter and enclosed certification card approves your request to be certified as an asbestos Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Ohio Environmental Protection Agency (EPA) for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please contact the Asbestos Program at 614-644-0226 or by email at [asbestoslicensing@epa.ohio.gov](mailto:asbestoslicensing@epa.ohio.gov).

Sincerely,

*Brandon M. Schwendeman*

Brandon Schwendeman  
Manager, Business Operations Support Section  
Ohio EPA - Division of Air Pollution Control





# The InService Training Network

## Asbestos Building Inspector and Management Planner Refresher Courses



**Josh Rankin**

has successfully completed the Asbestos Building Inspector and Management Planner Refresher Courses and passed by at least 70% the course examinations for accreditation under Section 206 of the Toxic Substance Control Act, Title II, and Indiana 326 IAC 18-2  
Provided by: The InService Training Network, Inc., 705D Lakeview Plaza Blvd, Worthington, OH 43085 (614) 436-0980

**Course Dates:** February 5, 2025

**Examination Date:** February 5, 2025

**Course Director:**

  
Kurt Varga

**Course Location:** Worthington, Ohio

**Expiration Date:** February 5, 2026

**Certificate Numbers:** ITNIR7718 & ITNMPR7718



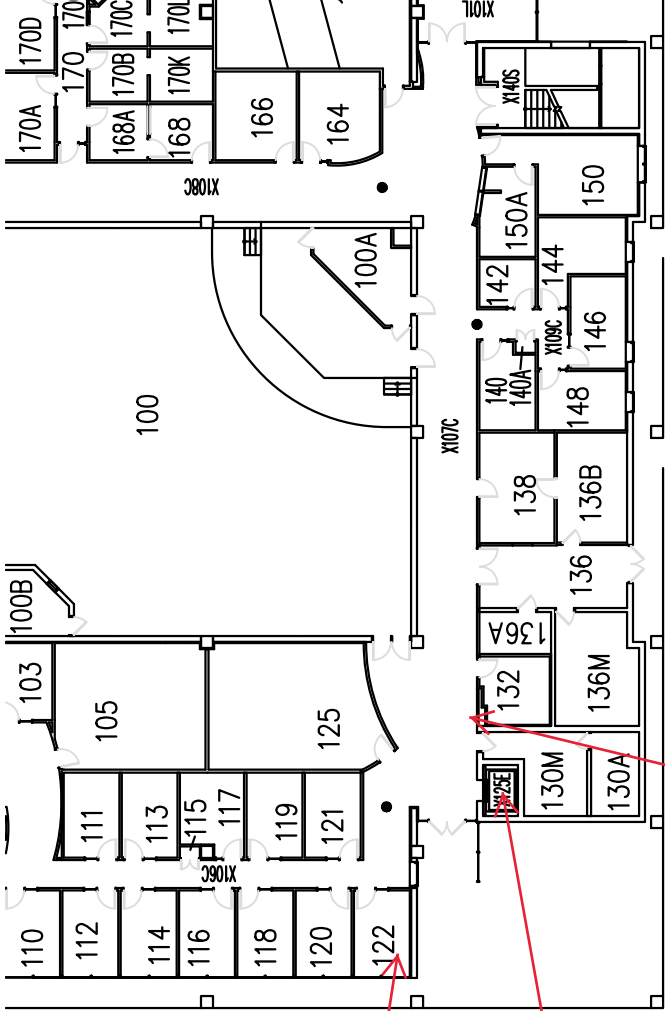
## **APPENDIX B**

### **Asbestos Bulk Sample Location Diagram**

**ASBESTOS BULK SAMPLE LOCATIONS:**

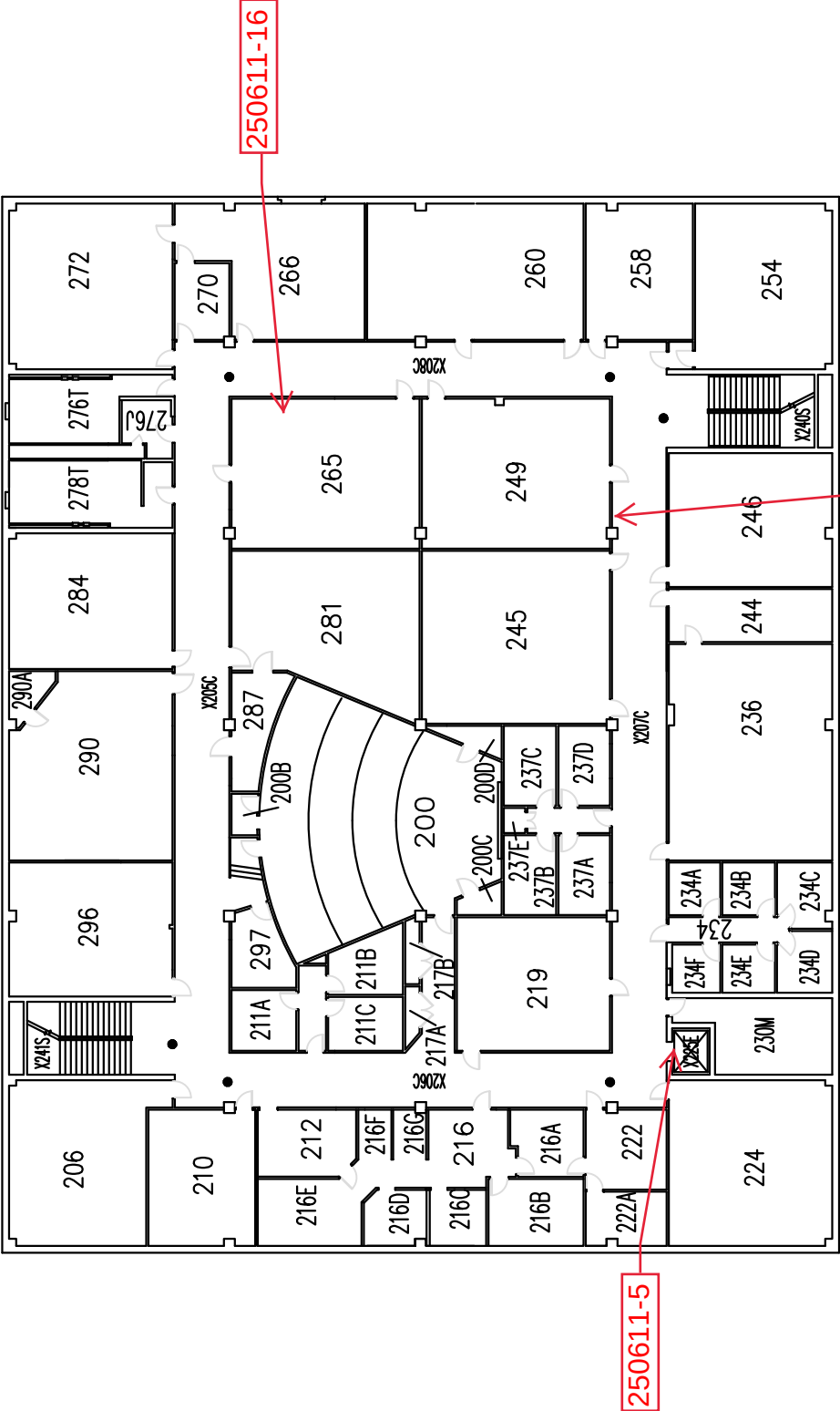
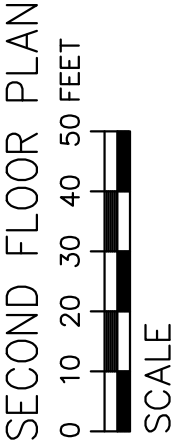
Collected On: 6/11/2025

Collected By: Josh Rankin, AHES# 36263



DATE: 12-03-93  
SCALE: 1/32" = 1'-0"  
DRAWN BY: O.J.T.  
REVISIONS: 11-96 O.J.T. 08-98 O.J.T.  
08-99 O.J.T. 10-00 O.J.T. 03-01 O.J.T.  
12-05 O.J.T. 12-07/MCS 07-10/MCS 01-17 D.F.P.

NOTES: X-numbers indicate circulation areas.  
● Indicates boundary of circulation area.



DISCLAIMER: No guarantee is implied as to the accuracy of dimensions or building features shown. Users of this drawing assume all responsibility for verifying its accuracy.



## **APPENDIX C**

### **Bulk Sample Summary**

**ASBESTOS BULK SAMPLE SUMMARY**  
**The Ohio State University Marion Campus- Morrill Hall**  
**Fire Suppression & Elevator Upgrades**

| Sample Number    | Homog. Number | Material Sampled                                | Sample Location     | Percent Asbestos       |
|------------------|---------------|-------------------------------------------------|---------------------|------------------------|
| 250611-1         | 1             | Hard Plaster Ceiling- Grey Base                 | X325E- Top of Shaft | NAD                    |
| 250611-2         | 1             | Hard Plaster Ceiling- Grey Base                 | X325E- Top of Shaft | NAD                    |
| 250611-3         | 1             | Hard Plaster Ceiling- Grey Base                 | X325E- Top of Shaft | NAD                    |
| 250611-4         | 2             | Elevator Hoist-Way Door Insulation              | X325E               | NAD                    |
| 250611-5         | 2             | Elevator Hoist-Way Door Insulation              | X225E               | NAD                    |
| <b>250611-6</b>  | <b>3</b>      | <b>Elevator Cab Door Insulation</b>             | <b>X125E</b>        | <b>65% Chrysotile</b>  |
| <b>250611-7</b>  | <b>3</b>      | <b>Elevator Cab Door Insulation</b>             | <b>X125E</b>        | <b>65% Chrysotile</b>  |
| <b>250611-8</b>  | <b>4</b>      | <b>Exterior Elevator Cab- Tar Coating</b>       | <b>X125E</b>        | <b>10% Chrysotile</b>  |
| <b>250611-9</b>  | <b>4</b>      | <b>Exterior Elevator Cab- Tar Coating</b>       | <b>X125E</b>        | <b>10% Chrysotile</b>  |
| 250611-10        | 5             | Elevator Cab Floor Glue                         | X125E               | NAD                    |
| 250611-11        | 5             | Elevator Cab Floor Glue                         | X125E               | NAD                    |
| <b>250611-12</b> | 6a            | Older Drywall System- Gypsum                    | <b>388</b>          | NAD                    |
|                  | <b>6b</b>     | <b>Older Drywall System- Tan Joint Compound</b> |                     | <b>2% Chrysotile</b>   |
|                  | 6c            | <i>Composite</i>                                |                     | <i>0.2% Chrysotile</i> |
| <b>250611-13</b> | 6a            | Older Drywall System- Gypsum                    | <b>388</b>          | NAD                    |
|                  | <b>6b</b>     | <b>Older Drywall System- Tan Joint Compound</b> |                     | <b>2% Chrysotile</b>   |
|                  | 6c            | <i>Composite</i>                                |                     | <i>0.2% Chrysotile</i> |
| 250611-14        | 7a            | Newer Drywall System- Gypsum                    | X107C               | NAD                    |
|                  | 7b            | Newer Drywall System- White Joint Compound      |                     | NAD                    |
| 250611-15        | 7a            | Newer Drywall System- Gypsum                    | 122                 | NAD                    |
|                  | 7b            | Newer Drywall System- White Joint Compound      |                     | NAD                    |
| 250611-16        | 7a            | Newer Drywall System- Gypsum                    | 265                 | NAD                    |
|                  | 7b            | Newer Drywall System- White Joint Compound      |                     | NAD                    |
| 250611-17        | 7a            | Newer Drywall System- Gypsum                    | X207C               | NAD                    |
|                  | 7b            | Newer Drywall System- White Joint Compound      |                     | NAD                    |
| 250611-18        | 7a            | Newer Drywall System- Gypsum                    | 390A                | NAD                    |
|                  | 7b            | Newer Drywall System- White Joint Compound      |                     | NAD                    |

**Notes:** **Bold** text denotes an Asbestos Containing Material; as defined by EPA, ODH, and OSHA.  
*Italicized* text denotes an Asbestos Containing Material; as defined by OSHA.

**Legend**

**Abbreviation:** NAD  
**Definition:** No Asbestos Detected

**Abbreviation:** PC  
**Definition:** Point Count Method Performed

## **APPENDIX D**

### **Inventory of Asbestos Containing Materials**



**INVENTORY OF ASBESTOS CONTAINING MATERIALS [Scope of Work Areas Only]**  
**The Ohio State University Marion Campus- Morrill Hall**  
**Fire Suppression & Elevator Upgrades**

| Location (1)                                                                     | ACM                                                                                        | Approximate Quantity (1) | Condition | EPA NESHAP Classification & Comments |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------|-----------|--------------------------------------|
| X125E                                                                            | Elevator Cab Door Insulation                                                               | 2 each (40sf)            | Intact    | Category II Non-Friable              |
|                                                                                  | Exterior Elevator Cab- Tar Coating                                                         | 1 elevator cab (200sf)   | Intact    | Category II Non-Friable              |
| 388                                                                              | Older Drywall Systems with Tan Joint Compound (2)                                          | 945 square feet          | Intact    | Category II Non-Friable              |
| X107C, X205C, X206C, X207C, X208C, X240S, X241S                                  | Black Mastic beneath Non-ACM 12"x12" Beige with White Flecks Floor Tile and Tan Mastic (2) | 7,800 square feet        | Intact    | Category II Non-Friable              |
| 100                                                                              | Acoustical Plaster on Concrete Deck (2)                                                    | 4,950 square feet        | Intact    | RACM                                 |
| 346M                                                                             | Silver Paint Associated with Non-Asbestos Containing Duct Wrap Insulation (2)              | 1,000 square feet        | Intact    | RACM                                 |
| 130A                                                                             | Block Insulation on 20" Pipe (2)                                                           | 25 linear feet           | Intact    | RACM                                 |
| 100, 100A, 100B, 130A, 136, 136M, X205C, 230M, X305C, 336M, 340M, 346M, 376, 396 | Cementitious (Transite™) Contact Switches (Assumed)(2)                                     | 275 square feet          | Intact    | Category II Non-Friable              |
| 130A, 130M, 136, 136A, 136M                                                      | Fire Doors (Assumed)(2)                                                                    | 6 each (120sf)           | Intact    | Category II Non-Friable              |
| 136M                                                                             | Electrical Switchgear Components (Assumed)(2)                                              | 80 square feet           | Intact    | Category II Non-Friable              |

Table Notes: (1) Quantities/locations are estimations and should be field verified prior to bidding.  
(2) Not projected to be impacted; included for reporting purposes only.

**Legend: ACM = Asbestos Containing Material; RACM = Regulated Asbestos Containing Material; sf = Square Foot**

**APPENDIX E**

**Asbestos Laboratory Analysis Certificates**

**&**

**Chain of Custody**

June 27, 2025

Jordan Mederer  
Lawhon And Associates  
1441 King Avenue  
Columbus, OH 432122108

**CLIENT PROJECT:** Wellogy - OSU Marion Morrill Hall Fire & Elevator  
**LAB CODE:** 668359-1

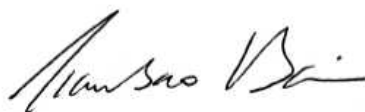
Dear Jordan,

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on June 24, 2025. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials and EPA 40 CFR Appendix E to Subpart E of Part 763: Interim Method of the Determination of Asbestos in Bulk Insulation Samples.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% by calibrated visual estimate.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,



Tianbao Bai, Ph.D., CIH  
Laboratory Director

NVLAP 101768-0

**ASBESTOS ANALYTICAL REPORT**  
**By: Polarized Light Microscopy**

Prepared for

**Lawhon And Associates**

---

|                 |                                                                        |
|-----------------|------------------------------------------------------------------------|
| CLIENT PROJECT: | Wellogy - OSU Marion Morrill Hall Fire & Elevator                      |
| LAB CODE:       | 668359-1                                                               |
| TEST METHOD:    | EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763 |
| REPORT DATE:    | 06/27/25                                                               |

**Project:**  
Wellogy - OSU Marion Morrill Hall Fire & Elevator

**Lab Code:** 668359-1

**Method:** EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763

| Client ID | Lab ID  | Layer     | Sample Description            | Asbestos %     |
|-----------|---------|-----------|-------------------------------|----------------|
| 250611-1  | 3490338 |           | White plaster                 | None Detected  |
| 250611-2  | 3490339 |           | White plaster                 | None Detected  |
| 250611-3  | 3490340 |           | White plaster                 | None Detected  |
| 250611-4  | 3490341 |           | Light-yellow glass insulation | None Detected  |
| 250611-5  | 3490342 |           | Light-yellow glass insulation | None Detected  |
| 250611-6  | 3490343 |           | White insulation              | Chrysotile 65% |
| 250611-7  | 3490344 |           | White insulation              | Chrysotile 65% |
| 250611-8  | 3490345 |           | Black tar                     | Chrysotile 10% |
| 250611-9  | 3490346 |           | Black tar                     | Chrysotile 10% |
| 250611-10 | 3490347 |           | Cream/tan flooring adhesive   | None Detected  |
| 250611-11 | 3490348 |           | Cream/tan flooring adhesive   | None Detected  |
| 250611-12 | 3490349 | Layer A   | Tan joint compound            | Chrysotile 2%  |
|           |         | Layer B   | White drywall                 | None Detected  |
|           |         | Composite |                               | 0.2%           |
| 250611-13 | 3490350 | Layer A   | Tan joint compound            | Chrysotile 2%  |
|           |         | Layer B   | White drywall                 | None Detected  |
|           |         | Composite |                               | 0.2%           |
| 250611-14 | 3490351 | Layer A   | White joint compound          | None Detected  |
|           |         | Layer B   | White drywall                 | None Detected  |
|           |         | Composite |                               | 0%             |
| 250611-15 | 3490352 | Layer A   | White joint compound          | None Detected  |
|           |         | Layer B   | White drywall                 | None Detected  |
|           |         | Composite |                               | 0%             |
| 250611-16 | 3490353 | Layer A   | White joint compound          | None Detected  |
|           |         | Layer B   | White drywall                 | None Detected  |
|           |         | Composite |                               | 0%             |

# Asbestos Report Summary

By: Polarized Light Microscopy

**Project:**  
Wellogy - OSU Marion Morrill Hall Fire & Elevator

**Lab Code:** 668359-1

**Method:** EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763

| Client ID | Lab ID  | Layer     | Sample Description   | Asbestos %    |
|-----------|---------|-----------|----------------------|---------------|
| 250611-17 | 3490354 | Layer A   | White joint compound | None Detected |
|           |         | Layer B   | White drywall        | None Detected |
|           |         | Composite |                      | 0%            |
| 250611-18 | 3490355 | Layer A   | White joint compound | None Detected |
|           |         | Layer B   | White drywall        | None Detected |
|           |         | Composite |                      | 0%            |

# ASBESTOS BULK ANALYSIS

By: Polarized Light Microscopy

**Client:** Lawhon And Associates  
1441 King Avenue  
Columbus, OH 432122108

**Lab Code:** 668359-1  
**Date Received:** 06/24/25  
**Date Analyzed:** 06/27/25  
**Date Reported:** 06/27/25

**Project:** Wellogy - OSU Marion Morrill Hall Fire & Elevator

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID           | Lab              | Lab           | NON-ASBESTOS COMPONENTS |             |         | ASBESTOS       |
|---------------------|------------------|---------------|-------------------------|-------------|---------|----------------|
| Lab ID              | Description      | Attributes    | Fibrous                 | Non-Fibrous |         | %              |
| 250611-1<br>3490338 | Plaster          | Homogeneous   |                         | 15%         | Perlite | None Detected  |
|                     |                  | White         |                         | 5%          | Paint   |                |
|                     |                  | Non-Fibrous   |                         | 80%         | Binder  |                |
|                     |                  | Bound         |                         |             |         |                |
| 250611-2<br>3490339 | Plaster          | Homogeneous   |                         | 15%         | Perlite | None Detected  |
|                     |                  | White         |                         | 5%          | Paint   |                |
|                     |                  | Non-Fibrous   |                         | 80%         | Binder  |                |
|                     |                  | Bound         |                         |             |         |                |
| 250611-3<br>3490340 | Plaster          | Homogeneous   |                         | 15%         | Perlite | None Detected  |
|                     |                  | White         |                         | 5%          | Paint   |                |
|                     |                  | Non-Fibrous   |                         | 80%         | Binder  |                |
|                     |                  | Bound         |                         |             |         |                |
| 250611-4<br>3490341 | Glass Insulation | Homogeneous   | 100%                    | Glass       |         | None Detected  |
|                     |                  | Light-yellow  |                         |             |         |                |
|                     |                  | Fibrous       |                         |             |         |                |
|                     |                  | Loose         |                         |             |         |                |
| 250611-5<br>3490342 | Glass Insulation | Homogeneous   | 100%                    | Glass       |         | None Detected  |
|                     |                  | Light-yellow  |                         |             |         |                |
|                     |                  | Fibrous       |                         |             |         |                |
|                     |                  | Loose         |                         |             |         |                |
| 250611-6<br>3490343 | Insulation       | Homogeneous   | 20%                     | Cellulose   | 15%     | Chrysotile 65% |
|                     |                  | White         |                         |             |         |                |
|                     |                  | Fibrous       |                         |             |         |                |
|                     |                  | Loosely Bound |                         |             |         |                |
| 250611-7<br>3490344 | Insulation       | Homogeneous   | 20%                     | Cellulose   | 15%     | Chrysotile 65% |
|                     |                  | White         |                         |             |         |                |
|                     |                  | Fibrous       |                         |             |         |                |
|                     |                  | Loosely Bound |                         |             |         |                |

# ASBESTOS BULK ANALYSIS

By: Polarized Light Microscopy

**Client:** Lawhon And Associates  
1441 King Avenue  
Columbus, OH 432122108

**Lab Code:** 668359-1  
**Date Received:** 06/24/25  
**Date Analyzed:** 06/27/25  
**Date Reported:** 06/27/25

**Project:** Wellogy - OSU Marion Morrill Hall Fire & Elevator

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID                       | Lab               | Lab                                              | NON-ASBESTOS COMPONENTS |                    |                  |                              | ASBESTOS        |
|---------------------------------|-------------------|--------------------------------------------------|-------------------------|--------------------|------------------|------------------------------|-----------------|
| Lab ID                          | Description       | Attributes                                       | Fibrous                 |                    | Non-Fibrous      |                              | %               |
| 250611-8<br>3490345             | Tar               | Homogeneous<br>Black<br>Non-Fibrous<br>Bound     |                         | 80%<br>10%         | Tar<br>Binder    |                              | Chrysotile 10%  |
| 250611-9<br>3490346             | Tar               | Homogeneous<br>Black<br>Non-Fibrous<br>Bound     |                         | 80%<br>10%         | Tar<br>Binder    |                              | Chrysotile 10%  |
| 250611-10<br>3490347            | Flooring Adhesive | Homogeneous<br>Cream/tan<br>Non-Fibrous<br>Bound | 2%                      | Cellulose          | 80%<br>18%       | Mastic<br>Binder             | None Detected   |
| 250611-11<br>3490348            | Flooring Adhesive | Homogeneous<br>Cream/tan<br>Non-Fibrous<br>Bound | 2%                      | Cellulose          | 80%<br>18%       | Mastic<br>Binder             | None Detected   |
| 250611-12<br>Layer A<br>3490349 | Joint Compound    | Homogeneous<br>Tan<br>Non-Fibrous<br>Bound       |                         |                    | 5%<br>30%<br>63% | Paint<br>Calc Carb<br>Binder | Chrysotile 2%   |
| Layer B<br>3490349              | Drywall           | Homogeneous<br>White<br>Fibrous<br>Bound         | 15%<br>5%               | Cellulose<br>Glass | 80%              | Gypsum                       | None Detected   |
|                                 |                   |                                                  |                         |                    |                  |                              | Composite: 0.2% |



# ASBESTOS BULK ANALYSIS

By: Polarized Light Microscopy

**Client:** Lawhon And Associates  
1441 King Avenue  
Columbus, OH 432122108

**Lab Code:** 668359-1  
**Date Received:** 06/24/25  
**Date Analyzed:** 06/27/25  
**Date Reported:** 06/27/25

**Project:** Wellogy - OSU Marion Morrill Hall Fire & Elevator

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID                       | Lab            | Lab         | NON-ASBESTOS COMPONENTS |           |             |        | ASBESTOS      |
|---------------------------------|----------------|-------------|-------------------------|-----------|-------------|--------|---------------|
| Lab ID                          | Description    | Attributes  | Fibrous                 |           | Non-Fibrous |        | %             |
| 250611-13<br>Layer A<br>3490350 | Joint Compound | Homogeneous |                         |           | 5%          | Paint  | Chrysotile 2% |
|                                 |                | Tan         |                         | 30%       | Calc Carb   |        |               |
|                                 |                | Non-Fibrous |                         | 63%       | Binder      |        |               |
|                                 |                | Bound       |                         |           |             |        |               |
| Layer B<br>3490350              | Drywall        | Homogeneous | 15%                     | Cellulose | 80%         | Gypsum | None Detected |
|                                 |                | White       | 5%                      | Glass     |             |        |               |
|                                 |                | Fibrous     |                         |           |             |        |               |
|                                 |                | Bound       |                         |           |             |        |               |
| Composite: 0.2%                 |                |             |                         |           |             |        |               |
| 250611-14<br>Layer A<br>3490351 | Joint Compound | Homogeneous |                         |           | 65%         | Binder | None Detected |
|                                 |                | White       |                         | 35%       | Calc Carb   |        |               |
|                                 |                | Non-Fibrous |                         |           |             |        |               |
|                                 |                | Bound       |                         |           |             |        |               |
| Layer B<br>3490351              | Drywall        | Homogeneous | 15%                     | Cellulose | 5%          | Paint  | None Detected |
|                                 |                | White       | 5%                      | Glass     | 75%         | Gypsum |               |
|                                 |                | Fibrous     |                         |           |             |        |               |
|                                 |                | Bound       |                         |           |             |        |               |
| Composite: 0%                   |                |             |                         |           |             |        |               |
| 250611-15<br>Layer A<br>3490352 | Joint Compound | Homogeneous |                         |           | 65%         | Binder | None Detected |
|                                 |                | White       |                         | 35%       | Calc Carb   |        |               |
|                                 |                | Non-Fibrous |                         |           |             |        |               |
|                                 |                | Bound       |                         |           |             |        |               |
| Layer B<br>3490352              | Drywall        | Homogeneous | 15%                     | Cellulose | 5%          | Paint  | None Detected |
|                                 |                | White       | 5%                      | Glass     | 75%         | Gypsum |               |
|                                 |                | Fibrous     |                         |           |             |        |               |
|                                 |                | Bound       |                         |           |             |        |               |
| Composite: 0%                   |                |             |                         |           |             |        |               |

# ASBESTOS BULK ANALYSIS

By: Polarized Light Microscopy

**Client:** Lawhon And Associates  
1441 King Avenue  
Columbus, OH 432122108

**Lab Code:** 668359-1  
**Date Received:** 06/24/25  
**Date Analyzed:** 06/27/25  
**Date Reported:** 06/27/25

**Project:** Wellogy - OSU Marion Morrill Hall Fire & Elevator

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID                       | Lab            | Lab                  | NON-ASBESTOS COMPONENTS |           |             |        | ASBESTOS      |
|---------------------------------|----------------|----------------------|-------------------------|-----------|-------------|--------|---------------|
| Lab ID                          | Description    | Attributes           | Fibrous                 |           | Non-Fibrous |        | %             |
| 250611-16<br>Layer A<br>3490353 | Joint Compound | Homogeneous          |                         |           | 65%         | Binder | None Detected |
|                                 |                | White                |                         | 35%       | Calc Carb   |        |               |
|                                 |                | Non-Fibrous<br>Bound |                         |           |             |        |               |
| Layer B<br>3490353              | Drywall        | Homogeneous          | 15%                     | Cellulose | 5%          | Paint  | None Detected |
|                                 |                | White                | 5%                      | Glass     | 75%         | Gypsum |               |
|                                 |                | Fibrous<br>Bound     |                         |           |             |        |               |
| Composite: 0%                   |                |                      |                         |           |             |        |               |
| 250611-17<br>Layer A<br>3490354 | Joint Compound | Homogeneous          |                         |           | 65%         | Binder | None Detected |
|                                 |                | White                |                         | 35%       | Calc Carb   |        |               |
|                                 |                | Non-Fibrous<br>Bound |                         |           |             |        |               |
| Layer B<br>3490354              | Drywall        | Homogeneous          | 15%                     | Cellulose | 5%          | Paint  | None Detected |
|                                 |                | White                | 5%                      | Glass     | 75%         | Gypsum |               |
|                                 |                | Fibrous<br>Bound     |                         |           |             |        |               |
| Composite: 0%                   |                |                      |                         |           |             |        |               |
| 250611-18<br>Layer A<br>3490355 | Joint Compound | Homogeneous          |                         |           | 65%         | Binder | None Detected |
|                                 |                | White                |                         | 35%       | Calc Carb   |        |               |
|                                 |                | Non-Fibrous<br>Bound |                         |           |             |        |               |
| Layer B<br>3490355              | Drywall        | Homogeneous          | 15%                     | Cellulose | 5%          | Paint  | None Detected |
|                                 |                | White                | 5%                      | Glass     | 75%         | Gypsum |               |
|                                 |                | Fibrous<br>Bound     |                         |           |             |        |               |
| Composite: 0%                   |                |                      |                         |           |             |        |               |

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**LEGEND:**

Non-Anth = Non-Asbestiform Anthophyllite  
Non-Trem = Non-Asbestiform Tremolite  
Calc Carb = Calcium Carbonate

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**METHOD:** EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763

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**REPORTING LIMIT:** 1% by calibrated visual estimation

---

**REGULATORY LIMIT:** 1%

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Due to the limitations of the EPA 600 / R93 / 116 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. Estimated measurement of uncertainty is available on request.

Eurofins Built Environment Testing East, LLC makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins Built Environment Testing East, LLC. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Information provided by customer includes customer sample ID and sample description.



Scott Minyard  
Analyst



Katelyn Wix  
Analyst

**DATA QA:**



Scott Minyard  
6/27/2025

**APPROVED BY:**



Tianbao Bai, Ph.D., CIH  
Laboratory Director



Built Environment Testing

RES Job #: 668359

Effective

| SUBMITTED BY                                                                    |  | INVOICE TO                     |  | CONTACT INFORMATION                             |  | SERIES            |  |
|---------------------------------------------------------------------------------|--|--------------------------------|--|-------------------------------------------------|--|-------------------|--|
| Company: Lawhon And Associates                                                  |  | Company: Lawhon And Associates |  | Contact: Jordan Mederer                         |  | -1 PLM Standard 3 |  |
| Address: 1441 King Avenue                                                       |  | Address: 1441 King Avenue      |  | Phone: (614) 481-8600                           |  |                   |  |
|                                                                                 |  |                                |  | Fax:                                            |  |                   |  |
| Columbus, OH 43212-2108                                                         |  | Columbus, OH 43212-2108        |  | Cell: (614) 593-1529                            |  |                   |  |
| Project Number and/or P.O. #: 25-0235                                           |  | Project Zip Code:              |  | Final Data Deliverable Email Address:           |  |                   |  |
| Project Description/Location: Wellogy - OSU Marion Morrill Hall Fire & Elevator |  |                                |  | jmederer@lawhon-assoc.com (+ 6 ADDNL. CONTACTS) |  |                   |  |

| ASBESTOS LABORATORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |      |          |          | REQUESTED ANALYSIS |           |              |     |                          | VALID MATRIX CODES      |                                              |             |                 |                            | LAB NOTES |                         |   |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------|----------|----------|--------------------|-----------|--------------|-----|--------------------------|-------------------------|----------------------------------------------|-------------|-----------------|----------------------------|-----------|-------------------------|---|--|--|--|
| PLM / PCM / TEM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DTL       | RUSH | PRIORITY | STANDARD | ASBESTOS           | CHEMISTRY | MICROBIOLOGY | ICO | Sample Volume (L) / Area | Sample Temperature (°C) | Length(or Aliquots) x Width(or Area/Aliquot) | Matrix Code | # of Containers | Date Collected<br>mm/dd/yy |           | Time Collected<br>hh:mm |   |  |  |  |
| <div>ASBESTOS LABORATORY</div> <div>PLM / PCM / TEM</div> <div>DTL</div> <div>RUSH</div> <div>PRIORITY</div> <div>STANDARD</div> <div>CHEMISTRY LABORATORY</div> <div>Dust</div> <div>RUSH</div> <div>PRIORITY</div> <div>STANDARD</div> <div>Metals</div> <div>RUSH</div> <div>PRIORITY</div> <div>STANDARD</div> <div>*PRIOR NOTICE REQUIRED FOR SAME DAY TAT</div> <div>Organics*</div> <div>SAME DAY</div> <div>RUSH</div> <div>PRIORITY</div> <div>STANDARD</div> <div>MICROBIOLOGY LABORATORY</div> <div>Viable Analysis**</div> <div>PRIORITY</div> <div>STANDARD</div> <div>**TAT DEPENDENT ON SPEED OF MICROBIAL GROWTH</div> <div>Medical Device Analysis</div> <div>RUSH</div> <div>STANDARD</div> <div>Mold Analysis</div> <div>RUSH</div> <div>PRIORITY</div> <div>STANDARD</div> <div>**Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.**</div> <div>Special Instructions:<br/>if positive, composite samples 12 through 18</div> <div>Client Sample ID Number</div> <div>(Sample ID's must be unique)</div> |           |      |          |          | X                  |           |              |     |                          |                         |                                              |             |                 |                            |           |                         |   |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 1                  | 250611-1  |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 2                  | 250611-2  |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 3                  | 250611-3  |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 4                  | 250611-4  |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 5                  | 250611-5  |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 6                  | 250611-6  |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 7                  | 250611-7  |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 8                  | 250611-8  |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 9                  | 250611-9  |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 10                 | 250611-10 |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 11                 | 250611-11 |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |      |          |          | 12                 | 250611-12 |              |     |                          |                         |                                              |             |                 |                            |           |                         | B |  |  |  |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 250611-13 |      |          |          |                    |           |              |     |                          |                         |                                              | B           |                 |                            |           |                         |   |  |  |  |

Eurofins Built Environment Testing East, LLC establishes a unique Lab Sample ID, for each sample, by preceding each unique Client Sample ID with the laboratory RES Job Number.  
Eurofins Built Environment Testing East, LLC will analyze incoming samples based on information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing, client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days. Failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

|                  |                                |                              |
|------------------|--------------------------------|------------------------------|
| Relinquished By: | Date/Time: 06/24/2025 15:09:16 | Sample Condition: Acceptable |
| Received By:     | Date/Time: 06/24/2025 15:09:16 | Carrier: Fed-Ex              |



RES Job #: 668359

Submitted By: **Lawhon And Associates**

1441 King Avenue  
Columbus, OH 43212  
Phone: (614) 481-8600  
Fax: (614) 481-8610

Sent To: Eurofins

VIA: FedEx

Date: 6/11/25

Page 1 of 1

Turn around:

3-DAYS

## ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

| Project Name: <u>Wellway - Old Marion</u> |                 | Project No.: <u>25-0235</u>          | Project Contact: <u>Josh Rankin</u> | Sampler (print): <u>[Signature]</u> | Signature: <u>[Signature]</u> |
|-------------------------------------------|-----------------|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------|
| Sample ID. No.                            | Homog. Area No. | Sample Homogeneous Area Description  | Sample Location                     | Remarks                             |                               |
| 25011-1                                   | 1               | Hard Plaster Ceiling - Gray Base     | X325E - Top of Shaft                |                                     |                               |
| -2                                        | 1               |                                      |                                     |                                     |                               |
| -3                                        | 1               |                                      |                                     |                                     |                               |
| -4                                        | 2               | Elevator Hoistway Doors - Insulation | X325E                               |                                     |                               |
| -5                                        | 1               |                                      | X225E                               |                                     |                               |
| -6                                        | 3               | Elevator Cab Doors - Insulation      | X125E                               |                                     |                               |
| -7                                        | 1               |                                      |                                     |                                     |                               |
| -8                                        | 4               | Elevator Exterior Cab Top            |                                     |                                     |                               |
| -9                                        | 1               |                                      |                                     |                                     |                               |
| -10                                       | 5               | Elevator Cab Floor Glue              |                                     |                                     |                               |
| -11                                       | 1               |                                      |                                     |                                     |                               |
| -12                                       | 6               | Old Drywall / Yellow Compound        | 388                                 |                                     |                               |
| -13                                       | 1               |                                      |                                     |                                     |                               |
| -14                                       | 7               | Newer Drywall / White Compound       | X107C                               |                                     |                               |
| -15                                       | 1               |                                      | 122                                 |                                     |                               |
| -16                                       | 1               |                                      | 265                                 |                                     |                               |
| -17                                       | 1               |                                      | X20X                                |                                     |                               |
| -18                                       | 1               |                                      | 310A                                |                                     |                               |

EUROFINS CEI, INC  
SAMPLES ACCEPTED

[Signature]

SAMPLE ANALYSIS BY EPA METHOD 600/R-93/116 UNLESS OTHERWISE NOTED.

☐ Stop 1st Positive ☒ Analyze All Samples

| Relinquished by: (signature) | Date / Time | Received by: (signature) | Date / Time | Relinquished by: (signature) | Date / Time | Received by: (signature) | Date / Time     |
|------------------------------|-------------|--------------------------|-------------|------------------------------|-------------|--------------------------|-----------------|
| <u>[Signature]</u>           | 6/11/25 5pm |                          |             |                              |             | <u>W 6-24-25</u>         | <u>10:40 am</u> |

Distributor: White - Lab; Yellow - File

668359 (18)

No. 5866

United States Department of Commerce  
National Institute of Standards and Technology



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# Certificate of Accreditation to ISO/IEC 17025:2017

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NVLAP LAB CODE: 101768-0

**Eurofins Built Environment Testing East- Cary, NC**  
Cary, NC

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,  
listed on the Scope of Accreditation, for:

## Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality  
management system (refer to joint ISO-ILAC-IAF Communiqué on ISO/IEC 17025).

2025-04-01 through 2026-03-31

Effective Dates



For the National Voluntary Laboratory Accreditation Program



**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017**

**Eurofins Built Environment Testing East- Cary, NC**

730 SE Maynard Road

Cary, NC 27511

Dr. Tianbao Bai

Phone: 919-481-1413 Fax: 919-481-1442

Email: [tianbao.bai@eurofinset.com](mailto:tianbao.bai@eurofinset.com)

<http://www.eurofinsus.com/CEI>

**ASBESTOS FIBER ANALYSIS**

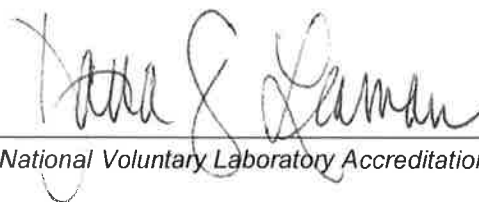
**NVLAP LAB CODE 101768-0**

**Bulk Asbestos Analysis**

| <u>Code</u> | <u>Description</u>                                                                                                            |
|-------------|-------------------------------------------------------------------------------------------------------------------------------|
| 18/A01      | EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples |
| 18/A03      | EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials                                         |

**Airborne Asbestos Analysis**

| <u>Code</u> | <u>Description</u>                                                                                                                                                                                                         |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18/A02      | U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A. |



For the National Voluntary Laboratory Accreditation Program



## **APPENDIX F**

### **Historical Lab Data**



eurofins

Built Environment Testing

January 06, 2025

Ian Peters  
Terracon Consultants, Inc. (Gahanna)  
800 Morrison Road  
Gahanna, OH 43230

**CLIENT PROJECT:** OSU Marion Morrill Hall, N4247374  
**LAB CODE:** 625415-1

Dear Ian,

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on December 31, 2024. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials and EPA 40 CFR Appendix E to Subpart E of Part 763: Interim Method of the Determination of Asbestos in Bulk Insulation Samples.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% by calibrated visual estimate.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,

Tianbao Bai, Ph.D., CIH  
Laboratory Director

NVLAP 101768-0



Built Environment Testing

---

**ASBESTOS ANALYTICAL REPORT**  
**By: Polarized Light Microscopy**

**Prepared for**

**Terracon Consultants, Inc. (Gahanna)**

---

|                 |                                                                        |
|-----------------|------------------------------------------------------------------------|
| CLIENT PROJECT: | OSU Marion Morrill Hall, N4247374                                      |
| LAB CODE:       | 625415-1                                                               |
| TEST METHOD:    | EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763 |
| REPORT DATE:    | 01/06/25                                                               |



Built Environment Testing

## ASBESTOS REPORT SUMMARY

By: Polarized Light Microscopy

**Project:** OSU Marion Morrill Hall, N4247374

**Lab Code:** 625415-1

**Method:** EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763

| Client ID | Lab ID  | Layer   | Sample Description           | Asbestos %    |
|-----------|---------|---------|------------------------------|---------------|
| 01-01     | 2948956 |         | White/patterned ceiling tile | None Detected |
| 01-02     | 2948957 |         | White/patterned ceiling tile | None Detected |
| 01-03     | 2948958 |         | White/patterned ceiling tile | None Detected |
| 02-04     | 2948959 | Layer A | White joint compound         | None Detected |
|           |         | Layer B | Brown/gray drywall           | None Detected |
| 02-05     | 2948960 | Layer A | White joint compound         | None Detected |
|           |         | Layer B | Brown/gray drywall           | None Detected |
| 02-06     | 2948961 | Layer A | White joint compound         | None Detected |
|           |         | Layer B | Brown/gray drywall           | None Detected |
| 02-07     | 2948962 | Layer A | White joint compound         | None Detected |
|           |         | Layer B | Brown/gray drywall           | None Detected |
| 02-08     | 2948963 | Layer A | White joint compound         | None Detected |
|           |         | Layer B | Brown/gray drywall           | None Detected |
| 03-09     | 2948964 |         | Silver tile                  | None Detected |
| 03-09 (2) | 2957473 |         | Clear mastic                 | None Detected |
| 03-10     | 2948965 |         | Red tile                     | None Detected |
| 03-10 (2) | 2957474 |         | Clear mastic                 | None Detected |
| 03-11     | 2948966 |         | Silver tile                  | None Detected |
| 03-11 (2) | 2957475 |         | Clear mastic                 | None Detected |
| 04-12     | 2948967 |         | Red caulk                    | None Detected |
| 04-13     | 2948968 |         | Red caulk                    | None Detected |
| 04-14     | 2948969 |         | Red caulk                    | None Detected |
| 05-15     | 2948970 |         | White caulk                  | None Detected |
| 05-16     | 2948971 |         | White caulk                  | None Detected |
| 05-17     | 2948972 |         | White caulk                  | None Detected |
| 06-18     | 2948973 |         | White ceiling tile           | None Detected |



Built Environment Testing

## ASBESTOS REPORT SUMMARY

By: Polarized Light Microscopy

**Project:** OSU Marion Morrill Hall, N4247374

**Lab Code:** 625415-1

**Method:** EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763

| Client ID | Lab ID  | Layer   | Sample Description   | Asbestos %    |
|-----------|---------|---------|----------------------|---------------|
| 06-19     | 2948974 |         | White ceiling tile   | None Detected |
| 06-20     | 2948975 |         | White ceiling tile   | None Detected |
| 07-21     | 2948976 | Layer A | White joint compound | None Detected |
|           |         | Layer B | Brown/gray drywall   | None Detected |
| 07-22     | 2948977 | Layer A | White joint compound | None Detected |
|           |         | Layer B | Brown/gray drywall   | None Detected |
| 07-23     | 2948978 | Layer A | White joint compound | None Detected |
|           |         | Layer B | Brown/gray drywall   | None Detected |
| 07-24     | 2948979 | Layer A | White joint compound | None Detected |
|           |         | Layer B | Brown/gray drywall   | None Detected |
| 07-25     | 2948980 | Layer A | White joint compound | None Detected |
|           |         | Layer B | Brown/gray drywall   | None Detected |
| 07-26     | 2948981 | Layer A | White joint compound | None Detected |
|           |         | Layer B | Brown/gray drywall   | None Detected |
| 07-27     | 2948982 | Layer A | White joint compound | None Detected |
|           |         | Layer B | Brown/gray drywall   | None Detected |
| 08-28     | 2948983 |         | White ceiling tile   | None Detected |
| 08-29     | 2948984 |         | White ceiling tile   | None Detected |
| 08-30     | 2948985 |         | White ceiling tile   | None Detected |
| 09-31     | 2948986 |         | White ceiling tile   | None Detected |
| 09-32     | 2948987 |         | White ceiling tile   | None Detected |
| 09-33     | 2948988 |         | White ceiling tile   | None Detected |
| 10-34     | 2948989 |         | Beige/white tile     | None Detected |
| 10-34 (2) | 2957476 |         | Tan/black mastic     | Chrysotile 3% |
| 10-35     | 2948990 |         | Beige/white tile     | None Detected |
| 10-35 (2) | 2957477 |         | Tan/black mastic     | Chrysotile 3% |



Built Environment Testing

**ASBESTOS REPORT SUMMARY**

By: Polarized Light Microscopy

**Project:** OSU Marion Morrill Hall, N4247374**Lab Code:** 625415-1**Method:** EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763

| Client ID | Lab ID  | Layer   | Sample Description      | Asbestos %    |
|-----------|---------|---------|-------------------------|---------------|
| 10-36     | 2948991 |         | Beige/white tile        | None Detected |
| 10-36 (2) | 2957478 |         | Tan/black mastic        | Chrysotile 3% |
| 11-37     | 2948992 |         | Red tile                | None Detected |
| 11-37 (2) | 2957479 |         | Black mastic            | None Detected |
| 11-38     | 2948993 |         | Beige tile              | None Detected |
| 11-38 (2) | 2957480 |         | Black mastic            | None Detected |
| 11-39     | 2948994 |         | Off-white tile          | None Detected |
| 11-39 (2) | 2957481 |         | Black mastic            | None Detected |
| 12-40     | 2948995 |         | Silver/tan insulation   | None Detected |
| 12-41     | 2948996 |         | Silver/tan insulation   | None Detected |
| 12-42     | 2948997 |         | Silver/tan insulation   | None Detected |
| 13-43     | 2948998 | Layer A | White insulation        | None Detected |
|           |         | Layer B | Gray insulation         | None Detected |
| 13-44     | 2948999 | Layer A | White insulation        | None Detected |
|           |         | Layer B | Gray insulation         | None Detected |
| 13-45     | 2949000 | Layer A | White insulation        | None Detected |
|           |         | Layer B | Gray insulation         | None Detected |
| 14-46     | 2949001 |         | Red caulk               | None Detected |
| 14-47     | 2949002 |         | Red caulk               | None Detected |
| 14-48     | 2949003 |         | Red caulk               | None Detected |
| 15-49     | 2949004 | Layer A | White plaster skim coat | None Detected |
|           |         | Layer B | Gray plaster base coat  | None Detected |
| 15-49 (2) | 2957482 | Layer A | White texture           | None Detected |
|           |         | Layer B | Brown/gray drywall      | None Detected |
| 15-50     | 2949005 | Layer A | White texture           | None Detected |
|           |         | Layer B | Brown/gray drywall      | None Detected |



Built Environment Testing

**ASBESTOS REPORT SUMMARY**

By: Polarized Light Microscopy

**Project:** OSU Marion Morrill Hall, N4247374**Lab Code:** 625415-1**Method:** EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763

| Client ID | Lab ID  | Layer   | Sample Description           | Asbestos %    |
|-----------|---------|---------|------------------------------|---------------|
| 15-51     | 2949006 | Layer A | White texture                | None Detected |
|           |         | Layer B | Brown/gray drywall           | None Detected |
| 16-52     | 2949007 |         | Gray plaster                 | None Detected |
| 16-53     | 2949008 |         | Gray plaster                 | None Detected |
| 16-54     | 2949009 |         | Gray plaster                 | None Detected |
| 17-55     | 2949010 | Layer A | White insulation             | None Detected |
|           |         | Layer B | Gray insulation              | None Detected |
| 17-56     | 2949011 | Layer A | White insulation             | None Detected |
|           |         | Layer B | Gray insulation              | None Detected |
| 17-57     | 2949012 | Layer A | White insulation             | None Detected |
|           |         | Layer B | Gray insulation              | None Detected |
| 18-58     | 2949013 | Layer A | White plaster skim coat      | None Detected |
|           |         | Layer B | Gray plaster base coat       | None Detected |
| 18-59     | 2949014 |         | Gray plaster                 | None Detected |
| 18-60     | 2949015 |         | White plaster                | None Detected |
| 19-61     | 2949016 |         | White plaster                | Chrysotile 5% |
| 19-62     | 2949017 |         | White plaster                | Chrysotile 5% |
| 19-63     | 2949018 |         | White plaster                | Chrysotile 5% |
| 19-64     | 2949019 |         | White plaster                | Chrysotile 5% |
| 19-65     | 2949020 |         | White plaster                | Chrysotile 5% |
| 20-66     | 2949021 | Layer A | Silver/gray paint/insulation | Chrysotile 5% |
|           |         | Layer B | White insulation             | None Detected |
|           |         | Layer C | Tan insulation               | None Detected |
| 20-67     | 2949022 | Layer A | Silver paint                 | None Detected |
|           |         | Layer B | White insulation             | None Detected |
|           |         | Layer C | Tan insulation               | None Detected |



Built Environment Testing

## ASBESTOS REPORT SUMMARY

By: Polarized Light Microscopy

**Project:** OSU Marion Morrill Hall, N4247374

**Lab Code:** 625415-1

**Method:** EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763

| Client ID | Lab ID  | Layer   | Sample Description | Asbestos %                  |
|-----------|---------|---------|--------------------|-----------------------------|
| 20-68     | 2949023 | Layer A | Silver paint       | None Detected               |
|           |         | Layer B | White insulation   | None Detected               |
|           |         | Layer C | Tan insulation     | None Detected               |
| 21-69     | 2949024 |         | Gray sealant       | None Detected               |
| 21-70     | 2949025 |         | Gray sealant       | None Detected               |
| 21-71     | 2949026 |         | Gray sealant       | None Detected               |
| 22-72     | 2949027 | Layer A | White insulation   | None Detected               |
|           |         | Layer B | Tan insulation     | None Detected               |
| 22-73     | 2949028 | Layer A | White insulation   | None Detected               |
|           |         | Layer B | Tan insulation     | None Detected               |
| 22-74     | 2949029 | Layer A | White insulation   | None Detected               |
|           |         | Layer B | Tan insulation     | None Detected               |
| 23-75     | 2949030 | Layer A | White insulation   | None Detected               |
|           |         | Layer B | White insulation   | Chrysotile 2%<br>Amosite 5% |
| 23-76     | 2949031 | Layer A | White insulation   | None Detected               |
|           |         | Layer B | White insulation   | Chrysotile 2%               |
| 23-77     | 2949032 | Layer A | White insulation   | None Detected               |
|           |         | Layer B | White insulation   | Chrysotile 2%               |





Built Environment Testing

**ASBESTOS BULK ANALYSIS**

By: Polarized Light Microscopy

**Client:** Terracon Consultants, Inc. (Gahanna)  
800 Morrison Road  
Gahanna, OH 43230

**Lab Code:** 625415-1  
**Date Received:** 12/31/24  
**Date Analyzed:** 01/04/25  
**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID | Lab            | Lab             | NON-ASBESTOS COMPONENTS |           |             |           | ASBESTOS      |
|-----------|----------------|-----------------|-------------------------|-----------|-------------|-----------|---------------|
| Lab ID    | Description    | Attributes      | Fibrous                 |           | Non-Fibrous |           | %             |
| 01-01     | Ceiling Tile   | Hetrogeneous    | 60%                     | Cellulose | 15%         | Perlite   | None Detected |
| 2948956   |                | White/patterned | 20%                     | Glass     | 5%          | Binder    |               |
|           |                | Fibrous         |                         |           |             |           |               |
|           |                | Loosely Bound   |                         |           |             |           |               |
| 01-02     | Ceiling Tile   | Hetrogeneous    | 60%                     | Cellulose | 15%         | Perlite   | None Detected |
| 2948957   |                | White/patterned | 20%                     | Glass     | 5%          | Binder    |               |
|           |                | Fibrous         |                         |           |             |           |               |
|           |                | Loosely Bound   |                         |           |             |           |               |
| 01-03     | Ceiling Tile   | Hetrogeneous    | 60%                     | Cellulose | 15%         | Perlite   | None Detected |
| 2948958   |                | White/patterned | 20%                     | Glass     | 5%          | Binder    |               |
|           |                | Fibrous         |                         |           |             |           |               |
|           |                | Loosely Bound   |                         |           |             |           |               |
| 02-04     | Joint Compound | Hetrogeneous    |                         |           | 60%         | Binder    | None Detected |
| Layer A   |                | White           |                         |           | 35%         | Calc Carb |               |
| 2948959   |                | Non-Fibrous     |                         |           | 5%          | Paint     |               |
|           |                | Bound           |                         |           |             |           |               |
| Layer B   | Drywall        | Hetrogeneous    | 15%                     | Cellulose | 85%         | Gypsum    | None Detected |
| 2948959   |                | Brown/gray      |                         |           |             |           |               |
|           |                | Fibrous         |                         |           |             |           |               |
|           |                | Bound           |                         |           |             |           |               |
| 02-05     | Joint Compound | Hetrogeneous    |                         |           | 60%         | Binder    | None Detected |
| Layer A   |                | White           |                         |           | 35%         | Calc Carb |               |
| 2948960   |                | Non-Fibrous     |                         |           | 5%          | Paint     |               |
|           |                | Bound           |                         |           |             |           |               |
| Layer B   | Drywall        | Hetrogeneous    | 15%                     | Cellulose | 85%         | Gypsum    | None Detected |
| 2948960   |                | Brown/gray      |                         |           |             |           |               |
|           |                | Fibrous         |                         |           |             |           |               |
|           |                | Bound           |                         |           |             |           |               |



Built Environment Testing

## ASBESTOS BULK ANALYSIS

By: Polarized Light Microscopy

**Client:** Terracon Consultants, Inc. (Gahanna)  
800 Morrison Road  
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**Lab Code:** 625415-1  
**Date Received:** 12/31/24  
**Date Analyzed:** 01/04/25  
**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID<br>Lab ID         | Lab<br>Description | Lab<br>Attributes | NON-ASBESTOS COMPONENTS |           |             | ASBESTOS<br>%           |
|-----------------------------|--------------------|-------------------|-------------------------|-----------|-------------|-------------------------|
|                             |                    |                   | Fibrous                 |           | Non-Fibrous |                         |
| 02-06<br>Layer A<br>2948961 | Joint Compound     | Hetrogeneous      |                         |           | 60%         | Binder<br>None Detected |
|                             |                    | White             |                         |           | 35%         |                         |
|                             |                    | Non-Fibrous       |                         |           | 5%          |                         |
|                             |                    | Bound             |                         |           |             |                         |
| Layer B<br>2948961          | Drywall            | Hetrogeneous      | 15%                     | Cellulose | 85%         | Gypsum<br>None Detected |
|                             |                    | Brown/gray        |                         |           |             |                         |
|                             |                    | Fibrous           |                         |           |             |                         |
|                             |                    | Bound             |                         |           |             |                         |
| 02-07<br>Layer A<br>2948962 | Joint Compound     | Hetrogeneous      |                         |           | 60%         | Binder<br>None Detected |
|                             |                    | White             |                         |           | 35%         |                         |
|                             |                    | Non-Fibrous       |                         |           | 5%          |                         |
|                             |                    | Bound             |                         |           |             |                         |
| Layer B<br>2948962          | Drywall            | Hetrogeneous      | 15%                     | Cellulose | 85%         | Gypsum<br>None Detected |
|                             |                    | Brown/gray        |                         |           |             |                         |
|                             |                    | Fibrous           |                         |           |             |                         |
|                             |                    | Bound             |                         |           |             |                         |
| 02-08<br>Layer A<br>2948963 | Joint Compound     | Hetrogeneous      |                         |           | 60%         | Binder<br>None Detected |
|                             |                    | White             |                         |           | 35%         |                         |
|                             |                    | Non-Fibrous       |                         |           | 5%          |                         |
|                             |                    | Bound             |                         |           |             |                         |
| Layer B<br>2948963          | Drywall            | Hetrogeneous      | 15%                     | Cellulose | 85%         | Gypsum<br>None Detected |
|                             |                    | Brown/gray        |                         |           |             |                         |
|                             |                    | Fibrous           |                         |           |             |                         |
|                             |                    | Bound             |                         |           |             |                         |
| 03-09<br>2948964            | Tile               | Homogeneous       |                         |           | 100%        | Vinyl<br>None Detected  |
|                             |                    | Silver            |                         |           |             |                         |
|                             |                    | Non-Fibrous       |                         |           |             |                         |
|                             |                    | Tightly Bound     |                         |           |             |                         |



Built Environment Testing

**ASBESTOS BULK ANALYSIS**

By: Polarized Light Microscopy

**Client:** Terracon Consultants, Inc. (Gahanna)  
800 Morrison Road  
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**Lab Code:** 625415-1  
**Date Received:** 12/31/24  
**Date Analyzed:** 01/04/25  
**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID<br>Lab ID  | Lab<br>Description | Lab<br>Attributes                             | NON-ASBESTOS COMPONENTS |             | ASBESTOS<br>% |
|----------------------|--------------------|-----------------------------------------------|-------------------------|-------------|---------------|
|                      |                    |                                               | Fibrous                 | Non-Fibrous |               |
| 03-09 (2)<br>2957473 | Mastic             | Homogeneous<br>Clear<br>Non-Fibrous<br>Bound  | 100%                    | Mastic      | None Detected |
| 03-10<br>2948965     | Tile               | Homogeneous<br>Red<br>Non-Fibrous<br>Bound    | 100%                    | Vinyl       | None Detected |
| 03-10 (2)<br>2957474 | Mastic             | Homogeneous<br>Clear<br>Non-Fibrous<br>Bound  | 100%                    | Mastic      | None Detected |
| 03-11<br>2948966     | Tile               | Homogeneous<br>Silver<br>Non-Fibrous<br>Bound | 100%                    | Vinyl       | None Detected |
| 03-11 (2)<br>2957475 | Mastic             | Homogeneous<br>Clear<br>Non-Fibrous<br>Bound  | 100%                    | Mastic      | None Detected |
| 04-12<br>2948967     | Caulk              | Homogeneous<br>Red<br>Non-Fibrous<br>Bound    | 100%                    | Caulk       | None Detected |
| 04-13<br>2948968     | Caulk              | Homogeneous<br>Red<br>Non-Fibrous<br>Bound    | 100%                    | Caulk       | None Detected |



Built Environment Testing

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**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID        | Lab          | Lab                                               | NON-ASBESTOS COMPONENTS |                    |             |                   | ASBESTOS      |
|------------------|--------------|---------------------------------------------------|-------------------------|--------------------|-------------|-------------------|---------------|
| Lab ID           | Description  | Attributes                                        | Fibrous                 |                    | Non-Fibrous |                   | %             |
| 04-14<br>2948969 | Caulk        | Homogeneous<br>Red<br>Non-Fibrous<br>Bound        |                         |                    | 100%        | Caulk             | None Detected |
| 05-15<br>2948970 | Caulk        | Homogeneous<br>White<br>Non-Fibrous<br>Bound      |                         |                    | 100%        | Caulk             | None Detected |
| 05-16<br>2948971 | Caulk        | Homogeneous<br>White<br>Non-Fibrous<br>Bound      |                         |                    | 100%        | Caulk             | None Detected |
| 05-17<br>2948972 | Caulk        | Homogeneous<br>White<br>Non-Fibrous<br>Bound      |                         |                    | 100%        | Caulk             | None Detected |
| 06-18<br>2948973 | Ceiling Tile | Hetrogeneous<br>White<br>Fibrous<br>Loosely Bound | 60%<br>20%              | Cellulose<br>Glass | 15%<br>5%   | Perlite<br>Binder | None Detected |
| 06-19<br>2948974 | Ceiling Tile | Hetrogeneous<br>White<br>Fibrous<br>Loosely Bound | 60%<br>20%              | Cellulose<br>Glass | 15%<br>5%   | Perlite<br>Binder | None Detected |
| 06-20<br>2948975 | Ceiling Tile | Hetrogeneous<br>White<br>Fibrous<br>Loosely Bound | 60%<br>20%              | Cellulose<br>Glass | 15%<br>5%   | Perlite<br>Binder | None Detected |



Built Environment Testing

## ASBESTOS BULK ANALYSIS

By: Polarized Light Microscopy

**Client:** Terracon Consultants, Inc. (Gahanna)  
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**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID                   | Lab            | Lab                                            | NON-ASBESTOS COMPONENTS |           |             |                     | ASBESTOS      |
|-----------------------------|----------------|------------------------------------------------|-------------------------|-----------|-------------|---------------------|---------------|
| Lab ID                      | Description    | Attributes                                     | Fibrous                 |           | Non-Fibrous |                     | %             |
| 07-21<br>Layer A<br>2948976 | Joint Compound | Homogeneous<br>White<br>Non-Fibrous<br>Bound   |                         |           | 40%<br>60%  | Calc Carb<br>Binder | None Detected |
| Layer B<br>2948976          | Drywall        | Hetrogeneous<br>Brown/gray<br>Fibrous<br>Bound | 15%                     | Cellulose | 85%         | Gypsum              | None Detected |
| 07-22<br>Layer A<br>2948977 | Joint Compound | Homogeneous<br>White<br>Non-Fibrous<br>Bound   |                         |           | 60%<br>40%  | Binder<br>Calc Carb | None Detected |
| Layer B<br>2948977          | Drywall        | Hetrogeneous<br>Brown/gray<br>Fibrous<br>Bound | 15%                     | Cellulose | 85%         | Gypsum              | None Detected |
| 07-23<br>Layer A<br>2948978 | Joint Compound | Homogeneous<br>White<br>Non-Fibrous<br>Bound   |                         |           | 60%<br>40%  | Binder<br>Calc Carb | None Detected |
| Layer B<br>2948978          | Drywall        | Hetrogeneous<br>Brown/gray<br>Fibrous<br>Bound | 15%                     | Cellulose | 85%         | Gypsum              | None Detected |



Built Environment Testing

## ASBESTOS BULK ANALYSIS

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**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID | Lab            | Lab               | NON-ASBESTOS COMPONENTS |           |             |           | ASBESTOS      |
|-----------|----------------|-------------------|-------------------------|-----------|-------------|-----------|---------------|
| Lab ID    | Description    | Attributes        | Fibrous                 |           | Non-Fibrous |           | %             |
| 07-24     | Joint Compound | Homogeneous       |                         |           | 60%         | Binder    | None Detected |
| Layer A   |                | White             |                         |           | 40%         | Calc Carb |               |
| 2948979   |                | Non-Fibrous Bound |                         |           |             |           |               |
| Layer B   | Drywall        | Homogeneous       | 15%                     | Cellulose | 85%         | Gypsum    | None Detected |
| 2948979   |                | Brown/gray        |                         |           |             |           |               |
|           |                | Fibrous Bound     |                         |           |             |           |               |
| 07-25     | Joint Compound | Homogeneous       |                         |           | 60%         | Binder    | None Detected |
| Layer A   |                | White             |                         |           | 40%         | Calc Carb |               |
| 2948980   |                | Non-Fibrous Bound |                         |           |             |           |               |
| Layer B   | Drywall        | Hetrogeneous      | 15%                     | Cellulose | 85%         | Gypsum    | None Detected |
| 2948980   |                | Brown/gray        |                         |           |             |           |               |
|           |                | Fibrous Bound     |                         |           |             |           |               |
| 07-26     | Joint Compound | Homogeneous       |                         |           | 60%         | Binder    | None Detected |
| Layer A   |                | White             |                         |           | 40%         | Calc Carb |               |
| 2948981   |                | Non-Fibrous Bound |                         |           |             |           |               |
| Layer B   | Drywall        | Hetrogeneous      | 15%                     | Cellulose | 85%         | Gypsum    | None Detected |
| 2948981   |                | Brown/gray        |                         |           |             |           |               |
|           |                | Fibrous Bound     |                         |           |             |           |               |



Built Environment Testing

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**Lab Code:** 625415-1  
**Date Received:** 12/31/24  
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**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID | Lab            | Lab                            | NON-ASBESTOS COMPONENTS |           |             |               | ASBESTOS      |
|-----------|----------------|--------------------------------|-------------------------|-----------|-------------|---------------|---------------|
| Lab ID    | Description    | Attributes                     | Fibrous                 |           | Non-Fibrous |               | %             |
| 07-27     | Joint Compound | Homogeneous                    |                         | 60%       | Binder      | None Detected |               |
| Layer A   |                | White                          |                         | 40%       | Calc Carb   |               |               |
| 2948982   |                | Non-Fibrous<br>Bound           |                         |           |             |               |               |
| Layer B   | Drywall        | Hetrogeneous                   | 15%                     | Cellulose | 85%         | Gypsum        | None Detected |
| 2948982   |                | Brown/gray<br>Fibrous<br>Bound |                         |           |             |               |               |
| 08-28     | Ceiling Tile   | Hetrogeneous                   | 60%                     | Cellulose | 15%         | Perlite       | None Detected |
| 2948983   |                | White                          | 20%                     | Glass     | 5%          | Binder        |               |
|           |                | Fibrous                        |                         |           |             |               |               |
|           |                | Loosely Bound                  |                         |           |             |               |               |
| 08-29     | Ceiling Tile   | Hetrogeneous                   | 60%                     | Cellulose | 15%         | Perlite       | None Detected |
| 2948984   |                | White                          | 20%                     | Glass     | 5%          | Binder        |               |
|           |                | Fibrous                        |                         |           |             |               |               |
|           |                | Loosely Bound                  |                         |           |             |               |               |
| 08-30     | Ceiling Tile   | Hetrogeneous                   | 60%                     | Cellulose | 15%         | Perlite       | None Detected |
| 2948985   |                | White                          | 20%                     | Glass     | 5%          | Binder        |               |
|           |                | Fibrous                        |                         |           |             |               |               |
|           |                | Loosely Bound                  |                         |           |             |               |               |
| 09-31     | Ceiling Tile   | Hetrogeneous                   | 60%                     | Cellulose | 15%         | Perlite       | None Detected |
| 2948986   |                | White                          | 20%                     | Glass     | 5%          | Binder        |               |
|           |                | Fibrous                        |                         |           |             |               |               |
|           |                | Loosely Bound                  |                         |           |             |               |               |
| 09-32     | Ceiling Tile   | Hetrogeneous                   | 60%                     | Cellulose | 15%         | Perlite       | None Detected |
| 2948987   |                | White                          | 20%                     | Glass     | 5%          | Binder        |               |
|           |                | Fibrous                        |                         |           |             |               |               |
|           |                | Loosely Bound                  |                         |           |             |               |               |



Built Environment Testing

**ASBESTOS BULK ANALYSIS****By: Polarized Light Microscopy**

**Client:** Terracon Consultants, Inc. (Gahanna)  
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**Lab Code:** 625415-1  
**Date Received:** 12/31/24  
**Date Analyzed:** 01/04/25  
**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID                                           | Lab          | Lab           | NON-ASBESTOS COMPONENTS |             |      |         | ASBESTOS      |
|-----------------------------------------------------|--------------|---------------|-------------------------|-------------|------|---------|---------------|
| Lab ID                                              | Description  | Attributes    | Fibrous                 | Non-Fibrous |      |         | %             |
| 09-33                                               | Ceiling Tile | Hetrogeneous  | 60%                     | Cellulose   | 15%  | Perlite | None Detected |
| 2948988                                             |              | White         | 20%                     | Glass       | 5%   | Binder  |               |
|                                                     |              | Fibrous       |                         |             |      |         |               |
|                                                     |              | Loosely Bound |                         |             |      |         |               |
| 10-34                                               | Tile         | Homogeneous   |                         |             | 100% | Vinyl   | None Detected |
| 2948989                                             |              | Beige/white   |                         |             |      |         |               |
|                                                     |              | Non-Fibrous   |                         |             |      |         |               |
|                                                     |              | Bound         |                         |             |      |         |               |
| 10-34 (2)                                           | Mastic       | Hetrogeneous  |                         |             | 97%  | Mastic  | Chrysotile 3% |
| 2957476                                             |              | Tan/black     |                         |             |      |         |               |
|                                                     |              | Non-Fibrous   |                         |             |      |         |               |
|                                                     |              | Bound         |                         |             |      |         |               |
| Unable to separate mastics for individual analysis. |              |               |                         |             |      |         |               |
| 10-35                                               | Tile         | Homogeneous   |                         |             | 100% | Vinyl   | None Detected |
| 2948990                                             |              | Beige/white   |                         |             |      |         |               |
|                                                     |              | Non-Fibrous   |                         |             |      |         |               |
|                                                     |              | Tightly Bound |                         |             |      |         |               |
| 10-35 (2)                                           | Mastic       | Homogeneous   |                         |             | 97%  | Mastic  | Chrysotile 3% |
| 2957477                                             |              | Tan/black     |                         |             |      |         |               |
|                                                     |              | Non-Fibrous   |                         |             |      |         |               |
|                                                     |              | Bound         |                         |             |      |         |               |
| Unable to separate mastics for individual analysis. |              |               |                         |             |      |         |               |
| 10-36                                               | Tile         | Homogeneous   |                         |             | 100% | Vinyl   | None Detected |
| 2948991                                             |              | Beige/white   |                         |             |      |         |               |
|                                                     |              | Non-Fibrous   |                         |             |      |         |               |
|                                                     |              | Tightly Bound |                         |             |      |         |               |





Built Environment Testing

**ASBESTOS BULK ANALYSIS**

By: Polarized Light Microscopy

**Client:** Terracon Consultants, Inc. (Gahanna)  
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**Lab Code:** 625415-1  
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**Date Analyzed:** 01/04/25  
**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID                                           | Lab         | Lab                                                      | NON-ASBESTOS COMPONENTS |             | ASBESTOS      |
|-----------------------------------------------------|-------------|----------------------------------------------------------|-------------------------|-------------|---------------|
| Lab ID                                              | Description | Attributes                                               | Fibrous                 | Non-Fibrous | %             |
| 10-36 (2)<br>2957478                                | Mastic      | Hetrogeneous<br>Tan/black<br>Non-Fibrous<br>Bound        | 97%                     | Mastic      | Chrysotile 3% |
| Unable to separate mastics for individual analysis. |             |                                                          |                         |             |               |
| 11-37<br>2948992                                    | Tile        | Homogeneous<br>Red<br>Non-Fibrous<br>Tightly Bound       | 100%                    | Vinyl       | None Detected |
| 11-37 (2)<br>2957479                                | Mastic      | Homogeneous<br>Black<br>Non-Fibrous<br>Bound             | 100%                    | Mastic      | None Detected |
| 11-38<br>2948993                                    | Tile        | Homogeneous<br>Beige<br>Non-Fibrous<br>Tightly Bound     | 100%                    | Vinyl       | None Detected |
| 11-38 (2)<br>2957480                                | Mastic      | Homogeneous<br>Black<br>Non-Fibrous<br>Bound             | 100%                    | Mastic      | None Detected |
| 11-39<br>2948994                                    | Tile        | Homogeneous<br>Off-white<br>Non-Fibrous<br>Tightly Bound | 100%                    | Vinyl       | None Detected |
| 11-39 (2)<br>2957481                                | Mastic      | Homogeneous<br>Black<br>Non-Fibrous<br>Bound             | 100%                    | Mastic      | None Detected |



Built Environment Testing

**ASBESTOS BULK ANALYSIS**

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**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID | Lab         | Lab           | NON-ASBESTOS COMPONENTS |             |     |           | ASBESTOS      |
|-----------|-------------|---------------|-------------------------|-------------|-----|-----------|---------------|
| Lab ID    | Description | Attributes    | Fibrous                 | Non-Fibrous |     |           | %             |
| 12-40     | Insulation  | Hetrogeneous  | 60%                     | Cellulose   | 20% | Foil      | None Detected |
| 2948995   |             | Silver/tan    |                         |             | 20% | Tar       |               |
|           |             | Fibrous       |                         |             |     |           |               |
|           |             | Bound         |                         |             |     |           |               |
| 12-41     | Insulation  | Hetrogeneous  | 60%                     | Cellulose   | 20% | Foil      | None Detected |
| 2948996   |             | Silver/tan    |                         |             | 20% | Tar       |               |
|           |             | Fibrous       |                         |             |     |           |               |
|           |             | Bound         |                         |             |     |           |               |
| 12-42     | Insulation  | Hetrogeneous  | 60%                     | Cellulose   | 20% | Foil      | None Detected |
| 2948997   |             | Silver/tan    |                         |             | 20% | Tar       |               |
|           |             | Fibrous       |                         |             |     |           |               |
|           |             | Bound         |                         |             |     |           |               |
| 13-43     | Insulation  | Homogeneous   | 100%                    | Cellulose   |     |           | None Detected |
| Layer A   |             | White         |                         |             |     |           |               |
| 2948998   |             | Fibrous       |                         |             |     |           |               |
|           |             | Bound         |                         |             |     |           |               |
| Layer B   | Insulation  | Homogeneous   | 20%                     | Glass       | 60% | Binder    | None Detected |
| 2948998   |             | Gray          |                         |             | 20% | Calc Carb |               |
|           |             | Fibrous       |                         |             |     |           |               |
|           |             | Loosely Bound |                         |             |     |           |               |
| 13-44     | Insulation  | Homogeneous   | 100%                    | Cellulose   |     |           | None Detected |
| Layer A   |             | White         |                         |             |     |           |               |
| 2948999   |             | Fibrous       |                         |             |     |           |               |
|           |             | Bound         |                         |             |     |           |               |
| Layer B   | Insulation  | Homogeneous   | 20%                     | Glass       | 60% | Binder    | None Detected |
| 2948999   |             | Gray          |                         |             | 20% | Calc Carb |               |
|           |             | Fibrous       |                         |             |     |           |               |
|           |             | Loosely Bound |                         |             |     |           |               |



Built Environment Testing

**ASBESTOS BULK ANALYSIS**

By: Polarized Light Microscopy

**Client:** Terracon Consultants, Inc. (Gahanna)  
800 Morrison Road  
Gahanna, OH 43230

**Lab Code:** 625415-1  
**Date Received:** 12/31/24  
**Date Analyzed:** 01/04/25  
**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID                   | Lab               | Lab                                             | NON-ASBESTOS COMPONENTS |             |            |                     | ASBESTOS      |
|-----------------------------|-------------------|-------------------------------------------------|-------------------------|-------------|------------|---------------------|---------------|
| Lab ID                      | Description       | Attributes                                      | Fibrous                 | Non-Fibrous |            |                     | %             |
| 13-45<br>Layer A<br>2949000 | Insulation        | Homogeneous<br>White<br>Fibrous<br>Bound        | 100%                    | Cellulose   |            |                     | None Detected |
| Layer B<br>2949000          | Insulation        | Homogeneous<br>Gray<br>Fibrous<br>Loosely Bound | 20%                     | Glass       | 60%<br>20% | Binder<br>Calc Carb | None Detected |
| 14-46<br>2949001            | Caulk             | Homogeneous<br>Red<br>Non-Fibrous<br>Bound      | 5%                      | Glass       | 95%        | Caulk               | None Detected |
| 14-47<br>2949002            | Caulk             | Homogeneous<br>Red<br>Non-Fibrous<br>Bound      | 5%                      | Glass       | 95%        | Caulk               | None Detected |
| 14-48<br>2949003            | Caulk             | Homogeneous<br>Red<br>Non-Fibrous<br>Bound      | 5%                      | Glass       | 95%        | Caulk               | None Detected |
| 15-49<br>Layer A<br>2949004 | Plaster Skim Coat | Homogeneous<br>White<br>Non-Fibrous<br>Bound    |                         |             | 60%<br>40% | Binder<br>Silica    | None Detected |
| Layer B<br>2949004          | Plaster Base Coat | Homogeneous<br>Gray<br>Non-Fibrous<br>Bound     |                         |             | 70%<br>30% | Binder<br>Perlite   | None Detected |



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**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID                                                 | Lab         | Lab          | NON-ASBESTOS COMPONENTS |           |             |           | ASBESTOS      |
|-----------------------------------------------------------|-------------|--------------|-------------------------|-----------|-------------|-----------|---------------|
| Lab ID                                                    | Description | Attributes   | Fibrous                 |           | Non-Fibrous |           | %             |
| 15-49 (2)                                                 | Texture     | Hetrogeneous |                         |           | 60%         | Binder    | None Detected |
| Layer A                                                   |             | White        |                         |           | 35%         | Calc Carb |               |
| 2957482                                                   |             | Non-Fibrous  |                         |           | 5%          | Paint     |               |
|                                                           |             | Bound        |                         |           |             |           |               |
| Layer B                                                   | Drywall     | Hetrogeneous | 15%                     | Cellulose | 85%         | Gypsum    | None Detected |
| 2957482                                                   |             | Brown/gray   |                         |           |             |           |               |
|                                                           |             | Fibrous      |                         |           |             |           |               |
|                                                           |             | Bound        |                         |           |             |           |               |
| 15-50                                                     | Texture     | Hetrogeneous |                         |           | 60%         | Binder    | None Detected |
| Layer A                                                   |             | White        |                         |           | 35%         | Calc Carb |               |
| 2949005                                                   |             | Non-Fibrous  |                         |           | 5%          | Paint     |               |
|                                                           |             | Bound        |                         |           |             |           |               |
| Layer B                                                   | Drywall     | Hetrogeneous | 15%                     | Cellulose | 85%         | Gypsum    | None Detected |
| 2949005                                                   |             | Brown/gray   |                         |           |             |           |               |
|                                                           |             | Fibrous      |                         |           |             |           |               |
|                                                           |             | Bound        |                         |           |             |           |               |
| Sample appears to be texture/drywall. No plaster present. |             |              |                         |           |             |           |               |
| 15-51                                                     | Texture     | Hetrogeneous |                         |           | 60%         | Binder    | None Detected |
| Layer A                                                   |             | White        |                         |           | 35%         | Calc Carb |               |
| 2949006                                                   |             | Non-Fibrous  |                         |           | 5%          | Paint     |               |
|                                                           |             | Bound        |                         |           |             |           |               |
| Layer B                                                   | Drywall     | Hetrogeneous | 15%                     | Cellulose | 85%         | Gypsum    | None Detected |
| 2949006                                                   |             | Brown/gray   |                         |           |             |           |               |
|                                                           |             | Fibrous      |                         |           |             |           |               |
|                                                           |             | Bound        |                         |           |             |           |               |
| Sample appears to be texture/drywall. No plaster present. |             |              |                         |           |             |           |               |
| 16-52                                                     | Plaster     | Homogeneous  |                         |           | 70%         | Silica    | None Detected |
| 2949007                                                   |             | Gray         |                         |           | 30%         | Binder    |               |
|                                                           |             | Non-Fibrous  |                         |           |             |           |               |
|                                                           |             | Bound        |                         |           |             |           |               |



Built Environment Testing

**ASBESTOS BULK ANALYSIS****By: Polarized Light Microscopy**

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**Lab Code:** 625415-1  
**Date Received:** 12/31/24  
**Date Analyzed:** 01/04/25  
**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID | Lab         | Lab           | NON-ASBESTOS COMPONENTS |             |     | ASBESTOS      |
|-----------|-------------|---------------|-------------------------|-------------|-----|---------------|
| Lab ID    | Description | Attributes    | Fibrous                 | Non-Fibrous |     | %             |
| 16-53     | Plaster     | Homogeneous   | 70%                     | Silica      |     | None Detected |
| 2949008   |             | Gray          | 30%                     | Binder      |     |               |
|           |             | Non-Fibrous   |                         |             |     |               |
|           |             | Bound         |                         |             |     |               |
| 16-54     | Plaster     | Homogeneous   | 70%                     | Silica      |     | None Detected |
| 2949009   |             | Gray          | 30%                     | Binder      |     |               |
|           |             | Non-Fibrous   |                         |             |     |               |
|           |             | Bound         |                         |             |     |               |
| 17-55     | Insulation  | Homogeneous   | 100%                    | Cellulose   |     | None Detected |
| Layer A   |             | White         |                         |             |     |               |
| 2949010   |             | Fibrous       |                         |             |     |               |
|           |             | Bound         |                         |             |     |               |
| Layer B   | Insulation  | Homogeneous   | 20%                     | Glass       | 60% | Binder        |
| 2949010   |             | Gray          |                         |             | 20% | Calc Carb     |
|           |             | Fibrous       |                         |             |     |               |
|           |             | Loosely Bound |                         |             |     |               |
| 17-56     | Insulation  | Homogeneous   | 100%                    | Cellulose   |     | None Detected |
| Layer A   |             | White         |                         |             |     |               |
| 2949011   |             | Fibrous       |                         |             |     |               |
|           |             | Bound         |                         |             |     |               |
| Layer B   | Insulation  | Homogeneous   | 20%                     | Glass       | 60% | Binder        |
| 2949011   |             | Gray          |                         |             | 20% | Calc Carb     |
|           |             | Fibrous       |                         |             |     |               |
|           |             | Loosely Bound |                         |             |     |               |



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**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID<br>Lab ID           | Lab<br>Description | Lab<br>Attributes                                    | NON-ASBESTOS COMPONENTS |                                            | ASBESTOS<br>% |
|-------------------------------|--------------------|------------------------------------------------------|-------------------------|--------------------------------------------|---------------|
|                               |                    |                                                      | Fibrous                 | Non-Fibrous                                |               |
| 17-57<br>Layer A<br>2949012   | Insulation         | Homogeneous<br>White<br>Fibrous<br>Bound             | 100%                    | Cellulose                                  | None Detected |
| Layer B<br>2949012            | Insulation         | Homogeneous<br>Gray<br>Fibrous<br>Loosely Bound      | 20%                     | Glass<br>60%<br>Binder<br>20%<br>Calc Carb | None Detected |
| 18-58<br>Layer A<br>2949013   | Plaster Skim Coat  | Homogeneous<br>White<br>Non-Fibrous<br>Bound         |                         | 80%<br>Binder<br>20%<br>Silica             | None Detected |
| Layer B<br>2949013            | Plaster Base Coat  | Homogeneous<br>Gray<br>Non-Fibrous<br>Bound          |                         | 70%<br>Binder<br>30%<br>Perlite            | None Detected |
| 18-59<br>2949014              | Plaster            | Homogeneous<br>Gray<br>Non-Fibrous<br>Bound          |                         | 70%<br>Binder<br>30%<br>Perlite            | None Detected |
| No plaster skim coat present. |                    |                                                      |                         |                                            |               |
| 18-60<br>2949015              | Plaster            | Homogeneous<br>White<br>Non-Fibrous<br>Bound         |                         | 80%<br>Binder<br>20%<br>Silica             | None Detected |
| No plaster base coat present. |                    |                                                      |                         |                                            |               |
| 19-61<br>2949016              | Plaster            | Homogeneous<br>White<br>Non-Fibrous<br>Loosely Bound |                         | 60%<br>Perlite<br>35%<br>Binder            | Chrysotile 5% |



Built Environment Testing

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**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID<br>Lab ID         | Lab<br>Description | Lab<br>Attributes | NON-ASBESTOS COMPONENTS |           |             | ASBESTOS<br>% |
|-----------------------------|--------------------|-------------------|-------------------------|-----------|-------------|---------------|
|                             |                    |                   | Fibrous                 |           | Non-Fibrous |               |
| 19-62<br>2949017            | Plaster            | Homogeneous       |                         | 60%       | Perlite     | Chrysotile 5% |
|                             |                    | White             |                         | 35%       | Binder      |               |
|                             |                    | Non-Fibrous       |                         |           |             |               |
|                             |                    | Loosely Bound     |                         |           |             |               |
| 19-63<br>2949018            | Plaster            | Homogeneous       |                         | 60%       | Perlite     | Chrysotile 5% |
|                             |                    | White             |                         | 35%       | Binder      |               |
|                             |                    | Non-Fibrous       |                         |           |             |               |
|                             |                    | Loosely Bound     |                         |           |             |               |
| 19-64<br>2949019            | Plaster            | Homogeneous       |                         | 60%       | Perlite     | Chrysotile 5% |
|                             |                    | White             |                         | 35%       | Binder      |               |
|                             |                    | Non-Fibrous       |                         |           |             |               |
|                             |                    | Loosely Bound     |                         |           |             |               |
| 19-65<br>2949020            | Plaster            | Homogeneous       |                         | 60%       | Perlite     | Chrysotile 5% |
|                             |                    | White             |                         | 35%       | Binder      |               |
|                             |                    | Non-Fibrous       |                         |           |             |               |
|                             |                    | Loosely Bound     |                         |           |             |               |
| 20-66<br>Layer A<br>2949021 | Paint/Insulation   | Homogeneous       | 15%                     | Glass     | 10%         | Chrysotile 5% |
|                             |                    | Silver/gray       |                         |           | 20%         |               |
|                             |                    | Fibrous           |                         |           | 50%         |               |
|                             |                    | Loosely Bound     |                         |           |             |               |
| Layer B<br>2949021          | Insulation         | Homogeneous       | 100%                    | Cellulose |             | None Detected |
|                             |                    | White             |                         |           |             |               |
|                             |                    | Fibrous           |                         |           |             |               |
|                             |                    | Bound             |                         |           |             |               |
| Layer C<br>2949021          | Insulation         | Hetrogeneous      | 10%                     | Cellulose | 20%         | None Detected |
|                             |                    | Tan               | 70%                     | Glass     |             |               |
|                             |                    | Fibrous           |                         |           |             |               |
|                             |                    | Loosely Bound     |                         |           |             |               |

Unable to separate paint/insulation for individual analysis.



Built Environment Testing

## ASBESTOS BULK ANALYSIS

By: Polarized Light Microscopy

**Client:** Terracon Consultants, Inc. (Gahanna)  
800 Morrison Road  
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**Lab Code:** 625415-1  
**Date Received:** 12/31/24  
**Date Analyzed:** 01/04/25  
**Date Reported:** 01/06/25

**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID                   | Lab         | Lab                                             | NON-ASBESTOS COMPONENTS |                    |             | ASBESTOS      |
|-----------------------------|-------------|-------------------------------------------------|-------------------------|--------------------|-------------|---------------|
| Lab ID                      | Description | Attributes                                      | Fibrous                 | Non-Fibrous        |             | %             |
| 20-67<br>Layer A<br>2949022 | Paint       | Homogeneous<br>Silver<br>Non-Fibrous<br>Bound   |                         | 100%<br>Paint      |             | None Detected |
| Layer B<br>2949022          | Insulation  | Homogeneous<br>White<br>Fibrous<br>Bound        | 100%                    | Cellulose          |             | None Detected |
| Layer C<br>2949022          | Insulation  | Hetrogeneous<br>Tan<br>Fibrous<br>Loosely Bound | 10%<br>70%              | Cellulose<br>Glass | 20%<br>Foil | None Detected |
| 20-68<br>Layer A<br>2949023 | Paint       | Homogeneous<br>Silver<br>Non-Fibrous<br>Bound   |                         | 100%<br>Paint      |             | None Detected |
| Layer B<br>2949023          | Insulation  | Homogeneous<br>White<br>Fibrous<br>Bound        | 100%                    | Cellulose          |             | None Detected |
| Layer C<br>2949023          | Insulation  | Hetrogeneous<br>Tan<br>Fibrous<br>Loosely Bound | 10%<br>70%              | Cellulose<br>Glass | 20%<br>Foil | None Detected |
| 21-69<br>2949024            | Sealant     | Homogeneous<br>Gray<br>Non-Fibrous<br>Bound     |                         | 100%<br>Mastic     |             | None Detected |





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**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID                   | Lab         | Lab                                             | NON-ASBESTOS COMPONENTS |                    |        | ASBESTOS              |
|-----------------------------|-------------|-------------------------------------------------|-------------------------|--------------------|--------|-----------------------|
| Lab ID                      | Description | Attributes                                      | Fibrous                 | Non-Fibrous        |        | %                     |
| 21-70<br>2949025            | Sealant     | Homogeneous<br>Gray<br>Non-Fibrous<br>Bound     |                         | 100%               | Mastic | None Detected         |
| 21-71<br>2949026            | Sealant     | Homogeneous<br>Gray<br>Non-Fibrous<br>Bound     |                         | 100%               | Mastic | None Detected         |
| 22-72<br>Layer A<br>2949027 | Insulation  | Homogeneous<br>White<br>Fibrous<br>Bound        | 100%                    | Cellulose          |        | None Detected         |
| Layer B<br>2949027          | Insulation  | Hetrogeneous<br>Tan<br>Fibrous<br>Loosely Bound | 10%<br>70%              | Cellulose<br>Glass | 20%    | Foil<br>None Detected |
| 22-73<br>Layer A<br>2949028 | Insulation  | Homogeneous<br>White<br>Fibrous<br>Bound        | 100%                    | Cellulose          |        | None Detected         |
| Layer B<br>2949028          | Insulation  | Hetrogeneous<br>Tan<br>Fibrous<br>Loosely Bound | 10%<br>70%              | Cellulose<br>Glass | 20%    | Foil<br>None Detected |



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**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID                   | Lab         | Lab                                                  | NON-ASBESTOS COMPONENTS |                    |             |                     | ASBESTOS                    |
|-----------------------------|-------------|------------------------------------------------------|-------------------------|--------------------|-------------|---------------------|-----------------------------|
| Lab ID                      | Description | Attributes                                           | Fibrous                 |                    | Non-Fibrous |                     | %                           |
| 22-74<br>Layer A<br>2949029 | Insulation  | Homogeneous<br>White<br>Fibrous<br>Bound             | 100%                    | Cellulose          |             |                     | None Detected               |
| Layer B<br>2949029          | Insulation  | Hetrogeneous<br>Tan<br>Fibrous<br>Loosely Bound      | 10%<br>70%              | Cellulose<br>Glass | 20%         | Foil                | None Detected               |
| 23-75<br>Layer A<br>2949030 | Insulation  | Homogeneous<br>White<br>Fibrous<br>Bound             | 100%                    | Cellulose          |             |                     | None Detected               |
| Layer B<br>2949030          | Insulation  | Homogeneous<br>White<br>Non-Fibrous<br>Loosely Bound |                         |                    | 60%<br>33%  | Binder<br>Calc Carb | Chrysotile 2%<br>Amosite 5% |
| 23-76<br>Layer A<br>2949031 | Insulation  | Homogeneous<br>White<br>Fibrous<br>Bound             | 100%                    | Cellulose          |             |                     | None Detected               |
| Layer B<br>2949031          | Insulation  | Homogeneous<br>White<br>Non-Fibrous<br>Loosely Bound |                         |                    | 58%<br>40%  | Binder<br>Perlite   | Chrysotile 2%               |



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**Project:** OSU Marion Morrill Hall, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID | Lab         | Lab           | NON-ASBESTOS COMPONENTS |             | ASBESTOS      |
|-----------|-------------|---------------|-------------------------|-------------|---------------|
| Lab ID    | Description | Attributes    | Fibrous                 | Non-Fibrous | %             |
| 23-77     | Insulation  | Homogeneous   | 100%                    | Cellulose   | None Detected |
| Layer A   |             | White         |                         |             |               |
| 2949032   |             | Fibrous       |                         |             |               |
|           |             | Bound         |                         |             |               |
| -----     |             |               |                         |             |               |
| Layer B   | Insulation  | Homogeneous   |                         | 58%         | Binder        |
| 2949032   |             | White         |                         | 40%         | Perlite       |
|           |             | Non-Fibrous   |                         |             |               |
|           |             | Loosely Bound |                         |             |               |



## Built Environment Testing

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### LEGEND:

Non-Anth = Non-Asbestiform Anthophyllite

Non-Trem = Non-Asbestiform Tremolite

Calc Carb = Calcium Carbonate

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**METHOD:** EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763

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**REPORTING LIMIT:** 1% by calibrated visual estimation

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**REGULATORY LIMIT:** 1%

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Due to the limitations of the EPA 600 / R93 / 116 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. Estimated measurement of uncertainty is available on request.

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Information provided by customer includes customer sample ID and sample description.

Ryan Steele  
Analyst

DATA QA:

Samantha Webster  
1/6/2025

APPROVED BY:

Tianbao Bai, Ph.D., CIH  
Laboratory Director



Built Environment Testing

RES Job #: 625415

| SUBMITTED BY                                                    | INVOICE TO                                    | CONTACT INFORMATION                           | SERIES          |
|-----------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------|
| Company: Terracon Consultants, Inc. (Gahanna)                   | Company: Terracon Consultants, Inc. (Gahanna) | Contact: Ian Peters                           | -1 PLM Standard |
| Address: 800 Morrison Road                                      | Address: 800 Morrison Road                    | Phone: (614) 863-3113                         |                 |
|                                                                 |                                               | Fax:                                          |                 |
| Gahanna, OH 43230                                               | Gahanna, OH 43230                             | Cell:                                         |                 |
| Project Number and/or P.O. #: None Given                        | Project Zip Code:                             | Final Data Deliverable Email Address:         |                 |
| Project Description/Location: OSU Marion Morrill Hall, N4247374 |                                               | Ian.Peters@terracon.com (+ 2 ADDNL. CONTACTS) |                 |

| ASBESTOS LABORATORY                                                                                                                                                     |       |                              |          |          | REQUESTED ANALYSIS                           |                                         |                                           |     |              |      |        | VALID MATRIX CODES |                          |         |                         | LAB NOTES |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------|----------|----------|----------------------------------------------|-----------------------------------------|-------------------------------------------|-----|--------------|------|--------|--------------------|--------------------------|---------|-------------------------|-----------|--------------------------------------------------|--|-------------|----------------------------------|-----------------|--|-------------------------|--|--------------------------------------------------------------------------------------------------------------------|--|
| PLM / PCM / TEM                                                                                                                                                         |       | DTL                          | RUSH     | PRIORITY | STANDARD                                     |                                         | PLM - PLM Short Report (EPA/600/R-93/116) | TEM | PCM          | DUST | METALS | ORGANICS           | VIABLES                  | MEDICAL | MOLD                    | ICO       | Air = A                                          |  |             |                                  | Bulk = B        |  |                         |  | OH, DW/JC: Report as separate layers, provide a 3rd layer composite if positive. Positive stop based on composite. |  |
|                                                                                                                                                                         |       |                              |          |          |                                              | Dust = D                                |                                           |     |              |      |        |                    |                          |         |                         |           | Food = F                                         |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
|                                                                                                                                                                         |       |                              |          |          |                                              | Paint = P                               |                                           |     |              |      |        |                    |                          |         |                         |           | Soil = S                                         |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
|                                                                                                                                                                         |       |                              |          |          |                                              | Surface = SU                            |                                           |     |              |      |        |                    |                          |         |                         |           | Swab = SW                                        |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
|                                                                                                                                                                         |       |                              |          |          |                                              | Tape = T                                |                                           |     |              |      |        |                    |                          |         |                         |           | Wipe = W                                         |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
|                                                                                                                                                                         |       |                              |          |          |                                              | Drinking Water = DW                     |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
|                                                                                                                                                                         |       |                              |          |          |                                              | Waste Water = WW                        |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
|                                                                                                                                                                         |       |                              |          |          |                                              | **ASTM E1792 approved wipe media only** |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
|                                                                                                                                                                         |       |                              |          |          |                                              |                                         |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
|                                                                                                                                                                         |       |                              |          |          |                                              |                                         |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
| CHEMISTRY LABORATORY                                                                                                                                                    |       |                              |          |          |                                              |                                         |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             | Laboratory Analysis Instructions |                 |  |                         |  |                                                                                                                    |  |
| Dust                                                                                                                                                                    |       | RUSH                         | PRIORITY | STANDARD |                                              |                                         |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
| Metals                                                                                                                                                                  |       | RUSH                         | PRIORITY | STANDARD |                                              | *PRIOR NOTICE REQUIRED FOR SAME DAY TAT |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
| Organics*                                                                                                                                                               |       | SAME DAY                     | RUSH     | PRIORITY | STANDARD                                     |                                         |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
| MICROBIOLOGY LABORATORY                                                                                                                                                 |       |                              |          |          |                                              |                                         |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
| Viable Analysis**                                                                                                                                                       |       | PRIORITY                     | STANDARD |          | **TAT DEPENDENT ON SPEED OF MICROBIAL GROWTH |                                         |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
| Medical Device Analysis                                                                                                                                                 |       | RUSH                         | STANDARD |          |                                              |                                         |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
| Mold Analysis                                                                                                                                                           |       | RUSH                         | PRIORITY | STANDARD |                                              |                                         |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
| **Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.** |       |                              |          |          |                                              |                                         |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
| Special Instructions:                                                                                                                                                   |       |                              |          |          |                                              |                                         |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  |             |                                  |                 |  |                         |  |                                                                                                                    |  |
| Client Sample ID Number                                                                                                                                                 |       | (Sample ID's must be unique) |          |          | ASBESTOS                                     |                                         | CHEMISTRY                                 |     | MICROBIOLOGY |      | ICO    |                    | Sample Volume (L) / Area |         | Sample Temperature (°C) |           | Length (or Aliquots) x Width (or Area) / Aliquot |  | Matrix Code |                                  | # of Containers |  | Date Collected mm/dd/yy |  | Time Collected hh:mm                                                                                               |  |
| 1                                                                                                                                                                       | 01-01 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 2                                                                                                                                                                       | 01-02 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 3                                                                                                                                                                       | 01-03 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 4                                                                                                                                                                       | 02-04 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 5                                                                                                                                                                       | 02-05 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 6                                                                                                                                                                       | 02-06 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 7                                                                                                                                                                       | 02-07 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 8                                                                                                                                                                       | 02-08 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 9                                                                                                                                                                       | 03-09 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 10                                                                                                                                                                      | 03-10 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 11                                                                                                                                                                      | 03-11 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 12                                                                                                                                                                      | 04-12 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |
| 13                                                                                                                                                                      | 04-13 |                              |          |          |                                              | X                                       |                                           |     |              |      |        |                    |                          |         |                         |           |                                                  |  | B           |                                  |                 |  |                         |  |                                                                                                                    |  |

Eurofins Built Environment Testing East, LLC establishes a unique Lab Sample ID, for each sample, by preceding each unique Client Sample ID with the laboratory RES Job Number.

Eurofins Built Environment Testing East, LLC will analyze incoming samples based on information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing, client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days. Failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

|                  |                               |                                |
|------------------|-------------------------------|--------------------------------|
| Relinquished By: | Date/Time: 12/31/2024 7:36:31 | Sample Condition: Acceptable   |
| Received By: BNB | Brian Bailey                  | Date/Time: 12/31/2024 10:44:36 |
|                  |                               | Carrier: Fed-Ex                |



Built Environment Testing

RES Job #: 625415

Submitted By: Terracon Consultants, Inc. (Gahanna)

| REQUESTED ANALYSIS                        |                              |     |      |        |          |         |         |      |     | VALID MATRIX CODES                      |                         |                                                                                                                    |  | LAB NOTES |                                                |             |                 |                         |                      |
|-------------------------------------------|------------------------------|-----|------|--------|----------|---------|---------|------|-----|-----------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------|--|-----------|------------------------------------------------|-------------|-----------------|-------------------------|----------------------|
| PLM - PLM Short Report (EPA/600/R-93/116) | TEM                          | PCM | DUST | METALS | ORGANICS | VIABLES | MEDICAL | MOLD | ICO | Air = A                                 | Bulk = B                | OH, DW/JC: Report as separate layers, provide a 3rd layer composite if positive. Positive stop based on composite. |  |           |                                                |             |                 |                         |                      |
|                                           |                              |     |      |        |          |         |         |      |     | Dust = D                                | Food = F                |                                                                                                                    |  |           |                                                |             |                 |                         |                      |
|                                           |                              |     |      |        |          |         |         |      |     | Paint = P                               | Soil = S                |                                                                                                                    |  |           |                                                |             |                 |                         |                      |
|                                           |                              |     |      |        |          |         |         |      |     | Surface = SU                            | Swab = SW               |                                                                                                                    |  |           |                                                |             |                 |                         |                      |
|                                           |                              |     |      |        |          |         |         |      |     | Tape = T                                | Wipe = W                |                                                                                                                    |  |           |                                                |             |                 |                         |                      |
|                                           |                              |     |      |        |          |         |         |      |     | Drinking Water = DW                     |                         |                                                                                                                    |  |           |                                                |             |                 |                         |                      |
|                                           |                              |     |      |        |          |         |         |      |     | Waste Water = WW                        |                         |                                                                                                                    |  |           |                                                |             |                 |                         |                      |
|                                           |                              |     |      |        |          |         |         |      |     | **ASTM E1792 approved wipe media only** |                         |                                                                                                                    |  |           |                                                |             |                 |                         |                      |
|                                           |                              |     |      |        |          |         |         |      |     | Sample Volume (L) / Area                | Sample Temperature (°C) |                                                                                                                    |  |           | Length (or Aliquots) X Width (or Area/Aliquot) | Matrix Code | # of Containers | Date Collected mm/dd/yy | Time Collected hh:mm |
|                                           |                              |     |      |        |          |         |         |      |     | Laboratory Analysis Instructions        |                         |                                                                                                                    |  |           |                                                |             |                 |                         |                      |
| Client Sample ID Number                   | (Sample ID's must be unique) |     |      |        |          |         |         |      |     |                                         |                         |                                                                                                                    |  |           |                                                |             |                 |                         |                      |
| 14 04-14                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 15 05-15                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 16 05-16                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 17 05-17                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 18 06-18                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 19 06-19                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 20 06-20                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 21 07-21                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 22 07-22                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 23 07-23                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 24 07-24                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 25 07-25                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 26 07-26                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 27 07-27                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 28 08-28                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 29 08-29                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 30 08-30                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 31 09-31                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 32 09-32                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 33 09-33                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 34 10-34                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 35 10-35                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 36 10-36                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 37 11-37                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 38 11-38                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 39 11-39                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 40 12-40                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 41 12-41                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 42 12-42                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |
| 43 13-43                                  | X                            |     |      |        |          |         |         |      |     |                                         |                         | B                                                                                                                  |  |           |                                                |             |                 |                         |                      |



Built Environment Testing

RES Job #: 625415

Submitted By: Terracon Consultants, Inc. (Gahanna)

| Client Sample ID Number<br>(Sample ID's must be unique) | REQUESTED ANALYSIS                        |     |     |      |        |          |         | VALID MATRIX CODES |      |                          |                         |                                                  |             | LAB NOTES       |                            |                         |                                  |
|---------------------------------------------------------|-------------------------------------------|-----|-----|------|--------|----------|---------|--------------------|------|--------------------------|-------------------------|--------------------------------------------------|-------------|-----------------|----------------------------|-------------------------|----------------------------------|
|                                                         | PLM - PLM Short Report (EPA/600/R-93/116) | TEM | PCM | DUST | METALS | ORGANICS | VIABLES | MEDICAL            | MOLD | Sample Volume (L) / Area | Sample Temperature (°C) | Length (or Aliquots) x Width (or Area) (sq. ft.) | Matrix Code | # of Containers | Date Collected<br>mm/dd/yy | Time Collected<br>hh:mm | Laboratory Analysis Instructions |
| 44 13-44                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 45 13-45                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 46 14-46                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 47 14-47                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 48 14-48                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 49 15-49                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 50 15-50                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 51 15-51                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 52 16-52                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 53 16-53                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 54 16-54                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 55 17-55                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 56 17-56                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 57 17-57                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 58 18-58                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 59 18-59                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 60 18-60                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 61 19-61                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 62 19-62                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 63 19-63                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 64 19-64                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 65 19-65                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 66 20-66                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 67 20-67                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 68 20-68                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 69 21-69                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 70 21-70                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 71 21-71                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 72 22-72                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |
| 73 22-73                                                | X                                         |     |     |      |        |          |         |                    |      |                          |                         |                                                  | B           |                 |                            |                         |                                  |



Built Environment Testing

RES Job #: 625415

Submitted By: Terracon Consultants, Inc. (Gahanna)

| REQUESTED ANALYSIS                               |                              |     |      |        |          |         |         |      |                                         | VALID MATRIX CODES |                                                                                                                    | LAB NOTES |  |
|--------------------------------------------------|------------------------------|-----|------|--------|----------|---------|---------|------|-----------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------|-----------|--|
| PLM - PLM Short Report (EPA/600/R-93/116)        | TEM                          | PCM | DUST | METALS | ORGANICS | VIABLES | MEDICAL | MOLD | Air = A                                 | Bulk = B           | OH, DW/JC: Report as separate layers, provide a 3rd layer composite if positive. Positive stop based on composite. |           |  |
|                                                  |                              |     |      |        |          |         |         |      | Dust = D                                | Food = F           |                                                                                                                    |           |  |
|                                                  |                              |     |      |        |          |         |         |      | Paint = P                               | Soil = S           |                                                                                                                    |           |  |
|                                                  |                              |     |      |        |          |         |         |      | Surface = SU                            | Swab = SW          |                                                                                                                    |           |  |
|                                                  |                              |     |      |        |          |         |         |      | Tape = T                                | Wipe = W           |                                                                                                                    |           |  |
|                                                  |                              |     |      |        |          |         |         |      | Drinking Water = DW                     |                    |                                                                                                                    |           |  |
|                                                  |                              |     |      |        |          |         |         |      | Waste Water = WW                        |                    |                                                                                                                    |           |  |
|                                                  |                              |     |      |        |          |         |         |      | **ASTM E1792 approved wipe media only** |                    |                                                                                                                    |           |  |
|                                                  |                              |     |      |        |          |         |         |      | Sample Volume (L) / Area                |                    |                                                                                                                    |           |  |
|                                                  |                              |     |      |        |          |         |         |      | Sample Temperature (°C)                 |                    |                                                                                                                    |           |  |
| Length (or Aliquots) x Width (or Area) (sq. ft.) |                              |     |      |        |          |         |         |      |                                         |                    |                                                                                                                    |           |  |
| Matrix Code                                      |                              |     |      |        |          |         |         |      |                                         |                    |                                                                                                                    |           |  |
| # of Containers                                  |                              |     |      |        |          |         |         |      |                                         |                    |                                                                                                                    |           |  |
| Date Collected mm/dd/yy                          |                              |     |      |        |          |         |         |      |                                         |                    |                                                                                                                    |           |  |
| Time Collected hh:mm                             |                              |     |      |        |          |         |         |      |                                         |                    |                                                                                                                    |           |  |
| Laboratory Analysis Instructions                 |                              |     |      |        |          |         |         |      |                                         |                    |                                                                                                                    |           |  |
| <b>Client Sample ID Number</b>                   | (Sample ID's must be unique) |     |      |        |          |         |         |      |                                         |                    |                                                                                                                    |           |  |
| <b>ASBESTOS</b>                                  | <b>CHEMISTRY</b>             |     |      |        |          |         |         |      |                                         |                    |                                                                                                                    |           |  |
| <b>MICROBIOLOGY</b>                              | <b>ICO</b>                   |     |      |        |          |         |         |      |                                         |                    |                                                                                                                    |           |  |
| 74 22-74                                         | X                            |     |      |        |          |         |         |      |                                         | B                  |                                                                                                                    |           |  |
| 75 23-75                                         | X                            |     |      |        |          |         |         |      |                                         | B                  |                                                                                                                    |           |  |
| 76 23-76                                         | X                            |     |      |        |          |         |         |      |                                         | B                  |                                                                                                                    |           |  |
| 77 23-77                                         | X                            |     |      |        |          |         |         |      |                                         | B                  |                                                                                                                    |           |  |





Built Environment Testing

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January 22, 2025

Ian Peters  
Terracon Consultants, Inc. (Gahanna)  
800 Morrison Road  
Gahanna, OH 43230

**CLIENT PROJECT:** Morrill Hall Fire Panel Upgrade, N4247374  
**LAB CODE:** 628995-1

Dear Ian,

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on January 18, 2025. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials and EPA 40 CFR Appendix E to Subpart E of Part 763: Interim Method of the Determination of Asbestos in Bulk Insulation Samples.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% by calibrated visual estimate.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,

A handwritten signature in black ink, appearing to read "Tianbao Bai".

Tianbao Bai, Ph.D., CIH  
Laboratory Director

NVLAP 101768-0



Built Environment Testing

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**ASBESTOS ANALYTICAL REPORT**  
**By: Polarized Light Microscopy**

Prepared for

**Terracon Consultants, Inc. (Gahanna)**

---

|                 |                                                                        |
|-----------------|------------------------------------------------------------------------|
| CLIENT PROJECT: | Morrill Hall Fire Panel Upgrade, N4247374                              |
| LAB CODE:       | 628995-1                                                               |
| TEST METHOD:    | EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763 |
| REPORT DATE:    | 01/22/25                                                               |



Built Environment Testing

## Asbestos Report Summary

By: Polarized Light Microscopy

**Project:** Morrill Hall Fire Panel Upgrade, N4247374

**Lab Code:** 628995-1

**Method:** EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763

| Client ID | Lab ID  | Layer   | Sample Description           | Asbestos %    |
|-----------|---------|---------|------------------------------|---------------|
| 78        | 2992649 | Layer A | White plaster skim coat      | None Detected |
|           |         | Layer B | Light-gray plaster base coat | None Detected |
| 79        | 2992650 | Layer A | White plaster skim coat      | None Detected |
|           |         | Layer B | Light-gray plaster base coat | None Detected |
| 80        | 2992651 | Layer A | White plaster skim coat      | None Detected |
|           |         | Layer B | Light-gray plaster base coat | None Detected |
| 81        | 2992652 | Layer A | White plaster skim coat      | None Detected |
|           |         | Layer B | Light-gray plaster base coat | None Detected |
| 82        | 2992653 |         | Light-gray plaster base coat | None Detected |
| 83        | 2992654 |         | Light-gray plaster base coat | None Detected |



Built Environment Testing

## ASBESTOS BULK ANALYSIS

By: Polarized Light Microscopy

**Client:** Terracon Consultants, Inc. (Gahanna)  
800 Morrison Road  
Gahanna, OH 43230

**Lab Code:** 628995-1  
**Date Received:** 01/18/25  
**Date Analyzed:** 01/22/25  
**Date Reported:** 01/22/25

**Project:** Morrill Hall Fire Panel Upgrade, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID | Lab               | Lab          | NON-ASBESTOS COMPONENTS |             | ASBESTOS      |
|-----------|-------------------|--------------|-------------------------|-------------|---------------|
| Lab ID    | Description       | Attributes   | Fibrous                 | Non-Fibrous | %             |
| 78        | Plaster Skim Coat | Hetrogeneous | 50%                     | Silica      | None Detected |
| Layer A   |                   | White        | 50%                     | Binder      |               |
| 2992649   |                   | Non-Fibrous  | <1%                     | Paint       |               |
|           |                   | Bound        |                         |             |               |
| Layer B   | Plaster Base Coat | Homogeneous  | 80%                     | Binder      | None Detected |
| 2992649   |                   | Light-gray   | 20%                     | Perlite     |               |
|           |                   | Non-Fibrous  |                         |             |               |
|           |                   | Bound        |                         |             |               |
| 79        | Plaster Skim Coat | Hetrogeneous | 50%                     | Binder      | None Detected |
| Layer A   |                   | White        | 50%                     | Silica      |               |
| 2992650   |                   | Non-Fibrous  | <1%                     | Paint       |               |
|           |                   | Bound        |                         |             |               |
| Layer B   | Plaster Base Coat | Homogeneous  | 80%                     | Binder      | None Detected |
| 2992650   |                   | Light-gray   | 20%                     | Perlite     |               |
|           |                   | Non-Fibrous  |                         |             |               |
|           |                   | Bound        |                         |             |               |
| 80        | Plaster Skim Coat | Hetrogeneous | 50%                     | Binder      | None Detected |
| Layer A   |                   | White        | 50%                     | Silica      |               |
| 2992651   |                   | Non-Fibrous  | <1%                     | Paint       |               |
|           |                   | Bound        |                         |             |               |
| Layer B   | Plaster Base Coat | Homogeneous  | 80%                     | Binder      | None Detected |
| 2992651   |                   | Light-gray   | 20%                     | Perlite     |               |
|           |                   | Non-Fibrous  |                         |             |               |
|           |                   | Bound        |                         |             |               |



Built Environment Testing

## ASBESTOS BULK ANALYSIS

By: Polarized Light Microscopy

**Client:** Terracon Consultants, Inc. (Gahanna)  
800 Morrison Road  
Gahanna, OH 43230

**Lab Code:** 628995-1  
**Date Received:** 01/18/25  
**Date Analyzed:** 01/22/25  
**Date Reported:** 01/22/25

**Project:** Morrill Hall Fire Panel Upgrade, N4247374

**Method:** ASBESTOS BULK PLM, EPA 600 METHOD

| Client ID<br>Lab ID      | Lab<br>Description | Lab<br>Attributes | NON-ASBESTOS COMPONENTS |             | ASBESTOS<br>% |
|--------------------------|--------------------|-------------------|-------------------------|-------------|---------------|
|                          |                    |                   | Fibrous                 | Non-Fibrous |               |
| 81<br>Layer A<br>2992652 | Plaster Skim Coat  | Hetrogeneous      |                         | 50% Binder  | None Detected |
|                          |                    | White             |                         | 50% Silica  |               |
|                          |                    | Non-Fibrous       |                         | <1% Paint   |               |
|                          |                    | Bound             |                         |             |               |
| Layer B<br>2992652       | Plaster Base Coat  | Homogeneous       |                         | 80% Binder  | None Detected |
|                          |                    | Light-gray        |                         | 20% Perlite |               |
|                          |                    | Non-Fibrous       |                         |             |               |
|                          |                    | Bound             |                         |             |               |
| 82<br>2992653            | Plaster Base Coat  | Homogeneous       |                         | 80% Binder  | None Detected |
|                          |                    | Light-gray        |                         | 20% Perlite |               |
|                          |                    | Non-Fibrous       |                         |             |               |
|                          |                    | Bound             |                         |             |               |
| 83<br>2992654            | Plaster Base Coat  | Homogeneous       |                         | 80% Binder  | None Detected |
|                          |                    | Light-gray        |                         | 20% Perlite |               |
|                          |                    | Non-Fibrous       |                         |             |               |
|                          |                    | Bound             |                         |             |               |



## Built Environment Testing

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### LEGEND:

Non-Anth = Non-Asbestiform Anthophyllite

Non-Trem = Non-Asbestiform Tremolite

Calc Carb = Calcium Carbonate

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**METHOD:** EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763

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**REPORTING LIMIT:** 1% by calibrated visual estimation

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**REGULATORY LIMIT:** 1%

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Due to the limitations of the EPA 600 / R93 / 116 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. Estimated measurement of uncertainty is available on request.

Eurofins Built Environment Testing East, LLC makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins Built Environment Testing East, LLC. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Information provided by customer includes customer sample ID and sample description.

Nicholas Moore  
Analyst

DATA QA:

Kathryn Wescott  
1/22/2025

APPROVED BY:

Tianbao Bai, Ph.D., CIH  
Laboratory Director



Built Environment Testing

RES Job #: 628995

| SUBMITTED BY                                                            | INVOICE TO                                    | CONTACT INFORMATION                           | SERIES             |
|-------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------|--------------------|
| Company: Terracon Consultants, Inc. (Gahanna)                           | Company: Terracon Consultants, Inc. (Gahanna) | Contact: Ian Peters                           | -1 PLM Priority 48 |
| Address: 800 Morrison Road                                              | Address: 800 Morrison Road                    | Phone: (614) 863-3113                         |                    |
|                                                                         |                                               | Fax:                                          |                    |
| Gahanna, OH 43230                                                       | Gahanna, OH 43230                             | Cell:                                         |                    |
| Project Number and/or P.O. #: None Given                                | Project Zip Code:                             | Final Data Deliverable Email Address:         |                    |
| Project Description/Location: Morrill Hall Fire Panel Upgrade, N4247374 |                                               | Ian.Peters@terracon.com (+ 2 ADDNL. CONTACTS) |                    |

| ASBESTOS LABORATORY                                                                                                                                                     |    |                              |          |          | REQUESTED ANALYSIS                           |                                         |                                           |     |     |      |        | VALID MATRIX CODES |         |         |      | LAB NOTES                |                         |                                                  |             |                 |                            |                         |                                     |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------------------|----------|----------|----------------------------------------------|-----------------------------------------|-------------------------------------------|-----|-----|------|--------|--------------------|---------|---------|------|--------------------------|-------------------------|--------------------------------------------------|-------------|-----------------|----------------------------|-------------------------|-------------------------------------|--|
| PLM / PCM / TEM                                                                                                                                                         |    | DTL                          | RUSH     | PRIORITY | STANDARD                                     |                                         | PLM - PLM Short Report (EPA/600/R-93/116) | TEM | PCM | DUST | METALS | ORGANICS           | VIABLES | MEDICAL | MOLD | Sample Volume (L) / Area | Sample Temperature (°C) | Length (or Aliquots) x Width (or Area) (Aliquot) | Matrix Code | # of Containers | Date Collected<br>mm/dd/yy | Time Collected<br>hh:mm | Laboratory Analysis<br>Instructions |  |
|                                                                                                                                                                         |    |                              |          |          | Air = A                                      | Bulk = B                                |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
|                                                                                                                                                                         |    |                              |          |          | Dust = D                                     | Food = F                                |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
|                                                                                                                                                                         |    |                              |          |          | Paint = P                                    | Soil = S                                |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
|                                                                                                                                                                         |    |                              |          |          | Surface = SU                                 | Swab = SW                               |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
|                                                                                                                                                                         |    |                              |          |          | Tape = T                                     | Wipe = W                                |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
|                                                                                                                                                                         |    |                              |          |          | Drinking Water = DW                          |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
|                                                                                                                                                                         |    |                              |          |          | Waste Water = WW                             |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
|                                                                                                                                                                         |    |                              |          |          | **ASTM E1792 approved wipe media only**      |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
|                                                                                                                                                                         |    |                              |          |          |                                              |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| CHEMISTRY LABORATORY                                                                                                                                                    |    |                              |          |          |                                              |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| Dust                                                                                                                                                                    |    | RUSH                         | PRIORITY | STANDARD |                                              |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| Metals                                                                                                                                                                  |    | RUSH                         | PRIORITY | STANDARD |                                              | *PRIOR NOTICE REQUIRED FOR SAME DAY TAT |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| Organics*                                                                                                                                                               |    | SAME DAY                     | RUSH     | PRIORITY | STANDARD                                     |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| MICROBIOLOGY LABORATORY                                                                                                                                                 |    |                              |          |          |                                              |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| Viable Analysis**                                                                                                                                                       |    | PRIORITY                     | STANDARD |          | **TAT DEPENDENT ON SPEED OF MICROBIAL GROWTH |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| Medical Device Analysis                                                                                                                                                 |    | RUSH                         | STANDARD |          |                                              |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| Mold Analysis                                                                                                                                                           |    | RUSH                         | PRIORITY | STANDARD |                                              |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| **Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.** |    |                              |          |          |                                              |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| Special Instructions:<br>OH                                                                                                                                             |    |                              |          |          |                                              |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| Client Sample ID Number                                                                                                                                                 |    | (Sample ID's must be unique) |          |          | ASBESTOS                                     | CHEMISTRY                               | MICROBIOLOGY                              | ICO |     |      |        |                    |         |         |      |                          |                         |                                                  |             |                 |                            |                         |                                     |  |
| 1                                                                                                                                                                       | 78 |                              |          |          | X                                            |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  | B           |                 |                            |                         |                                     |  |
| 2                                                                                                                                                                       | 79 |                              |          |          | X                                            |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  | B           |                 |                            |                         |                                     |  |
| 3                                                                                                                                                                       | 80 |                              |          |          | X                                            |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  | B           |                 |                            |                         |                                     |  |
| 4                                                                                                                                                                       | 81 |                              |          |          | X                                            |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  | B           |                 |                            |                         |                                     |  |
| 5                                                                                                                                                                       | 82 |                              |          |          | X                                            |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  | B           |                 |                            |                         |                                     |  |
| 6                                                                                                                                                                       | 83 |                              |          |          | X                                            |                                         |                                           |     |     |      |        |                    |         |         |      |                          |                         |                                                  | B           |                 |                            |                         |                                     |  |



# CHAIN OF CUSTODY

CEI

730 SE Maynard Road, Cary, NC 27511  
Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:

CEI Lab Code:

628995

CEI Lab I.D. Range:

## COMPANY INFORMATION

CEI CLIENT #:

Company: Tetracore Environmental, Inc.

Address: 500 Morrison Road  
Columbus, OH 43234

Email: Fran.Holtz@tetracore.com

Tel:

Fax:

## PROJECT INFORMATION

Job Contact: Fran Holtz

Email / Tel: Fran.Holtz@tetracore.com

Project Name: Mural Hill Fire Station

Project ID#: 104247374

PO #:

STATE SAMPLES COLLECTED IN: OH

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

| ASBESTOS               | METHOD               | TURN AROUND TIME         |                          |                          |                                     |                          |                          |
|------------------------|----------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|
|                        |                      | 4 HR                     | 8 HR                     | 1 DAY                    | 2 DAY                               | 3 DAY                    | 5 DAY                    |
| PLM BULK               | EPA 600              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM POINT COUNT (400)  | EPA 600              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM POINT COUNT (1000) | EPA 600              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM GRAV w POINT COUNT | EPA 600              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| PLM BULK               | CARB 435             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| PCM AIR                | NIOSH 7400           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR                | EPA AHERA            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR                | NIOSH 7402           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR (PCME)         | ISO 10312            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM AIR                | ASTM 6281-15         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM BULK               | CHATFIELD            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM DUST WIPE          | ASTM D6480-05 (2010) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM DUST MICROVAC      | ASTM D5755-09 (2014) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM SOIL               | ASTM D7521-16        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM VERMICULITE        | CINCINNATI METHOD    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| TEM QUALITATIVE        | IN-HOUSE METHOD      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| OTHER:                 |                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |

REMARKS / SPECIAL INSTRUCTIONS:

- ☐ Accept Samples  
☐ Reject Samples

| Relinquished By: | Date/Time    | Received By: | Date/Time |
|------------------|--------------|--------------|-----------|
| Fran Holtz       | 1-16-24 1500 | JRZ          | 1/17/25   |

Samples will be disposed of 30 days after analysis

8178 18865044



# SUSPECT ACM - BULK MATERIAL SAMPLE LOG

Page 1 of 1

Date: 1-16-25  
 Inspector: Ian Peters  
 Project: OSU Marion- Morrill Hall Fire Panel Upgrade  
 Project #: N4247374

**Terracon**

800 Morrison Road  
 Columbus, Ohio 43230  
 (614) 863.3113

| Sample # |        | Sample Material Description                  | Sample Location          | Results (% / Type of Asbestos) |
|----------|--------|----------------------------------------------|--------------------------|--------------------------------|
| HA #     | SEQ. # |                                              |                          |                                |
| 18       | 78     | Hard Plaster System:<br>Base and Finish Coat | Room 100B Northeast      |                                |
|          | 79     |                                              | Room 100B Southeast      |                                |
| 24       | 80     | Hard Plaster Skim Coat                       | Room 100 West Southwest  |                                |
|          | 81     |                                              | Room 100 South Southwest |                                |
| 25       | 82     | Hard Plaster Base Coat                       | Room 346M Northeast      |                                |
|          | 83     |                                              | Room 346M Southeast      |                                |
| 04       | 10     |                                              |                          |                                |
|          | 11     |                                              |                          |                                |
|          | 12     |                                              |                          |                                |
| 05       | 13     |                                              |                          |                                |
|          | 14     |                                              |                          |                                |
|          | 15     |                                              |                          |                                |
| 06       | 16     |                                              |                          |                                |
|          | 17     |                                              |                          |                                |
|          | 18     |                                              |                          |                                |

## Appendix D: Asbestos Inspector Credentials



**Mike DeWine**, Governor  
**Jon Husted**, Lt. Governor  
**Anne M. Vogel**, Director

1/18/2024

Ian Peters  
Terracon Consultants, Inc  
800 Morrison Ave  
Columbus, OH 43230

RE: Evaluation Specialist  
Certification Number: ES35948  
Expiration Date: 1/19/2025

Dear Ian Peters:

This letter and enclosed certification card approves your request to be certified as an asbestos Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Ohio Environmental Protection Agency (EPA) for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please contact the Asbestos Program at 614-644-0226 or by email at [asbestoslicensing@epa.ohio.gov](mailto:asbestoslicensing@epa.ohio.gov).

Sincerely,

*Brandon M. Schwendeman*  
Brandon Schwendeman  
Manager, Business Operations Support Section  
Ohio EPA - Division of Air Pollution Control



50 West Town Street • Suite 700 • P.O.  
epa.ohio.gov • (614) 644-3



Mike DeWine, Governor  
Jon Husted, Lt. Governor  
Anne M. Vogel, Director

11/14/2023

Tyler Stenten  
3639 Parfore Ct.  
Cincinnati, OH 45245

RE: Evaluation Specialist  
Certification Number: ES35931  
Expiration Date: 11/15/2024

Dear Tyler Stenten:

This letter and enclosed certification card approves your request to be certified as an asbestos Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Ohio Environmental Protection Agency (EPA) for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please contact the Asbestos Program at 614-644-0226 or by email at [asbestoslicensing@epa.ohio.gov](mailto:asbestoslicensing@epa.ohio.gov).

Sincerely,

*Brandon M. Schwendeman*

Brandon Schwendeman  
Manager, Business Operations Support Section  
Ohio EPA - Division of Air Pollution Control



50 West Town Street • Suite 700 •  
epa.ohio.gov • (614) 644-0226

# Document 00 41 13 - Bid Form (General Contract / Electronic Bid)

## State of Ohio Standard Requirements for Public Facility Construction

THIS SAMPLE BID FORM IS PROVIDED WITH THE PROJECT MANUAL AS A PLACEHOLDER ONLY – SUBMIT YOUR BID USING THE ELECTRONIC BID FORM ON [HTTPS://BIDEXPRESS.COM](https://bidexpress.com)

| General Info                                      | Alt Total:                                                                                           | Bid Total: |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------|------------|
| <b>Deadline</b><br>08/26/2026 2:00 PM EDT/EST     | <b>Description</b><br>Fire alarm and elevator upgrades within Morrill Hall at the OSU Marion campus. |            |
| <b>Posted</b><br>07/29/26                         |                                                                                                      |            |
| <b>Number</b><br>OSU-250050                       |                                                                                                      |            |
| <b>Business Name</b><br>The Ohio State University |                                                                                                      |            |

| Procurement Documents                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------|
| 00 10 00_EB-Solicitation-GC-2025-OCTv2<br>→ Notice to Bidders                                                             |
| OSU-250050_Marion_MorrillElevatorUpgrades_BidProjectManual<br>→ Procurement & Contracting Requirements and Specifications |
| OSU-250050_Marion_MorrillElevatorUpgrades_BidDrawings<br>→ Plans, elevations, sections, details, and schedules            |
| 3 Attachments                                                                                                             |

| Contract Times and Addenda                                                                                                                                                                                                                                                                                                |                                  |                                  |                                  |                                  |                      |                      |                      |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------|----------------------|----------------------|----------------------|
| <b>Contract Times</b><br>The time for Substantial Completion of all Work is 234 consecutive days from the Notice to Proceed.                                                                                                                                                                                              |                                  |                                  |                                  |                                  |                      |                      |                      |                      |
| <b>Acknowledgement of receipt of Addenda</b>                                                                                                                                                                                                                                                                              |                                  |                                  |                                  |                                  |                      |                      |                      |                      |
| <table><tr><td><b>Date Addendum #1 Received</b></td><td><b>Date Addendum #2 Received</b></td><td><b>Date Addendum #3 Received</b></td><td><b>Date Addendum #4 Received</b></td></tr><tr><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td><td><input type="text"/></td></tr></table> | <b>Date Addendum #1 Received</b> | <b>Date Addendum #2 Received</b> | <b>Date Addendum #3 Received</b> | <b>Date Addendum #4 Received</b> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <b>Date Addendum #1 Received</b>                                                                                                                                                                                                                                                                                          | <b>Date Addendum #2 Received</b> | <b>Date Addendum #3 Received</b> | <b>Date Addendum #4 Received</b> |                                  |                      |                      |                      |                      |
| <input type="text"/>                                                                                                                                                                                                                                                                                                      | <input type="text"/>             | <input type="text"/>             | <input type="text"/>             |                                  |                      |                      |                      |                      |

### ■ Base Bid Instructions

Enter the amount of the Base Bid for ALL LABOR AND MATERIALS to complete the scope of Work. Include the amount of each Allowance (if applicable) and the subtotal of each Unit Price Extension (if applicable) in the Base Bid amount. Failure to include Allowance or Unit Price Extensions in the Base Bid is the responsibility of the Bidder and will not be sufficient reason for adjustment of the Bid amount after the Bid deadline. Do not include Alternates (if applicable) in the Base Bid amount.

### ■ Base Bid (General Contract)

| Item     | Description                                                                  | Base Bid Amount* | Extension |
|----------|------------------------------------------------------------------------------|------------------|-----------|
| Base Bid | All Labor and Materials (include Allowances and Unit Price Extensions above) | _____            |           |
| 1 Item   |                                                                              | <b>Total:</b>    |           |

### ■ Alternate Instructions

Enter the amount of each and every Alternate to ADD TO or DEDUCT FROM the Base Bid. Indicate amounts to DEDUCT FROM the Base Bid by entering a minus sign (-) before the amount entered. Do not include Alternate amounts in the Base Bid.

### ■ Alternates (General Contract)

| Item                                                               | Description                                           | Alternate Amount* | Extension |
|--------------------------------------------------------------------|-------------------------------------------------------|-------------------|-----------|
| ! Alternate: Owner-agency may award independently from entire bid. |                                                       |                   |           |
| ! Alternates are not included in bid total.                        |                                                       |                   |           |
| Alternate 1                                                        | Replace existing fire alarm on 3 <sup>rd</sup> floor. | _____             |           |
| 1 Items                                                            | <b>Alternate Total:</b>                               | _____             |           |
|                                                                    |                                                       | _____             |           |
|                                                                    |                                                       | _____             |           |
|                                                                    |                                                       | _____             |           |
|                                                                    |                                                       | _____             |           |
|                                                                    |                                                       | <b>Total:</b>     |           |

### ■ Bidder Affirmation and Disclosure

The Bidder acknowledges that by submitting its Bid, the Bidder has read and understands the applicable Executive Orders regarding the prohibitions of performance of offshore services, locating State data offshore in any way, or purchasing from Russian institutions or companies. If awarded a Contract, the Bidder will become the Contractor and affirms that both the Contractor and its Subcontractors shall perform no services requested under this Contract outside of the United States.

The Bidder shall provide the locations where services under this Contract will be performed in the spaces provided below or by attachment. Failure to provide this information as part of its Bid may cause the Bidder to be deemed non-responsive and no further consideration will be given to its Bid. If the Bidder will not be using Subcontractors, indicate "Not Applicable" in the appropriate spaces.

1. Principal business location of Contractor: \_\_\_\_\_

**Contractor Address\*****City, State, and Zip\***

Name / Principal business location of Subcontractor(s), if known at time of Bid deadline: +

**Subcontractor Name\*****Address, City, State, and Zip\***

2. Location(s) where services will be performed by Contractor (Project Sites): +

**Name\*****Address, City, State, and Zip\***

Name(s) / Location(s) where services will be performed by Subcontractors (Project Sites): +

**Subcontractor Name****Address, City, State, and Zip**

3. Location(s) where State data will be located by Contractor: +

**Address\*****City, State, and Zip\***

Location(s) where State data will be located by Subcontractor(s), if known at time of Bid deadline: +

**Subcontractor Name****Address, City, State, and Zip**

Bidder also affirms, understands and agrees that the Contractor and its Subcontractors are under a duty to disclose to the State any change or shift in location of services performed by the Contractor or its Subcontractors before, during and after execution of any Contract with the State. Bidder agrees it shall so notify the State immediately of any such change or shift in location of its services. The State has the right to immediately terminate the contract, unless a duly signed waiver from the State has been attained by the Contractor to perform the services outside the United States.

On behalf of the Bidder, I acknowledge that I am duly authorized to execute this electronic Bid Form including this Bidder Affirmation and Disclosure form and have read and understand that this form is a part of any Contract that Bidder may enter into with the State and is incorporated therein.

## ■ EDGE Program Commitment to Participate

### Option A

The Bidder commits to meet or exceed the advertised EDGE Participation Goal of the Contract award amount, calculated as a portion of the Base Bid plus all accepted Alternates, by using EDGE-certified Business(es).

The Bidder agrees that if selected for consideration of the Contract, it shall provide (if not provided with the Bidder's Bid) to the Contracting Authority, at the location required and within 3 business days after receiving notice from the Contracting Authority, its fully completed Bidder's Qualification Form, including an EDGE Affidavit form for each EDGE-certified Business proposed for use by the Bidder if awarded the Contract for this Project.

### Option B (indicate percentage of participation below)

The Bidder declares that it does not meet the advertised EDGE Participation Goal percentage, but, if awarded the Contract for this Project, commits to provide the percentage of the Contract award amount, indicated above, calculated as a portion of the Base Bid plus all accepted Alternates, by using EDGE-certified Business(es).

The Bidder acknowledges it understands the requirement for it to provide and agrees to provide to the Contracting Authority, if selected for consideration of the Contract, within 3 business days after notice from the Contracting Authority, a detailed Demonstration of Good Faith form describing its efforts undertaken prior to submitting its Bid to meet the advertised EDGE Participation Goal percentage for the Contract for this Project.

The Bidder commits to provide to the Contracting Authority at the location required, and within 3 days after receiving notice from the Contracting Authority, its fully completed Bidder's Qualifications Form, including an EDGE Affidavit form for each EDGE-certified Business proposed for use by the Bidder if awarded the Contract for this Project.

#### Option C

The Bidder declares that the Bidder is an EDGE-certified Business and that if awarded this Contract, the EDGE Participation percentage will be 100 percent of the Contract award amount.

Select EDGE option above\*

Choices...

If option B selected, enter percentage

### ■ Certifications (State Prevailing Wages)

1. The Bidder has read and understands the proposed Contract Documents and agrees to comply with all requirements of the proposed Contract Documents, regardless of whether the Bidder has actual knowledge of the requirements and regardless of any statement or omission made by the Bidder, which might indicate a contrary intention.
2. The Bidder represents that the Bid is based upon the Basis of Design and Acceptable Components specified by the proposed Contract Documents.
3. The Bidder has visited the Site, become familiar with local conditions, and has correlated personal observations about the requirements of the proposed Contract Documents. The Bidder has no outstanding questions regarding the interpretation or clarification of the proposed Contract Documents.
4. The Bidder understands that the execution of the Project will require sequential, coordinated, and interrelated operations, which may involve interference, disruption, hindrance, or delay in the progress of the Bidder's Work. The Bidder agrees that the Contract Sum, as amended from time to time, shall cover all amounts due from the State resulting from interference, disruption, hindrance, or delay that is not caused by the State or its agents and employees. The Bidder agrees that any such interference, disruption, hindrance, or delay is within the contemplation of the Bidder and the State and that the Contractor's sole remedy from the State for any such interference, disruption, hindrance, or delay shall be an extension of time in accordance with the proposed Contract Documents.
5. The Bidder and each Person submitting a Bid on behalf of the Bidder certifies, and in the case of a Bid by a joint venture each member thereof certifies as to such member's entity, under penalty of perjury, that to the best of the undersigned's knowledge and belief: (a) the Base Bid, any Unit Prices, and any Alternate bid in the Bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition as to any matter relating to such Base Bid, Unit Prices or Alternate bid with any other Bidder; (b) unless otherwise required by law, the Base Bid, any Unit Prices and any Alternate bid in the Bid have not been knowingly disclosed by the Bidder and shall not knowingly be disclosed by the Bidder prior to the bid opening, directly or indirectly, to any other Bidder who would have any interest in the Base Bid, Unit Prices, or Alternate bid; (c) no attempt has been made or shall be made by the Bidder to induce any other Person to submit or not to submit a Bid for the purpose of restricting competition.
6. The Bidder shall execute the Agreement with the Contracting Authority, if a Contract is awarded on the basis of this Bid, and if the Bidder does not execute the Agreement for any reason, other than as authorized by law, the Bidder and the Bidder's Surety are liable to the State as provided in Article 5 of the Instructions to Bidders.
7. The Bidder certifies that the upon the award of a Contract, as the Contractor it shall make a good faith effort to ensure that all of the Contractor's employees, while working on the Site, shall not purchase, transfer, use, or possess illegal drugs or alcohol or abuse prescription drugs in any way.
8. The Bidder acknowledges that it read all of the Instructions to Bidders, and in particular, Section 2.10 - Submittals With Bid Form, and by submitting its Bid certifies that it has read the Instructions to Bidders and it understands and agrees to the terms and conditions stated in them.
9. The Bidder agrees to furnish any information requested by the Contracting Authority or the Architect/Engineer to evaluate the responsibility of the Bidder.
10. The Bidder agrees to furnish the submittals required by Section 6.1 of the Instructions to Bidders for execution of the Agreement within 10 days of the date of the Notice of Intent to Award.



11. When the Bidder is a corporation, partnership or sole proprietorship, an officer, partner or principal of the Bidder, as applicable, shall enter the legal name of the Bidder and the name of the officer, partner or principal of the Bidder (in lieu of signing the Bid Form) in the data fields provided.

12. When the Bidder is a joint venture, an officer, partner or principal, as applicable, of each member of the joint venture shall enter the legal name of the applicable member and the name of the officer, partner or principal (in lieu of signing the Bid Form) in the data fields provided.

13. The Bidder understands that the Contract is subject to all the provisions, duties, obligations, remedies and penalties of Ohio Revised Code Chapter 4115 and that the Bidder shall pay any wage increase in the locality during the term of the Contract.

14. The Bidder represents that the individual that is submitting and digitally signing the electronic Bid is legally authorized to do so.

15. Bidder acknowledges that by the act of submitting an electronic Bid that it is digitally signing the actual Bid, which shall serve as the Bidder's authorization for the further consideration and activity in the bidding and contract process.



The Bidder hereby acknowledges that the above representations in this Bid are material and not mere recitals.\*

## ■ Procurement Forms

### [Document 00 43 13 - Bid Security Form](#)

→ Upload below and provide original document within 3 days

### [Document 00 45 13 - Bidder's Qualifications](#)

→ Upload below or provide within 3 days of request

### [Document 00 45 39 - EDGE Affidavit](#)

→ Upload below or provide within 3 days of request

3 Attachments

## ■ Instructions for Providing Bid Submittals

### Submission of Electronic Facsimile of Bid Guaranty with Electronic Bid

The Bidder shall upload and attach to its bid an electronic facsimile (scanned PDF document) of its bid guaranty, payable to the Contracting Authority, in the form of any of the following: (1) the signed and sealed Document 00 43 13 - "Bid Security Form" contained in the Contract Documents (and provided for the Bidder's convenience in the block above) for the amount of the Base Bid plus all additive Alternates; or (2) a certified check, cashier's check, or letter of credit, for 10 percent of the Base Bid, plus all additive Alternates – a letter of credit shall expressly provide that it is revocable only by the Contracting Authority (refer to Sections 2.10.1.1 and 5.1 of Document 00 21 13 - "Instructions to Bidders"); or (3) an electronic verification through an electronic verification and security system.

### Submission of Original Bid Guaranty

In addition to the electronic facsimile above, if not using an electronic verification and security system, the Bidder shall deliver its original unaltered Bid Guaranty to the Project Coordinator at the address identified below within 3 business days after the bid deadline. Refer to Section 2.10.1.2 of the Instructions to Bidders.

Cathy Dalton  
Contract Administrator  
The Ohio State University  
400 Enarson Classroom Building  
2009 Millikin Road  
Columbus, OH 43210

### Non-responsive Bid for Failure to Submit Bid Guaranty

If not using an electronic verification and security system, the Bidder must submit both the electronic facsimile and the original unaltered Bid Guaranty as described above. The Contracting Authority shall reject a Bid as non-responsive if the Bidder fails to submit both elements of the Bid Guaranty. The checkboxes below are to identify that you have uploaded an acceptable form of Bid Guaranty. Do not check all boxes. Refer to Section 2.10.1 of the Instructions to Bidders.

### Submission of Bidder's Qualifications and EDGE Affidavit

The Bidder is encouraged to submit background information with its Bid using Document 00 45 13 - "Bidder's Qualifications" and Document 00 45 39 - "EDGE Affidavit" with the EDGE-certified Business(es) the Bidder proposes to use on the Project (forms provided for the Bidder's convenience in the block above). If the Bidder does not submit the Bidder's Qualifications form and/or the EDGE Affidavit form and related information attached to the electronic Bid Form, the Bidder shall provide it within 3 days of request. Refer to Sections 2.10.3 and 3.5.4 of the Instructions to Bidders.

## ■ Required Bid Guaranty Upload

| Name                                                                                                                                                                                             | File*                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Document 00 43 13 - Bid Security Form<br>→ Upload a scan of the fully executed Bid Security Form AND submit the original document to the Contracting Authority within 3 days of the bid deadline | <div>Select file... no file selected</div> <div> <input type="checkbox"/> I am NOT enclosing this document because the <a href="#">omission terms</a> have been met. (Bidder submitted a Cashier's Check OR Electronic Verification below) </div>                                              |
| Power of Attorney<br>→ Upload a scan of the fully executed Power of Attorney AND submit the original document to the Contracting Authority within 3 days of the bid deadline                     | <div>Select file... no file selected</div> <div> <input type="checkbox"/> I am NOT enclosing this document because the <a href="#">omission terms</a> have been met. (Bidder submitted a Cashier's Check OR Electronic Verification below OR included with the Bid Security Form above) </div> |
| Cashier's Check for 10% of the Bid<br>→ Upload a scan of the Cashier's Check AND submit the original check to the Contracting Authority within 3 days of the bid deadline                        | <div>Select file... no file selected</div> <div> <input type="checkbox"/> I am NOT enclosing this document because the <a href="#">omission terms</a> have been met. (Bidder submitted the Bid Security Form AND Power of Attorney above, OR Electronic Verification below) </div>             |
| Electronic Verification and Security System<br>→ Upload a secure authorization code uniquely and electronically assigned to the Bid Guaranty and Power of Attorney                               | <div>Select file... no file selected</div> <div> <input type="checkbox"/> I am NOT enclosing this document because the <a href="#">omission terms</a> have been met. (Bidder submitted a Bid Security Form AND Power of Attorney, OR Cashier's Check above) </div>                             |
| 4 Required Documents                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                |

## ■ Bidder's Qualifications and EDGE Affidavit Upload

| Name                                                                                         | File*                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Document 00 45 13 - Bidder's Qualifications<br>→ Upload fully completed form and attachments | <div>Select file... no file selected</div> <div> <input type="checkbox"/> I am NOT enclosing this document because the <a href="#">omission terms</a> have been met. (Must be submitted to the Contracting Authority within 3 days of request) </div> |
| Document 00 45 39 - EDGE Affidavit<br>→ Upload a completed form for each EDGE business       | <div>Select file... no file selected</div> <div> <input type="checkbox"/> I am NOT enclosing this document because the <a href="#">omission terms</a> have been met. (Must be submitted to the Contracting Authority within 3 days of request) </div> |
| 2 Required Documents                                                                         |                                                                                                                                                                                                                                                       |

## ■ Bidder Signatory Information

Bidder Signatory

**Name of Bidder's Authorized Signatory:\*** **Title of Authorized Signatory:\***

**All Bidders complete all information in this form. Duplicate and complete the block below for each Joint Venturer:**

Bidder Information

**Business Name:\***

**Business Mailing Address, City, State, Zip:\***

**Telephone Number:\*** **Email Address:\***

**Federal Tax ID Number:\*** **State of Incorporation (if applicable):**

**Contact person for Contract processing:\*** **Date enrolled in an OBWC-approved SUPR (month/date/year):**

**President or Chief Executive Officer's Name:\*** **President or Chief Executive Officer's Title:\***

**END OF DOCUMENT**

# Document 00 43 13 - Bid Security Form

## State of Ohio Standard Requirements for Public Facility Construction

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( Form of combined Bid Guaranty and Bond prescribed by Ohio Revised Code Section 153.571 )

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned \_\_\_\_\_, as Principal,  
and \_\_\_\_\_ as Sureties,  
are hereby held and firmly bound unto \_\_\_\_\_  
\_\_\_\_\_ as Obligee(s), in the penal sum of the dollar amount of the Bid submitted by the Principal  
to the Obligee on \_\_\_\_\_ (date) to undertake the Project known as:

Project Number: \_\_\_\_\_

Project Name: \_\_\_\_\_

Contract Description: \_\_\_\_\_  
(e.g., General Trades, Plumbing, HVAC, Electrical)

The penal sum, referred to herein, shall be the dollar amount of the Principal's Bid to the Obligee, incorporating any additive alternate Bids made by the Principal on the date referred to above to the Obligee, which are accepted by the Obligee. In no case shall the penal sum exceed the amount of dollars (\$ \_\_\_\_\_). (If the preceding line is left blank, the penal sum will be the full amount of the Principal's Bid, including add alternates. Alternatively, if completed, the amount stated shall not be less than the full amount of the Bid, including Alternates, in dollars and cents. A percentage is not acceptable.) For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above-named Principal has submitted a Bid for the above referenced Project;

NOW, THEREFORE, if the Obligee accepts the Bid of the Principal, and the Principal fails to enter into a proper contract in accordance with the Bid, Plans, Specifications, details, and bills of material; and in the event the Principal pays to the Obligee the difference, not to exceed ten percent of the penal sum hereof between the amount specified in the Bid and such larger amount for which the Obligee may in good faith contract with the Bidder determined by the Obligee to be the next lowest responsive and responsible to perform the Work covered by the Bid; or in the event the Obligee does not award the Contract to such next lowest responsive and responsible Bidder and resubmits the Project for bidding, the Principal pays to the Obligee the difference not to exceed ten percent of the penal sum hereof between the amount specified in the Bid, or the costs, in connection with the resubmission, of printing new Contract Documents, required advertising and printing and mailing notices to prospective Bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect. If the Obligee accepts the Bid of the Principal, and the Principal, within 10 days after the awarding of the Contract, enters into a proper contract and executes the Agreement Form in accordance with the Contract Documents, including without limitation the Bid, Plans, Specifications, details, and bills of material, which said Contract is made a part of this Bond the same as though set forth herein; and

NOW ALSO, IF THE SAID Principal shall well and faithfully perform each and every condition of such Contract; and indemnify the Obligee against all damage suffered by failure to perform such Contract according to the provisions thereof and in accordance with the Contract Documents, including without limitation Plans, Specifications, details, and bills of material therefore; and shall pay all lawful claims of Subcontractors, Material Suppliers and laborers for labor performed and materials furnished in the carrying forward, performing or completing of said Contract; we, agreeing and assenting that this undertaking shall be for the benefit of any Subcontractor, Material Suppliers or laborer having a just claim, as well as for the Obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

THE SAID Surety hereby stipulates and agrees that no modifications, omissions or additions, in or to the terms of said Contract, the Work thereunder or the Contract Documents, including without limitation the Plans and Specifications, therefore, shall in any way affect the obligations of said Surety on its bond, and it does hereby waive notice of any such modifications, omissions or additions in or to the terms of the Contract, the Work, or the Contract Documents, including without limitation the Plans and Specifications.

SIGNED AND SEALED this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

**PRINCIPAL:**

x \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

**SURETY:**

x \_\_\_\_\_

By: \_\_\_\_\_  
Attorney-in-Fact

**SURETY INFORMATION:**

\_\_\_\_\_  
Street

\_\_\_\_\_  
City State Zip

\_\_\_\_\_  
Telephone Number

**SURETY AGENT'S INFORMATION:**

\_\_\_\_\_  
Agency Name

\_\_\_\_\_  
Street

\_\_\_\_\_  
City State Zip

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
Email Address

**END OF DOCUMENT**

# Document 00 45 13 - Bidder's Qualifications

## State of Ohio Standard Requirements for Public Facility Construction

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Project Number: \_\_\_\_\_

Project Name: \_\_\_\_\_

1. Company Name: \_\_\_\_\_

Physical Address: \_\_\_\_\_  
Street, Building, Unit

\_\_\_\_\_  
City, State, Zip

Mailing Address (if different): \_\_\_\_\_  
P.O. Box

\_\_\_\_\_  
City, State, Zip

Telephone Number (w/ Area Code): ( \_\_\_\_\_ ) \_\_\_\_\_

Fax Number (w/ Area Code): ( \_\_\_\_\_ ) \_\_\_\_\_

Email address: \_\_\_\_\_

2. **Overall Experience.** Indicate Bidder's overall experience performing the trades bid, including the years in business performing the trade under present and former business names.

3. **Financial.** The apparent low Bidder shall submit, upon request of the Contracting Authority, either:

- a) An annual financial statement prepared within the 12 months prior to the bid opening by an independent licensed accounting firm; and the name, address, contact person and phone number of the bank normally used by the Bidder for its primary banking; or,
- b) A financial report generated within 30 days prior to the bid opening from Standard and Poor, Dun and Bradstreet or a similar company acceptable to the Contracting Authority documenting the financial condition of the Bidder; and the name, address, contact person and phone number of the bank normally used by the Bidder for its primary banking;

**This information is not a public record under Ohio Revised Code Section 149.43; and shall remain confidential, except under proper order of a court.**

- 4. Facilities & Equipment.** Indicate Bidder's relevant facilities and major equipment (leased or owned).
- 5. Ongoing & Relevant Projects.** List all ongoing projects and projects completed in the last 5 years, which are similar in cost and type to the Project. Include scope of Work, Contract value, a description of EDGE participation and performance, and project name/contact person/address/phone number for each owner and the architect or engineer for each project.
- 6. Regulatory / Contractual.** Indicate all occurrences of the following in the last 5 years (indicate if none). For verification, attach documentation, and/or provide sufficient and appropriate detail information such as: project name, owner, contact person and phone number, amount of contract, etc.
- a) State or federal Prevailing Wage violations or judgments
  - b) EDGE program violations
  - c) Contract abandonment, contract termination, as either a prime- or sub-contractor, or Surety takeover
  - d) Debarment by state, federal, or local jurisdictions

e) EPA/OSHA violations

f) Liquidated damages and Statutory Delay Forfeiture assessed

g) Drug-Free Safety Program and Drug Free Workplace Program violations (currently titled ***Substance Use Prevention and Recovery Program***)

**7. Management.** Identify individuals assigned to this Project.

Principal \_\_\_\_\_ Years with firm \_\_\_\_\_ Total Exp. \_\_\_\_\_

Project Manager \_\_\_\_\_ Years with firm \_\_\_\_\_ Total Exp. \_\_\_\_\_

Field Superintendent \_\_\_\_\_ Years with firm \_\_\_\_\_ Total Exp. \_\_\_\_\_

**8. EDGE Participation.** Identify EDGE-certified Business Enterprises proposed as Subcontractors and Material Suppliers for this Project. Attach a fully completed Document 00 45 39 - "EDGE Affidavit" for each EDGE-certified Business Enterprise.

**9. Contractor Pre-Work Evaluation.** Attach a completed Contractor Pre-Work Evaluation, available here <https://fod.osu.edu/resources>, under the section titled "Construction Site Safety Requirements.

**10. Certification.** I hereby certify that the information in this entire Bidder's Qualifications form, including all attachments and referenced information, is factual and complete.

Company Name \_\_\_\_\_

Authorized Official (please print or type) \_\_\_\_\_

Signature of Authorized Official \_\_\_\_\_ Date \_\_\_\_\_

**END OF DOCUMENT**



**Document 00 45 39 – EDGE Affidavit**  
**State of Ohio Standard Requirements for Public Facility Construction**

---

**EDGE PARTICIPATION**

**Statement of Intent to Contract and Perform**

*Bidder or Proposer: submit one fully completed form for each EDGE-certified Business*

Project Name \_\_\_\_\_ Project Number \_\_\_\_\_  
Bidder or Proposer Name \_\_\_\_\_ Federal Tax I.D. \_\_\_\_\_  
Mark the type of contract:  
☐ Multi-Prime Contract    ☐ General Contract    ☐ CM at Risk Contract    ☐ Design-Build Contract

---

**EDGE-certified Business information** (for contract at any tier)

EDGE Business Name \_\_\_\_\_ Contact Person \_\_\_\_\_  
EDGE Business Address \_\_\_\_\_ Phone \_\_\_\_\_  
EDGE City, State ZIP \_\_\_\_\_ E-mail \_\_\_\_\_  
EDGE Certification No. \_\_\_\_\_ Federal Tax I.D. \_\_\_\_\_

Mark all that apply:

☐ Subcontractor    ☐ Professional Services    ☐ Goods & Services

Describe the materials, labor, services, supplies, etc. to be provided by the EDGE-certified Business (may use industry codes – continue on separate page if needed):

---

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**Certification of Intent by EDGE-Certified Business and by the Bidder or Proposer**

The Bidder or Proposer certifies that it intends to contract with the EDGE-certified Business for the portion of the contract described above related to its Contract for this Project and for the estimated cost shown below. The EDGE-certified Business certifies that it intends to contract with the Bidder or Proposer and intends to provide the portion of the contract described above for this Project for the estimated cost of:

\_\_\_\_\_ Dollars ( \$ \_\_\_\_\_ ).

If the Bidder or Proposer is not awarded a Contract, this Statement of Intent shall be null and void.

***EDGE-certified Business***

\_\_\_\_\_  
Authorized Signature  
\_\_\_\_\_  
Name  
\_\_\_\_\_  
Title  
\_\_\_\_\_  
Date Signed

***Bidder or Proposer***

\_\_\_\_\_  
Authorized Signature  
\_\_\_\_\_  
Name  
\_\_\_\_\_  
Title  
\_\_\_\_\_  
Date Signed

# Document 00 52 00 - Agreement Form (University Project)

## State of Ohio Standard Requirements for Public Facility Construction

---

This Agreement is made as of the date set forth below between the State of Ohio, acting by and through the University, and the Contractor in connection with the Project.

**Project Number:** «insert project number»  
**Project Name:** «insert project name»  
**Site Address:** «insert street address»  
«insert city, state zip code»  
«insert county» County

**Owner / Contracting Authority:** The Ohio State University  
**Project Manager:** «insert name»  
**Address:** 400 Enarson Classroom Building  
2009 Millikin Road  
Columbus, OH 43210

**Contractor:** «insert name»  
**Contractor's Principal Contact:** «insert name»  
**Address:** «insert street address»  
«insert city, state zip code»

**Architect/Engineer ("A/E"):** «insert name»  
**A/E's Principal Contact:** «insert name»  
**Address:** «insert street address»  
«insert city, state zip code»

### ARTICLE 1 - SCOPE OF WORK; EDGE COMMITMENT

- 1.1** The Contractor shall perform and provide all of the Work described in the Contract.
- 1.2** The project delivery method for this Project shall be «insert project delivery method».
- 1.3** The Contractor shall contract with EDGE-certified Business(es) for not less than «insert Contractor's EDGE commitment» percent of the Contract Sum.

### ARTICLE 2 - COMPENSATION

**2.1** The University shall pay the Contractor the Contract Sum for the Contractor's proper, timely, and complete performance of the Contract. The Contract Sum is \$«insert amount», subject to Modifications as provided in the Contract Documents. The Contract Sum is comprised of the following:

- 2.1.1** Base Bid: .....\$«Insert Base Bid Amount»
- 2.1.2** Alternate «Insert Alternates Awarded»: .....\$«Insert Alternate Amount»
- 2.1.3** Alternate «Insert Alternates Awarded»: .....\$«Insert Alternate Amount»
- 2.1.4** Alternate «Insert Alternates Awarded»: .....\$«Insert Alternate Amount»
- 2.1.5** Alternate «Insert Alternates Awarded»: \$«Insert Alternate Amount»

**2.2** The funding for the Project, including funds retained from payments to the Contractor, will not accrue interest for the benefit of the Project or the Contractor.

## ARTICLE 3 - CONTRACT TIMES

**3.1** The Contract Times are the periods established in the following table for the achievement of the associated Milestones:

| Construction Stage Milestone(s)<br>to which Liquidated Damages apply                       | Contract Time                            | Projected Date<br>(as of the date of<br>this Agreement) |
|--------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------|
| «insert description of interim milestone – add more rows if<br>necessary – delete if none» | «insert number of<br>calendar days» days | «insert date»                                           |
| Substantial Completion of all Work                                                         | «insert number of<br>calendar days» days | «insert date»                                           |

*Each duration in the Contract Time column above must be calculated from the anticipated Date of Commencement established in the Notice to Proceed for the Work covered by this Agreement to the date that the milestone must be achieved. DO NOT insert durations calculated between interim milestones as this DOES NOT comply with the General Conditions.*

**3.1.1** The projected dates listed under “Projected Date (as of the date of this Agreement)” are **(1)** based upon an anticipated, but not guaranteed, Date of Commencement of «insert date»; and **(2)** provided only for convenient reference during consideration of the Agreement. The durations listed under “Contract Time” define the Contract Times and take precedence over the projected dates.

## ARTICLE 4 - KEY PERSONNEL

**4.1** The Contractor’s key personnel for the Project are:

**4.1.1** «insert name», Project Manager;

**4.1.2** «insert name», Lead Scheduling Engineer;

**4.1.3** «insert name», General Superintendent.

*Edit the above list as appropriate for the Project.*

**4.2** The Contractor’s key personnel are authorized to act on the Contractor’s behalf with respect to the Project and all matters concerning the Project.

## ARTICLE 5 - GENERAL PROVISIONS

**5.1** Effectiveness.

**5.1.1** It is expressly understood by the Contractor that none of the rights, duties, and obligations described in the Contract Documents shall be valid and enforceable unless the Director of the Office of Budget and Management first certifies that there is a balance in the University’s appropriation not already encumbered to pay existing obligations and until all relevant statutory provisions of the Ohio Revised Code, including ORC Section 126.07, have been complied with, and until such time as all necessary funds are available or encumbered and, when required, such expenditure of such funds is approved by the State Controlling Board, or other applicable approving body.

**5.1.2** In addition, if federal funds are to be used to pay fees and expenses under this Agreement, none of the rights, duties, and obligations contained in this Agreement shall be binding on any party until the University gives the Contractor written notice that such funds are available from the University’s funding source.

**5.1.3** Subject to **Section 5.1.1**, the Contract shall become binding and effective upon execution by the University, Contractor, and Ohio Attorney General.

**5.1.3.1** If the Contractor is a joint venture, **(1)** each individual joint venturer shall **(a)** sign the Agreement in its own name and **(b)** be a party to the Contract, and **(2)** the Contract and the Performance and Payment Bond shall be binding on and apply to all joint venturers jointly and severally.

**5.1.3.2** If the Contractor is a limited liability company, which the Contracting Authority reasonably believes to be a special purpose or similar entity, the Contracting Authority may in its discretion require the limited liability company and each member of the limited liability company to **(1)** sign the Agreement in its own name and **(2)** be a

party to the Contract. In that case, the Contract and the Performance and Payment Bond shall be binding on and apply to the limited liability company and to all of its members jointly and severally.

**5.1.4** This Agreement may be executed in several counterparts, each of which shall constitute a complete original Agreement, which may be introduced in evidence or used for any other purpose without production of any other counterparts.

## **5.2 Representations.**

**5.2.1** The Contractor represents and warrants that it is not subject to an unresolved finding for recovery under ORC Section 9.24. If this representation and warranty is found to be false, the Contract is void, and the Contractor shall immediately repay to the University any funds paid under this Contract.

**5.2.2** The Contractor hereby certifies that neither the Contractor nor any of the Contractor's partners, officers, directors, shareholders nor the spouses of any such person have made contributions in excess of the limitations specified in ORC Section 3517.13.

**5.2.3** The Contractor, by signature on this Agreement, certifies that it is currently in compliance with, and will continue to adhere to, the requirements of Ohio ethics laws and conflict of interest laws and will take no action inconsistent with those laws.

**5.2.4** The Contractor affirms to have read and understands Executive Order 2019-12D and shall abide by those requirements in the performance of this Contract. Notwithstanding any other terms of this Contract, the State reserves the right to recover any funds paid for services the Contractor performs outside of the United States for which it did not receive a waiver. The State does not waive any other rights and remedies provided the State in this Contract.

**5.2.5** The Contractor affirms to have read and understands Executive Order 2022-02D regarding the prohibition of purchases from or investment in a Russian institution or company and shall abide by those requirements in the performance of this Contract. Notwithstanding any other terms of this Contract, the State reserves the right to recover any funds paid to the Contractor for purchases or investments in a Russian institution or company in violation of this paragraph. The provisions of this paragraph will expire when the applicable Executive Order is no longer effective.

**5.2.6** During the performance of this Contract, if the Contractor changes the location(s) disclosed on the **Affirmation and Disclosure Form** (a page in its **Bid Form**), the Contractor must complete and submit a revised **Affirmation and Disclosure Form**.

**5.2.7** Pursuant to ORC Section 9.76(B), the Contractor warrants that it is not boycotting any jurisdiction with whom the State of Ohio can enjoy open trade, including Israel, and will not do so during the term of this Contract.

## **ARTICLE 6 - Enumeration of Documents**

**6.1** The Contract Documents constitute the substance of the Contract, and include this Agreement, Drawings, Specifications, Addenda if any, **Contracting Definitions, General Conditions**, Supplementary Conditions if any, **Bid Form, Wage Rate Requirements, Bid Guaranty and Contract Bond or Performance and Payment Bond**, and Change Orders if any.

## SIGNATURES

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date set forth below:

«Company\_Name»

\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
*Printed Name*

\_\_\_\_\_  
*Title*

\_\_\_\_\_  
*Date*

### OWNER

THE OHIO STATE UNIVERSITY

\_\_\_\_\_  
*Signature*

*Delete name/title below if total project cost is < \$4,000,000*

Chris Kabourek  
Senior Vice President  
Office of Administration and Planning

*Delete name/title below if total project cost is ≥ \$4,000,000*

Kristin Poldemann  
Associate Vice President  
Facilities Design and Construction

\_\_\_\_\_  
*Date*

*Include signature below if contract amount is ≥ \$1,000,000*

\_\_\_\_\_  
*Signature*

Michael Papadakis  
Senior Vice President of Business and Finance  
& Chief Financial Officer

\_\_\_\_\_  
*Date*

**Dave Yost, Ohio Attorney General**  
**OHIO ATTORNEY GENERAL**  
Approval as to Form

\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
*Printed Name*

\_\_\_\_\_  
*Title*

\_\_\_\_\_  
*Date*

*If the Contractor is a corporation, partnership, sole proprietorship, or limited liability company, use the table above. If the Contractor is a joint venture or special purpose entity, use the table below. Then delete the unused table and this note.*

**«INSERT CONTRACTOR'S NAME»**  
by «insert Joint Venturer/Member's name»

\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
*Printed Name*

\_\_\_\_\_  
*Title*

\_\_\_\_\_  
*Date*

by «insert Joint Venturer/Member's name»

\_\_\_\_\_  
*Signature*

\_\_\_\_\_  
*Printed Name*

\_\_\_\_\_  
*Title*

\_\_\_\_\_  
*Date*

**OWNER**  
THE OHIO STATE UNIVERSITY

---

*Signature*

*Delete name/title below if total project cost is < \$4,000,000*

Chris Kabourek  
Senior Vice President  
Office of Administration and Planning

*Delete name/title below if total project cost is  $\geq$  \$4,000,000*

Kristin Poldemann  
Associate Vice President  
Facilities Design and Construction

---

*Date*

*Include signature below if contract amount is  $\geq$  \$1,000,000*

---

*Signature*

Michael Papadakis  
Senior Vice President of Business and Finance  
& Chief Financial Officer

---

*Date*

**Dave Yost, Ohio Attorney General**  
**OHIO ATTORNEY GENERAL**  
Approval as to Form

---

*Signature*

---

*Printed Name*

---

*Title*

---

*Date*

**END OF DOCUMENT**

**Document 00 52 14 - State of Ohio Subcontract Form**  
**State of Ohio Standard Requirements for Public Facility Construction**

---

This Agreement is made as of the date set forth below between the Constructor and the Subcontractor in connection with the Project.

**Project Number:** 250050  
**Project Name:** Marion - Morrill Hall Fire Panel / Elevator Upgrades  
**Site Address:** ENTER STREET ADDRESS  
ENTER CITY, COUNTY

**Constructor:** ENTER NAME  
**Constructor's Principal Contact:** ENTER FULL NAME  
**Address:** ENTER STREET ADDRESS  
ENTER CITY, STATE ZIP CODE

**Subcontractor:** ENTER NAME  
**Subcontractor's Principal Contact:** ENTER NAME  
**Address:** ENTER STREET ADDRESS  
ENTER CITY, STATE ZIP CODE

**Public Authority:** ENTER NAME  
**Public Authority Contact:** ENTER NAME  
**Address:** ENTER STREET ADDRESS  
ENTER CITY, STATE ZIP CODE

**ARTICLE 1 - NATURE OF SUBCONTRACT**

- 1.1** The Subcontractor shall perform the entire Subcontract Work as specified in Exhibit **ENTER EXHIBIT DESIGNATION** and described in the Contract Documents for the Project.
- 1.1.1** The project delivery method for the Project is **Choose an item..**
- 1.1.2** The above-identified "Constructor" is the **Choose an item..**

**ARTICLE 2 - COMPENSATION**

- 2.1** The Constructor agrees to pay for the performance of this Subcontract, subject to additions and deductions as provided in the Contract Documents, the Subcontract Sum of **Enter Subcontract Sum**, comprised of the following:
- Enter Subcontract Sum Component..... \$0.00**
- Enter Subcontract Sum Component..... \$0.00**
- Enter Subcontract Sum Component..... \$0.00**
- Enter Subcontract Sum Component..... \$0.00**

**ARTICLE 3 - TIME OF PERFORMANCE**

- 3.1** Time is of the essence. The Subcontractor shall diligently prosecute and complete all Subcontract Work in accordance with the construction progress schedule agreed between the parties.

**ARTICLE 4 - CONTRACT DOCUMENTS**



**4.1** To the extent that the contract between the Public Authority and the Constructor applies to the Subcontract Work:

**4.1.1** The Constructor and the Subcontractor agree to be mutually bound by the terms of the Contract Documents;

**4.1.2** The Constructor assumes toward the Subcontractor the rights, remedies, obligations, and responsibilities that the Public Authority has and assumes toward the Constructor;

**4.1.3** The Subcontractor assumes toward the Constructor the rights, remedies, obligations, and responsibilities that the Constructor assumes toward the Public Authority; and

**4.1.4** The Subcontractor agrees to perform its portion of the Work in accordance with the Contract Documents.

**4.2** The Subcontract and any modifications, amendments, or alterations thereto shall be governed, construed, and enforced by and under the laws of the State of Ohio.

**4.3** If any term or provision of the Subcontract or the application thereof to any Person or circumstance is finally determined to be invalid or unenforceable by a court of competent jurisdiction, the remainder of the Subcontract or the application of such term or provision to other Persons or circumstances shall not be affected thereby, and each term and provision of the Subcontract shall be valid and enforced to the fullest extent permitted by Applicable Law.

**4.4** The Subcontract shall be binding on the Constructor and Subcontractor and their successors and assigns, in respect to all respective covenants and obligations contained in the Contract Documents, but the Subcontractor may not assign the Subcontract without the prior written consent of the Constructor and the Public Authority.

## **ARTICLE 5 - EFFECTIVENESS**

**5.1** The Subcontract shall become binding and effective upon execution by the Constructor.

**5.2** This Subcontract has been executed in several counterparts, each of which shall constitute a complete original Subcontract, which may be introduced in evidence or used for any other purpose without production of any other counterparts.

**5.3** Any signatory may deliver a copy of its counterpart signature page to this Subcontract via fax or e-mail. Each signatory shall be entitled to rely upon a signature of any other signatory delivered in such a manner as if such signature were an original.

## **ARTICLE 6 - REPRESENTATIONS**

**6.1 Contingent Assignment.** The Constructor's contingent assignment of this Subcontract to the Public Authority, as provided in the Contract, is effective only after **(1)** termination of the Contract in whole or in part by the Public Authority and **(2)** the Public Authority's acceptance of the assignment in whole or in part by written notice to the Subcontractor. The Subcontractor consents to the assignment and to be bound to the Public Authority at the same price and terms as in the Subcontract. Unless the Public Authority takes assignment of the Subcontract, the Subcontractor will not have any contractual rights against the Public Authority.

**6.2 Intended Third-Party Beneficiary.** The Public Authority is an intended third-party beneficiary of the Subcontract, entitled to enforce any rights thereunder for its benefit.

**6.3 Insurance.** The Subcontractor shall maintain insurance in accordance with the Contract Documents. Exhibit **ENTER EXHIBIT DESIGNATION** sets forth the minimum limits of liability for the insurance required in the Contract Documents.

**6.4 Right to Audit.** The Public Authority and any of its agents shall have access to and may audit and copy at the Public Authority's cost all of the Subcontractor's books, records, contracts, correspondence,

instructions, drawings, receipts, vouchers, purchase orders, and memoranda relating to the Subcontract Work for a period of not less than three years following completion of the Work consistent with Ohio Revised Code (“ORC”) Section 149.43 with regard to the Public Authority’s obligation to maintain confidentiality of trade secrets.

**6.5 Indemnity.** To the fullest extent permitted by Applicable Law, the Subcontractor shall indemnify, defend, and hold harmless the Public Authority, the CM, and their respective consultants and employees from and against all claims, costs, damages, losses, fines, penalties, and expenses (including but not limited to all reasonable fees and charges of attorneys and other professionals, and all court, arbitration, or other dispute-resolution costs) arising out of or in connection with the Project, provided that any such claim, cost, damage, loss, fine, penalty, or expense is attributable to third-party bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, including loss of use, but only to the extent caused by the acts, errors, or omissions of the Subcontractor or a person or entity for whom the Subcontractor may be liable.

**6.5.1** In claims against a Person indemnified under **Section 6.5** by any direct or indirect employee (or the survivor or personal representative of that employee) of the Subcontractor or a person or entity for whom the Subcontractor may be liable, the indemnification obligation under **Section 6.5** will not be limited by a limitation on the amount or type of damages, compensation, or benefits payable under workers’ compensation acts, disability benefit acts, or other employee benefit acts. The Subcontractor **(1)** specifically and expressly waives any immunity afforded to it by virtue of any applicable state constitutional or statutory protections, including but not limited to Section 35, Article II of the Ohio Constitution and Ohio Revised Code Section 4123.73, but only to the extent required to honor the indemnity obligations set forth under this **Section 6.5**; and **(2)** shall ensure that the foregoing waiver is explicitly included in all agreements with the Subcontractor’s subcontractors at every tier.

**6.6 Prompt Pay.** The Constructor shall at a minimum make payments to the Subcontractor in accordance with Applicable Law, including ORC Sections 153.12 and 4113.61.

**6.6.1** Progress payments to the Subcontractor for satisfactory performance of Subcontract Work shall be made no later than ten days after receipt by the Constructor of payment from the Public Authority for the Subcontract Work.

**6.6.2** The Constructor may reduce the amount to be paid to the Subcontractor pursuant to **Section 6.6.1** at a rate equal to the percentage retained from the Constructor and may withhold amounts necessary to **(1)** resolve disputed liens or claims involving the Subcontract Work or **(2)** account for the failure of the Subcontractor to perform its obligations under this Subcontract.

**6.7 Retainage.** Subcontractor retainage shall be at a rate equal to the percentage retained from the Constructor’s payment by the Public Authority for the Subcontract Work, unless a lesser percentage is otherwise specified.

**6.7.1 Labor Payments.**

**6.7.1.1** Partial payments to the Subcontractor for labor performed shall be made at the rate of 96 percent of the amount invoiced through the Subcontractor’s request for payment.

**6.7.2 Material Payments.**

**6.7.2.1** The Constructor shall pay the Subcontractor at the rate of 100 percent of the scheduled value for materials incorporated into the Project.

**6.7.2.2** The Constructor shall pay the Subcontractor at the rate of 92 percent of the invoice cost, not to exceed the scheduled value, for materials delivered to the Site, or other off-site storage location approved by the A/E, provided the Subcontractor provides the following information with its request for payment:

- .1** a list of the fabricated materials consigned to the Project, giving the place of storage, together with copies of invoices, in order to verify quantity and cost; and
- .2** a certification of materials stored off-site, prepared by the Subcontractor and signed by the A/E to evidence that the materials are in conformity with the Specifications and have been tagged with the Project name and number for delivery to the Project. The Subcontractor shall reimburse the A/E, through the Constructor, for all costs incurred to visit a storage site, other than the areas adjacent to the Project.

**6.7.2.3** The Constructor shall pay the balance of the scheduled value when the materials are incorporated into and become a part of the Project.

**6.8 Warranty.** The Subcontractor warrant to the Public Authority and Constructor that all materials and equipment furnished under the Subcontract shall be new and of good quality unless otherwise required or permitted by the Contract Documents, that the Subcontract Work shall be free from defects not inherent in the quality required or permitted, and that the Work shall conform to the requirements of the Contract Documents.

**6.9 Non-Waiver of Lien Rights or Payment Bond Rights.** This Subcontract shall not prohibit a Subcontractor from exercising its rights under ORC Chapter 1311 or under any Constructor-provided payment bond.

**6.10 Non-Discrimination.** The Subcontractor agrees to fully comply with Applicable Law regarding equal opportunity, including ORC Section 153.59 and, to the extent applicable, all Executive Orders issued by the Governor of the state of Ohio.

**6.11 Dispute Resolution.** The supplemental conditions to this Subcontract shall provide for a dispute resolution process comparable to the Contract’s dispute resolution process in terms of timing, notice, substantiation, and informal dispute resolution efforts. The dispute resolution process provided in the supplemental conditions shall result in prompt access to the ultimate dispute resolution mechanism selected by the parties.

**6.12** In the event that any supplemental conditions or other Subcontract terms conflict with the **State of Ohio Subcontract Form**, the **State of Ohio Subcontract Form** takes precedence and this Subcontract shall be read and enforced to include the provisions of the **State of Ohio Subcontract Form**.

**6.13** The following exhibits are attached to and are a part of this Subcontract:

- 6.13.1 Exhibit A:** Enter Name of Exhibit
- 6.13.2 Exhibit B:**Enter Name of Exhibit
- 6.13.3 Exhibit C:**Enter Name of Exhibit
- 6.13.4 Exhibit D:**Enter Name of Exhibit

**SIGNATURES**

IN WITNESS WHEREOF, the parties have executed this Subcontract Form.

**ENTER SUBCONTRACTOR’S NAME**

**ENTER CONSTRUCTOR’S NAME**

\_\_\_\_\_  
*Signature*

Click or tap here to enter text.

\_\_\_\_\_  
*Printed Name*

Click or tap here to enter text.

\_\_\_\_\_  
*Title*

\_\_\_\_\_  
*Signature*

Click or tap here to enter text.

\_\_\_\_\_  
*Printed Name*

Click or tap here to enter text.

\_\_\_\_\_  
*Title*

Click or tap to enter a date.

\_\_\_\_\_  
*Date*

**END OF DOCUMENT**

# Document 00 61 13 - Performance and Payment Bond Form

## State of Ohio Standard Requirements for Public Facility Construction

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( Form of Bond prescribed by Ohio Revised Code Section 153.57 - Not to be used as Bid Guaranty )

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned \_\_\_\_\_, as Principal,  
and \_\_\_\_\_ as Sureties,  
are hereby held and firmly bound unto \_\_\_\_\_  
\_\_\_\_\_ as Obligee(s), in the penal sum of \_\_\_\_\_ dollars,  
for the payment of which well and truly to be made, we jointly and severally bind ourselves, our heirs, executors,  
administrators, successors, and assigns.

SIGNED AND SEALED this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above-named Principal did on the  
\_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, enter into a Contract with the Obligee, which said Contract is  
made a part of this Bond the same as though set forth herein and which is more fully described as:

Project Number: \_\_\_\_\_

Project Name: \_\_\_\_\_

Contract Description: \_\_\_\_\_  
(e.g., General Trades, Plumbing, HVAC, Electrical)

NOW, THEREFORE, if the above-named Principal shall well and faithfully do and perform the things agreed by the  
Obligee to be done and performed according to the terms of said Contract; and shall pay all lawful claims of Subcontractors,  
Material Suppliers, and laborers, for labor performed and materials furnished in the carrying forward, performing, or  
completing of said Contract; we agreeing and assenting that this undertaking shall be for the benefit of any Subcontractor,  
Material Supplier or laborer having a just claim as well as for the Obligee herein; then this obligation shall be void; otherwise  
the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Sureties for  
any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

THE SAID Surety hereby stipulates and agrees that no modifications, omissions, or additions, in or to the terms of  
the said Contract or in or to the Plans and Specifications therefor shall in any wise affect the obligations of said Surety on its  
bond, and it does hereby waive notice of any such modifications, omissions or additions in or to the terms of the Contract, the  
Work or the Contract Documents, including without limitation the Plans and Specifications.

**PRINCIPAL:**

---

Principal SignatureBy: 

---

Title: 

---

**SURETY:**

---

Surety SignatureBy: 

---

Attorney-in-Fact**SURETY INFORMATION:**

---

Street

---

City State Zip

---

Telephone Number**SURETY AGENT'S INFORMATION:**

---

Agency Name

---

Street

---

City State Zip

---

Telephone Number

---

Email Address**END OF DOCUMENT**

# Document 00 71 00 - Contracting Definitions (General Contracting Project)

## State of Ohio Standard Requirements for Public Facility Construction

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|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Acceptable Component</b>           | A component listed in the Specifications after the Basis of Design Component.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Addenda or Addendum</b>            | Written or graphic instrument issued prior to the bid opening which modifies or interprets the proposed Contract Documents by additions, deletions, clarifications, or corrections.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>ADR</b>                            | See “Alternative Dispute Resolution.”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>A/E</b>                            | See “Architect/Engineer.”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Agreement</b>                      | The form furnished by the Contracting Authority (including all of its exhibits) that, when completed and signed by the Contractor and Contracting Authority evidences entry into the Contract.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Allowance</b>                      | A sum stipulated in the Contract Documents for a defined scope of the Work that may not be completely defined at the time of bidding.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Alternate</b>                      | A potential change in the scope of the Work, which may include but is not limited to alternate materials or methods of construction, and an amount stated on the Bid form to be added to or deducted from the Base Bid if the corresponding Alternate is incorporated into the Contract.                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Alternative Dispute Resolution</b> | A voluntary and non-binding process for the administrative review, consideration, and attempted settlement of a dispute, without resort to judicial process, including but not limited to partnering, negotiation, mediation, impartial fact-finding, dispute review board, and mini-trials, but shall not include arbitration.                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Applicable Law</b>                 | All federal, state, and local codes, statutes, ordinances, and regulations that apply to the performance of the Work or the A/E’s Services on the Project.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Architect/Engineer</b>             | The Person responsible for providing professional design services and construction contract administration for the Project as provided in the Contract Documents. The A/E shall be a <b>(1)</b> registered architect holding a license and certificate of authorization issued by the Ohio Architects Board pursuant to ORC Chapter 4703, <b>(2)</b> landscape architect holding a license and certificate of authorization issued by the Ohio Landscape Architects Board pursuant to ORC Chapter 4703, or <b>(3)</b> professional engineer or professional surveyor holding a license and certificate of authorization issued by the Ohio Engineers and Surveyors Board pursuant to ORC Chapter 4733. |
| <b>As-Built Documents</b>             | Documents, including but not limited to Drawings, Addenda, Specifications, Modifications, and other elements of the Contract Documents which the Contractor annotates and otherwise modifies to indicate changes made during the construction process, the location of concealed and buried items, and other information useful to the Owner throughout the life of the completed Project.                                                                                                                                                                                                                                                                                                             |
| <b>Base Bid</b>                       | The amount stated in a Bid as the sum for which the Bidder offers to perform the Work in a particular trade or other category, which is described in the Contract Documents, excluding Alternates.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Basis of Design</b>                | A document that records the concepts, calculations, decisions, and product selections used to meet the Owner’s Project Requirements and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Basis of Design Component</b>      | A component listed first in the Specifications.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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| <b>Bid</b>                                   | A written proposal to perform a Contract, submitted on a completed Bid Form, accompanied by other required documents. The term Bid includes a proposal that has been digitally signed, encrypted, and submitted through the State's electronic bidding application pursuant to OAC Section 153:1-8-01.                                                                                                                              |
| <b>Bidder</b>                                | A Person that submitted a Bid.                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Bidding Documents</b>                     | The advertisement or invitation to bid; instructions to bidders; Bid Guaranty; Bid Form with any supplements; and the proposed Contract Documents (including all Addenda).                                                                                                                                                                                                                                                          |
| <b>Bid Form</b>                              | A form furnished by the Contracting Authority with the proposed Contract Documents that are to be completed, signed, and submitted containing the Bidder's Bid.                                                                                                                                                                                                                                                                     |
| <b>Bid Guaranty</b>                          | A bid bond or other instrument of security authorized by ORC Section 153.54 submitted with the Bid to provide assurance that the Bidder will execute the Agreement.                                                                                                                                                                                                                                                                 |
| <b>BIM</b>                                   | See "Building Information Model."                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Bond</b>                                  | A performance and payment bond in the format specified by ORC Section 153.57 submitted by the Contractor to provide assurance that the Contractor will perform the Work of the Contract, including making required payments to Subcontractors and Materials Suppliers.                                                                                                                                                              |
| <b>Building Information Model</b>            | A digital representation of physical and functional characteristics of a facility; a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle, which is defined as existing from earliest conception to demolition; electronic files used to design and coordinate the Project; and may be used to describe a single model or multiple models used in the aggregate. |
| <b>Certificate of Contract Completion</b>    | A form used to document that the Contractor's achievement of Contract Completion. This form may also be used to document partial Contract Completion.                                                                                                                                                                                                                                                                               |
| <b>Certificate of Substantial Completion</b> | A form used to document (1) that the Contractor has achieved Substantial Completion of the Work or a designated portion of the Work for which the Contracting Authority and the Owner have agreed to take Partial Occupancy, and (2) the date on which the associated Substantial Completion of the Work was achieved.                                                                                                              |
| <b>Change Directive</b>                      | A written order prepared by the A/E and executed by the Contracting Authority and Owner that directs a change in the Work or the performance of disputed Work as described in the General Conditions.                                                                                                                                                                                                                               |
| <b>Change Order</b>                          | A document recommended by the A/E and executed by the Contracting Authority, Owner, and Contractor that modifies the Contract.                                                                                                                                                                                                                                                                                                      |
| <b>Change Request</b>                        | A written request from the Contractor accompanied by a Proposal seeking an adjustment or interpretation of Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract.                                                                                                                                                                                                          |
| <b>Claim</b>                                 | A demand or assertion, initiated by written notice, certified by one of the parties to the Contract seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract.                                                                                                                                                  |
| <b>Commission</b>                            | See "Ohio Facilities Construction Commission."                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Commissioning Agent</b>                   | The Person identified by the Contracting Authority who leads, plans, schedules, and coordinates the commissioning team to implement the Commissioning Process for the Project.                                                                                                                                                                                                                                                      |

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| <b>Commissioning Plan</b>             | A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the Commissioning Process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Commissioning Process</b>          | A quality-focused process for enhancing the delivery of a project. The process focuses on verifying and documenting that the facility and all of its systems are planned, designed, installed, tested, operated, and maintained to meet the Owner's Project Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Commissioning Report</b>           | A document that records the activities and results of the Commissioning Process. The Commissioning Report is developed from the final Commissioning Plan with its attached appendices.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Conformed Documents</b>            | Contract Documents with all Addenda items and accepted Alternates incorporated by the A/E, published, and issued to a successful Bidder for its use during performance of the Contract. The Conformed Documents are furnished solely for the Contractor's convenience. In the event of any conflict between the Contract Documents modified by Addenda and the Conformed Documents, the Contract Documents take precedence.                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Construction Budget</b>            | The budget for Construction Cost.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Construction Cost</b>              | The total cost for the Contractor's performance of the Work including all elements of the Project designed or specified by the A/E (at current market rates of labor and materials). Construction Cost does not include the following: A/E fees, the cost of the land, right-of-way acquisition costs, financing costs, or Owner's contingencies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Construction Progress Schedule</b> | The critical path schedule for performance of the Contract; showing the time for completing the Work within the Contract Times; the planned sequence for performing the various components of the Work; the interrelationship between the activities of the Contractor, Subcontractors, A/E, Contracting Authority, and Owner; and the Contractor's resource and cost loading information; as periodically updated during the performance of the Work.                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Contract</b>                       | The state of legal obligation entered into by the State and the Contractor, whereby they have agreed to an exchange of certain acts, materials, equipment, and services for certain monetary consideration, under all terms and conditions specified in the Contract Documents, which shall remain in full force and effect until such time as all obligations under the Contract have been lawfully and completely discharged, or the Contract is terminated under other conditions specified in the Contract Documents                                                                                                                                                                                                                                                                                                             |
| <b>Contract Completion</b>            | The stage in the progress of the Work when the Work is completed in accordance with the terms of the Contract Documents including but not limited to (1) all governmental authorities have given final, written approval of the Work, (2) a final unconditional certificate of occupancy has been granted or certificate of completion (as appropriate) and issued to the Owner by the appropriate governmental authorities, (3) the Contractor's Work is 100 percent complete, and (4) all Punch List items have been completed or corrected, and (5) the Contractor has complied with conditions precedent to final payment and release of retained funds. Contract Completion may apply to a single Phase of a multi-Phase Project without applying to one or more other Phases of the same Project or to the Project as a whole. |



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| <b>Contract Documents</b>         | Collectively, the documents that constitute the substance of the Contract including Drawings, Specifications, Addenda if any, Project Manual, General Conditions, Supplementary Conditions if any, Bid Form, Wage Rate Requirements; and the executed Agreement, Bid Guaranty and Contract Bond, and Modifications if any. Notwithstanding the foregoing sentence, the Contract Documents do not include the advertisement or invitation to bid, instructions to bidders, sample forms, other procurement-related documents or information furnished by the Contracting Authority or Owner in anticipation of receiving Bids, the Contractor's Bid, or portions of Addenda relating to bidding requirements except to the extent specifically incorporated into the Contract Documents. |
| <b>Contract Sum</b>               | The amount stipulated as such in the Agreement. The Contract Sum is the Contractor's entire compensation for the Contractor's proper, timely, and complete performance of the Work and is subject to adjustment as provided in the Contract.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Contract Times</b>             | The periods stipulated in the Agreement for the achievement of associated Milestones, in consecutive days, beginning on the Date of Commencement established by the Notice to Proceed, including adjustments as provided in the Contract.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Contracting Authority</b>      | The party identified as such in the Agreement, which may be the Ohio Facilities Construction Commission; an agency of the state of Ohio; an Institution of Higher Education or division thereof; a School District Board; or the legislative body of a political subdivision.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Contractor</b>                 | The party identified as such in the Agreement. If the Contractor is a joint venture or special purpose entity, each joint venturer and each member (as applicable) is individually, jointly, and severally obligated under the Contract.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Contractor's Documents</b>     | All Project-related documents, including those in electronic form, prepared by the Contractor and its Subcontractors.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Contractor's Fee</b>           | The portion of the Contract Sum attributable to the aggregate of the Contractor's Overhead and profit related to the Contractor's proper, timely, and complete performance of the Work.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Contractor Payment Request</b> | The form furnished by the Commission that is to be used by the Contractor in requesting payments and which, when submitted by the Contractor, shall serve as an affidavit that payments requested are in proportion to the Work completed as shown on the Schedule of Values.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Contractor's Punch List</b>    | A document prepared by the Contractor that consists of a list of items of Work to be completed or corrected by the Contractor as a condition precedent to Contract Completion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Coordination Drawings</b>      | Drawings and Electronic Files prepared by the Contractor and Subcontractors to demonstrate how multiple-system and interdisciplinary work will be coordinated. Clash reports generated by BIM authoring software may be included in the Coordination Drawing submittals if applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Correction Period</b>          | A period of one year commencing on the date of Substantial Completion of the Work or a designated portion of the Work which the Contracting Authority and Owner have agreed to take Partial Occupancy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>CxA</b>                        | See "Commissioning Agent."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Date of Commencement</b>       | The date established in a Notice to Proceed issued by the Contracting Authority to the Contractor to mark the start of the Work and the beginning of the running of the Contract Times.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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| <b>day</b>                         | A calendar day of 24 hours measured from midnight to midnight, unless otherwise expressly specified to mean a business day.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Defective Work</b>              | Work that does not conform to the Contract Documents; or does not meet the requirements of any applicable statute, rule or regulation, inspection, reference standard, test, or approval; or has been damaged prior to the A/E's recommendation of final payment, unless responsibility for the protection thereof has been expressly assumed by the Owner; or that is not free from defects in workmanship, materials, or equipment during the period of any warranty or guarantee.                                                                                                                                                                                                                                                                                                                                                                |
| <b>Delegated Design</b>            | A form of collaboration between the A/E and the Contractor whereby <b>(1)</b> the A/E defines the performance and design criteria for specifically identified systems, materials, equipment, or details included in the Work; and <b>(2)</b> the Contractor provides the detailed design of those identified systems, materials, equipment, or details; which responsibility may require the Contractor to engage a licensed design professional to perform the related services. The items and scope of Delegated Design included in the Work are subject to the Contracting Authority's approval and may include, but is not limited to, structural steel elements and connections, precast concrete systems, curtain wall systems, metal panel facades, waterproofing systems, roofing systems, mechanical systems, and fire protection systems. |
| <b>Differing Site Condition</b>    | Either <b>(1)</b> a subsurface or otherwise concealed physical condition encountered at the Site that differs materially from the conditions indicated in the Contract Documents or <b>(2)</b> an unknown physical condition of an unusual nature encountered at the Site that differs materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents.                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Drawings</b>                    | Graphic portions of the Contract Documents showing the design, type of construction, location, dimension, and character of the Work to be provided by the Contractor, which generally includes plans, elevations, sections, details, schedules, diagrams, notes, and text.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Electronic File</b>             | Information maintained in a computer system or format that is intended to facilitate a Person's use and manipulation of the information including but not limited to Word, Excel, PDF, Primavera, CAD, and BIM files all in their native format.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Enclosure, Permanent</b>        | The condition in which the permanent exterior walls and roofs are in place, insulated and weathertight, and permanent windows and entrances are in place.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Enclosure, Temporary</b>        | The condition in which the permanent exterior walls and roofs are in place, insulated and weathertight, and windows and entrances are provided with suitable temporary enclosures.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Estimated Construction Cost</b> | The sum of the estimated Construction Cost amount(s) (including Base Bid and Alternates) published in the bidding documents, as modified by Addenda, for a Phase of the Project.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Extra Materials</b>             | Materials required by the Contract Documents that are not incorporated into the Project but are given to the Owner to be used for future maintenance or repairs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Fee</b>                         | See "Contractor's Fee."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Field Meeting</b>               | A meeting between the Contracting Authority, Owner, and Contractor to review and endeavor to resolve a Change Directive, Change Request, or other matter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Final Inspection</b>            | The final review of the Work by the A/E to determine whether issuance of the Certificate of Contract Completion is appropriate.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>furnish</b>                     | Supply and deliver to the Site, or other specified location, ready for installation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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| <b>General Conditions</b>              | The State's Standard General Conditions in effect as of the date of the Agreement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>General Conditions Costs</b>        | General Conditions Costs include only the Contractor's costs to provide the general conditions Work including without limitation the costs of all of the following Site-related items: scheduling and coordinating the Work. telephone, telephone charges, facsimile, telegrams, postage, photos, photocopying, hand tools, simple scaffolds (one level high), tool breakage, tool repairs, tool replacement, tool blades, tool bits, and pre-approved travel, lodging, and parking costs. General Conditions Costs also include <b>(1)</b> Bond premiums; <b>(2)</b> premiums for subcontractor default insurance to the extent incurred on account of Subcontractors enrolled for the Project; and <b>(3)</b> premiums for builder's risk insurance if the Contractor is required to provide the builder's risk insurance described in the General Conditions (premiums for "difference in conditions" insurance coverage are included in Overhead and are not included in General Conditions Costs).                                                                                                                                                  |
| <b>Hazardous Materials</b>             | Any material, substance, pollutant, or contaminant that is defined, regulated, referenced, or classified in the Comprehensive Environmental Response, Compensation and Liability Act, Federal Water Pollution Control Act, the Resource Conservation and Recovery Act, Clean Air Act, Hazardous Materials Transportation Uniform Safety Act, Toxic Substances Control Act, or any other Applicable Law relating to any hazardous, toxic, or dangerous waste, substance, or material. Any substance or material that, after release into the environment or upon exposure, ingestion, inhalation, or assimilation, either directly from the environment or directly by ingestion through food chains, will, or may reasonably be anticipated to, cause death, disease, behavior abnormalities, cancer or genetic abnormalities and specifically includes but is not limited to asbestos, polychlorinated biphenyls ("PCBs"), radioactive materials, including radon and naturally occurring radio nuclides, natural gas, natural gas liquids, liquefied natural gas, synthetic gas, oil, petroleum and petroleum-based derivatives and urea formaldehyde. |
| <b>Indemnified Parties</b>             | The State, Contracting Authority, Owner, A/E, other Separate Consultants, and their respective officials, officers, consultants, agents, representatives, and employees, in both individual and official capacities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>install</b>                         | Put into use or place in final position, complete and ready for intended service or use.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Institutional Designee</b>          | The party identified in the Agreement empowered with a level of authority similar to the Executive Director of the Commission, which may be the university architect or engineer, director of capital facilities, or an institution vice president.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Institution of Higher Education</b> | Any state institution of higher education as defined in ORC Section 3345.011, including any state university or college, community college, state community college, technical college, university branch, community college district, technical college district, university branch district, and the applicable board of trustees or, in the case of a university branch district, any other managing authority.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Legal Holiday</b>                   | Legal Holidays are as follows: <b>(1)</b> New Year's Day – First Day in January; <b>(2)</b> Martin Luther King Jr. Day – Third Monday in January; <b>(3)</b> Washington-Lincoln (President's) Day – Third Monday in February; <b>(4)</b> Memorial Day – Last Monday in May; <b>(5)</b> Juneteenth National Independence Day (Juneteenth) – Nineteenth day of June; <b>(6)</b> Independence Day – Fourth day of July; <b>(7)</b> Labor Day – First Monday in September; <b>(8)</b> Columbus Day – Second Monday in October; <b>(9)</b> Veterans' Day – Eleventh Day of November; <b>(10)</b> Thanksgiving Day – Fourth Thursday of November; and <b>(11)</b> Christmas Day – Twenty-fifth day of December. If a Legal Holiday falls on a Saturday, it is observed on the preceding Friday. If a Legal Holiday falls on a Sunday, it is observed on the following Monday.                                                                                                                                                                                                                                                                                  |

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| <b>Liquidated Damages</b>                      | A sum established in the Contract Documents, pursuant to the statutory delay forfeiture authorized under ORC Section 153.19, to be paid to the Owner due to the Contractor's failure to complete the Work within the Contract Time for achievement of Substantial Completion, or any applicable portion of the Work on or prior to any Milestone date stated on the Agreement. |
| <b>Material Supplier</b>                       | A Person under a contract with the Contractor to furnish materials or supplies in furtherance of the Work, including all such Persons in any tier. Material Supplier does not include any Separate Contractor unless expressly assigned in writing to the Contractor by the Owner and accepted by the Contractor.                                                              |
| <b>mediation</b>                               | A voluntary process in which a neutral third party meets with the parties who have a disagreement or dispute and attempts to facilitate a mutually satisfactory resolution.                                                                                                                                                                                                    |
| <b>Milestone</b>                               | A principal event specified in the Contract relating to a completion date or time.                                                                                                                                                                                                                                                                                             |
| <b>Modification</b>                            | A (1) written amendment to the Contract signed by both parties, (2) Change Order, (3) Change Directive, or (4) an order for a minor change in the Work.                                                                                                                                                                                                                        |
| <b>negotiation</b>                             | A form of Alternative Dispute Resolution in which all parties involved are represented by those invested with the authority to agree to a determination of an adjustment in the Contract Sum, Contract Times, or both.                                                                                                                                                         |
| <b>Neutral Facilitator</b>                     | A nonpartisan third-party without decision-making authority who is engaged to assist the Project's key stakeholders in developing cooperative relationships, achieving project objectives, avoiding or minimizing disputes, and nurturing a more-collaborative ethic characterized by trust, cooperation, and teamwork.                                                        |
| <b>Notice of Commencement</b>                  | A notice prepared by the Contracting Authority identifying the Project, the Contractors, the Surety for each Contractor, and the name of the Contracting Authority's representative upon whom a claim affidavit may be served.                                                                                                                                                 |
| <b>Notice of Intent to Award</b>               | A written notice provided by the Contracting Authority to the apparent successful Bidder stating that upon satisfactory compliance with all conditions precedent for execution of a Contract within the time specified, the Contracting Authority intends to execute a Contract with the Bidder.                                                                               |
| <b>Notice to Proceed</b>                       | A written notice provided by the Contracting Authority to the Contractor to establish the Date of Commencement and to authorize the Contractor to proceed with the Work.                                                                                                                                                                                                       |
| <b>OAC</b>                                     | Ohio Administrative Code                                                                                                                                                                                                                                                                                                                                                       |
| <b>Ohio Facilities Construction Commission</b> | The authorized contracting agent for public improvement projects in accordance with ORC Chapters 123 and 153, acting by and through its Executive Director.                                                                                                                                                                                                                    |
| <b>ORC</b>                                     | Ohio Revised Code.                                                                                                                                                                                                                                                                                                                                                             |

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| <b>Overhead</b>                     | The term “Overhead” includes all of the following costs: <b>(1)</b> home-office payroll, which includes: payroll costs and all other compensation (including without limitation membership in trade, business, or professional organizations; professional licenses; training; and bonuses or similar plans/arrangements related to performance on, or profit from, the Project) of the Contractor’s officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by the Contractor in the Contractor’s principal or a branch office (not including the Contractor’s Site office) for general administration of the Work; <b>(2)</b> home-office expenses, which include (except where specifically allowed as a General Conditions Cost): all expenses of the Contractor’s principal and branch offices including without limitation home-office telephone, telephone charges, computers, fax, postage, photos, copies, legal services, and accounting services; <b>(3)</b> all of the Contractor’s capital expenses, including without limitation interest on the Contractor’s capital employed for the Work and charges against the Contractor for delinquent payments; <b>(4)</b> all costs due to the negligence or breach of contract of the Contractor, a Subcontractor, or anyone for whom they may be liable, including without limitation the correction of Defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property; <b>(5)</b> all costs related to insurance provided by the Contractor, whether required under the Contract or not, except <b>(a)</b> premiums for subcontractor default insurance in the Construction Stage if those insurance premiums are included as a General Conditions Cost and <b>(b)</b> premiums for builder’s risk insurance if the Contractor is required to provide the builder’s risk insurance described in the General Conditions (premiums for “difference in conditions” insurance coverage are included in Overhead); <b>(6)</b> all travel, lodging, and parking costs, except where specifically allowed as a pre-approved General Conditions Cost; <b>(7)</b> all applicable taxes of every kind (including but not limited to commercial activity tax (“CAT”)) except where otherwise specifically allowed; <b>(8)</b> all other overhead or general administrative expenses of any kind and any cost not specifically allowed as a separately recoverable cost of the Work in the Construction Stage. |
| <b>Owner</b>                        | The state of Ohio agency, Institution of Higher Education or division thereof, School District Board, or other instrumentality for whom the Project is being constructed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Owner’s Project Requirements</b> | A written document that details the functional requirements of the Project and the expectations of how it will be used and operated. These requirements include project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Partial Occupancy</b>            | The condition that occurs when the Owner occupies or uses a portion of the Project prior to Contract Completion, partial occupancy is approved by authorities with jurisdiction over the Project and the insurer(s) providing the builders risk insurance, and items of Work cannot be completed until a subsequent date.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>partnering</b>                   | A voluntary dispute prevention process involving team building activities to help define common goals, improve communication, and foster a problem-solving attitude among a group of contracting parties that must work together throughout Contract performance to be less adversarial and more cooperative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Payment Request</b>              | See “Contractor Payment Request.”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Person</b>                       | An individual, corporation, business trust, estate, partnership, association, or other public or private entity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Phase</b>                        | A separation in the Work of the Project by sequence or time intervals, as defined in the Agreement (e.g., in a multiple-site or multiple-building Project, each site or building may be identified as a separate “Phase”). Each Phase may include different Subcontractors.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

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|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Data</b>           | Manufacturer's standard illustrations, schedules, diagrams, performance charts, instructions, and brochures that illustrate physical appearance, size, and other characteristics of materials and equipment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Progress Status Report</b> | A monthly progress report prepared by the Contractor and containing the following information for each Phase of the Work: <b>(1)</b> the updated Construction Progress Schedule; <b>(2)</b> progress photos; <b>(3)</b> an executive summary; <b>(4)</b> a discussion of pending items and existing or anticipated problems and status of RFIs; <b>(5)</b> a safety and accident report; <b>(6)</b> information on each Subcontractor and each Subcontractor's work as well as the entire Work, showing percentages of completion and the number and amounts of Change Orders and Change Directives and relating such information to the Construction Progress Schedule and the Contract Sum; <b>(7)</b> a list of all identified Claims, any threatened claims and issues that, in the reasonable judgment of Contractor, may potentially become Claims and any potential Change Orders that have been submitted to the Owner by the Contractor; <b>(8)</b> information on compliance with the EDGE participation goals established for the Project; <b>(9)</b> status of compliance with required LEED components, if applicable; and <b>(10)</b> such other relevant information as may be reasonably required by the Owner from time to time. |
| <b>Project</b>                | The public improvement, of which the Work performed under the Contract Documents may be the whole or a part.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Project Manager</b>        | A permanent employee of the Contracting Authority assigned to the Project and authorized to perform specific responsibilities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Project Manual</b>         | That part of Contract Documents which consists of bound volume(s) of primarily written material which generally contain Division 00 - "Procurement and Contracting Requirements," and Divisions 01 through 49 - "Specifications," and other documents pertaining to the Project.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Proposal</b>               | The offer of a Contractor to perform the Work set forth in a Change Request or Proposal Request.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Proposal Request</b>       | A document issued after execution of the Contract requesting a Proposal from the Contractor(s), which may initiate a Change Order to modify the Contract.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>provide</b>                | Furnish and install, complete and ready for intended use.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Punch List</b>             | A document listing items of Work requiring correction or completion by the Contractor as a condition precedent to Contract Completion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Punch List Milestone</b>   | The date 30 days after the achievement of Substantial Completion of all or a portion of the Work.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Record Documents</b>       | Electronic files and printed documents of all nature prepared by the A/E, which incorporate the information shown on the Contractor's As-Built Documents. They consist of the "Record Drawings" and "Record Project Manual," Certificate of Substantial Completion, Certificate of Contract Completion (as complete), manufacturers' warranties, certificate(s) of occupancy or completion (as appropriate), approved shop drawings and other action submittals, responses to Requests for Information, Addenda, Modifications, balancing reports, and the final version of the approved Construction Progress Schedule.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Record Drawings</b>        | The Drawings, which have been revised by the A/E to show the changes made during the construction process, conformed to represent the Work as executed by the Contractor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Record Model</b>           | The Building Information Model, which has been revised by the A/E to show the changes made during the construction process, conformed to represent the Work as executed by the Contractor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

|                                |                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Record Project Manual</b>   | The Project Manual of the Contract Documents, which has been revised by the A/E to show the changes made during the construction process, based on the As-Built Project Manual furnished by the Contractor.                                                                                                                                                             |
| <b>Request for Information</b> | A written request to the A/E seeking an interpretation or clarification of the Contract Documents.                                                                                                                                                                                                                                                                      |
| <b>RFI</b>                     | See “Request for Information.”                                                                                                                                                                                                                                                                                                                                          |
| <b>Samples</b>                 | Physical examples, color selection items, field samples, and mock-ups furnished by the Contractor to illustrate functional and aesthetic characteristics of products, materials, equipment, or workmanship and establish criteria by which the Work shall be judged.                                                                                                    |
| <b>Schedule of Values</b>      | A full, accurate, and detailed statement furnished by the Contractor reflecting a defined breakdown of the Contract Sum.                                                                                                                                                                                                                                                |
| <b>School District</b>         | A local, exempted village, or city school district as defined in ORC Chapter 3311, or a joint vocational school established pursuant to ORC Section 3311.18, performing essential governmental functions of state government pursuant to ORC Sections 3318.01 to 3318.20.                                                                                               |
| <b>School District Board</b>   | The board of education of a School District.                                                                                                                                                                                                                                                                                                                            |
| <b>Separate Consultant.</b>    | A Person engaged by the Owner or Contracting Authority to provide Project-related professional services other than the services under this Contract. The term includes the Separate Consultant’s authorized representatives, successors, assigns, and subconsultants regardless of tier.                                                                                |
| <b>Separate Contract</b>       | The contract between the Owner or Contracting Authority and a Separate Consultant or a Separate Contractor.                                                                                                                                                                                                                                                             |
| <b>Separate Contractor</b>     | A Person under contract with the Owner or Contracting Authority to provide Project-related work other than the Work under this Contract. The term includes the Separate Contractor’s authorized representatives, successors, assigns, and subcontractors regardless of tier.                                                                                            |
| <b>Shop Drawings</b>           | Drawings, diagrams, illustrations, and schedules specifically prepared for the Project provided by the Contractor or a Subcontractor to illustrate some portion of the Work. Shop Drawings are not Contract Documents.                                                                                                                                                  |
| <b>Site</b>                    | The location designated for the Project.                                                                                                                                                                                                                                                                                                                                |
| <b>Specifications</b>          | Those portions of the Contract Documents consisting of detailed written administrative, procedural, and technical requirements, included in Divisions 01 through 49, for the construction of the Work, whether physically on the Drawings or bound in separate volumes, including identification of acceptable materials, methods, equipment, quality, and workmanship. |
| <b>Stage</b>                   | A distinct period in the life cycle of a facility from concept through construction, to use and deconstruction or demolition. Typical Stages include Program Verification, Schematic Design, Design Development, Construction Documents, Bidding and Award stages; and the Construction Stage, which includes Construction and Closeout activities.                     |
| <b>Standard Requirements</b>   | The brief name of the “State of Ohio Standard Requirements for Public Facility Construction,” including but not limited to General Conditions, and other Division 00 Documents and Division 01 Sections; in effect as of date of the Agreement.                                                                                                                         |

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>State</b>                      | The government of Ohio, including any organized body, office, or agency established by the laws of this state for the exercise of any function of state government, or any state institution of higher education as defined in ORC Section 3345.011.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Subcontract</b>                | Any contract or agreement between the Contractor and a Subcontractor for performance of a portion of the Work.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Subcontract Form</b>           | The <b>State of Ohio Subcontract Form</b> prescribed by OAC Section 153:1-3-02 and required for use with the General Contracting method of project delivery.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Subcontractor</b>              | A Person who undertakes to perform any part of the Work on the Project under a contract with a Contractor or with any Person other than the State, including all such Persons in any tier. The term "Subcontractor" includes Material Suppliers, but does not include any Separate Contractor unless expressly assigned in writing to the Contractor by the Owner and accepted by the Contractor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Substantial Completion</b>     | The stage in the progress of the Work when the Work (or designated portion of the Work for which the Contracting Authority and Owner have agreed to take Partial Occupancy) is sufficiently complete in accordance with the Contract that the Owner can utilize the Work for its intended use, as determined by the A/E. The issuance of a certificate of occupancy, partial certificate of occupancy, certificate of completion, or partial certificate of completion (as applicable) to the Owner by the appropriate governmental authorities is a condition precedent to the achievement of Substantial Completion.                                                                                                                                                                                                                                                                                                                         |
| <b>Substantially Complete</b>     | See "Substantial Completion."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Substitution</b>               | An article, device, material, equipment, form of construction, or other item, proposed by a prospective Bidder prior to the bid opening and approved by the A/E by Addendum, for incorporation or use in the Work as being functionally and qualitatively equivalent to essential attributes of a Basis of Design or Acceptable Component specified in the proposed Contract Documents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Supplementary Conditions</b>   | Amendments to the General Conditions, issued as a separate document, which describe conditions of the Contract unique to a particular Owner or Project, which may include provisions regarding the assignment of responsibility for refuse removal, safety and security precautions and programs, temporary Project facilities and utilities, weather and fire protection, scaffolding and equipment, materials and services to be used commonly by the Contractor and Subcontractors and requiring the Contractor to provide assistance in the utilization of any applicable equipment system, preparation of operation and maintenance manuals, and training of Owner personnel for operation and maintenance of the Project. The General Conditions shall not be superseded or amended by Drawings and Specifications, unless so provided in Supplementary Conditions prepared by the Contracting Authority and approved by the Commission. |
| <b>Supplementary Instructions</b> | Amendments to the Instructions to Bidders, issued as a separate document, which describe instructions unique to a particular Owner or Project. The Instructions to Bidders shall not be superseded or amended by Drawings and Specifications, unless so provided in Supplementary Instructions prepared by the Contracting Authority and approved by the Commission.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Surety</b>                     | A Person providing a Bid Guaranty or a Bond to a Bidder or a Contractor, as applicable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Systems Manual</b>             | A system focused composite document that includes the operation manual, maintenance manual, and additional information of use to the Owner after they begin using the facility.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Unit Price</b>                 | The cost of providing a unit of Work including labor, materials, services, and associated expenses. Unit Prices include the Contractor's Fee on account of the associated Unit Price Work.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |



**Work** The labor, materials, equipment, and services, individually or collectively which are required by the Contract Documents, to be performed or provided by the Contractor for the Project. The furnishing of all material, labor, detailing, layout, supplies, plants, tools, scaffolding, transportation, temporary construction, superintendence, demolition, and all other services, facilities and items reasonably necessary for the full and proper performance and completion of the requirements of the Project as set forth in the Contract Documents, and items reasonably inferable therefrom and consistent therewith for the proper execution and completion of the construction and other services required by the Contract Documents, whether provided or to be provided by the Contractor or a Subcontractor, or any other entity for whom the Contractor is responsible, and whether or not performed or located on or off of the Site.

**Work Day** Any day **(1)** that is not a Sunday or Legal Holiday (except as further provided in this paragraph); and **(2)** on which the Contractor performs Work or intends to perform Work as evidenced by the contemporaneous Construction Progress Schedule. Sundays and Legal Holidays are not Work Days unless **(1)** identified as such in the contemporaneous Construction Progress Schedule or **(2)** the Contractor provides 48-hours' advance notice to the Owner scheduling those days as Work Days.

**END OF DOCUMENT**

# Document 00 72 13 - General Conditions (General Contracting Project)

## State of Ohio Standard Requirements for Public Facility Construction

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### ARTICLE 1 - CONTRACTOR'S RESPONSIBILITIES

#### 1.1 Nondiscrimination

**1.1.1** The Contractor shall comply with Applicable Law regarding equal employment opportunity, including ORC Section 153.59 and all Executive Orders issued by the Governor of the state of Ohio.

**1.1.1.1** As required under ORC Section 153.59, the Contractor agrees to both of the following:

- .1** "in the hiring of employees for the performance of work under the contract or any subcontract, no contractor, subcontractor, or any person acting on a contractor's or subcontractor's behalf, by reason of race, creed, sex, disability or military status as defined in section 4112.01 of the Revised Code, or color, shall discriminate against any citizen of the state in the employment of labor or workers who is qualified and available to perform the work to which the employment relates;" and
- .2** "no contractor, subcontractor, or any person on a contractor's or subcontractor's behalf, in any manner, shall discriminate against or intimidate any employee hired for the performance of work under the contract on account of race, creed, sex, disability or military status as defined in section 4112.01 of the Revised Code, or color."

**1.1.1.2** The Contractor shall cooperate fully with the State's Equal Opportunity Coordinator ("EOC"), with any other official or agency of the state or federal government that seeks to eliminate unlawful employment discrimination, and with all other state and federal efforts to assure equal employment practices under the Contract.

**1.1.1.3** In the event the Contractor fails to comply with these nondiscrimination clauses, the Contracting Authority shall deduct from the amount payable to the Contractor a forfeiture of the statutory penalty pursuant to ORC 153.60 for each person who is discriminated against or intimidated in violation of this **Section 1.1.1**.

**1.1.1.4** The Contract may be terminated or suspended in whole or in part by the Contracting Authority and all money to become due hereunder may be forfeited in the event of a subsequent violation of this **Section 1.1.1**.

#### **1.1.2** Hiring Under State Public Improvement Contracts.

**1.1.2.1** Any provision of a hiring hall contract or agreement which obligates the Contractor to hire, if available, only employees referred to the Contractor by a labor organization shall be void as against public policy and unenforceable with respect to employment under any public improvement contract unless at the date of execution of the hiring hall contract or agreement, or within 30 days thereafter, the labor organization has procedures in effect for referring qualified employees for hire without regard to race, color, religion, national origin, military status as defined in ORC Section 4112.01, or ancestry and unless the labor organization includes in its apprentice and

journeyman's membership, or otherwise has available for job referral without discrimination, qualified employees, both whites and non-whites (including African-Americans).

## 1.2 Prevailing Wages

**1.2.1** The Contractor shall comply with the prevailing wage requirements described under ORC Chapter 4115 that include, without limitation, the requirements described under this **Section 1.2**.

**1.2.2** If the Project is subject to payment of prevailing wage rates, the Contractor shall:

**1.2.2.1** pay to laborers and mechanics performing Work on the Project the prevailing wage rates of the Project locality, as determined by the Ohio Department of Commerce, Wage and Hour Bureau;

**1.2.2.2** post in a prominent place readily accessible by all workers on the Site, a legible listing of the current classifications of laborers, workers, and mechanics employed under this Contract;

**1.2.2.3** ensure that the rates posted are current and remain posted in legible condition during the period of the Contract; and

**1.2.2.4** not be entitled to an increase in the Contract Sum on account of an increase in prevailing wage rates, except as otherwise provided by Applicable Law.

**1.2.3** The Contractor may access the Ohio Department of Commerce, Wage & Hour Bureau at its website, <http://198.234.41.198/w3/webwh.nsf/pages/PrevailingWageBid>, to obtain the current wage rates.

## 1.3 Royalties and Patents

**1.3.1** The Contractor shall pay all royalties and license fees and assume all costs incident to the use, in the performance of the Work or the incorporation in the Work, of any invention, design, process, product, or device that is the subject of patent rights or copyrights held by others.

**1.3.2** If the Contractor has reason to believe that use of the specified item is subject to patent or copyright protection, the Contractor shall immediately notify the Contracting Authority.

## 1.4 Assignment of Antitrust Claims

**1.4.1** By signing the Agreement, the Contractor assigns, conveys and transfers to the Contracting Authority any right, title, and interest to any claims or causes of action it may have or acquire under state or federal antitrust laws relating to any goods, products, or services purchased, procured, or rendered to the State pursuant to the Contract.

## 1.5 Use of Domestic Steel

**1.5.1** The Contractor is required by law to supply domestically produced steel products used for load bearing structural purposes on all projects funded in whole or in part with State funds.

**1.5.2** The Contractor and Subcontractors shall comply with ORC Section 153.011 regarding the use of domestically produced steel products for load bearing structural purposes on all projects funded in whole or in part with State funds. Copies of ORC Section 153.011 may be obtained from the Ohio Facilities Construction Commission or downloaded at <http://codes.ohio.gov/orc/153.011v1>.

## 1.6 Drug Free Safety Program Participation

**1.6.1** Throughout the performance of the Work, the Contractor shall be enrolled in and remain in good standing in the Ohio Bureau of Workers' Compensation ("OBWC") Drug-Free Safety Program ("DFSP") or a comparable program approved by the OBWC that meets the requirements specified in ORC Section 153.03 ("OBWC-approved DFSP").

**1.6.2** As required under ORC Section 153.03(E):

**1.6.2.1** "Each contractor shall require all subcontractors with whom the contractor is in contract for the public improvement to be enrolled in and be in good standing in the Bureau of Workers' Compensation's Drug-Free Workplace Program or a comparable program approved by the Bureau that meets the requirements specified in section 153.03 of the Revised Code prior to a subcontractor providing labor at the project site of the public improvement."

**1.6.2.2** "Each subcontractor shall require all lower-tier subcontractors with whom the subcontractor is in contract for the public improvement to be enrolled in and be in good standing in the Bureau of Workers' Compensation's Drug-Free Workplace Program or a comparable program approved by the Bureau that meets the requirements specified in

section 153.03 of the Revised Code prior to a lower-tier subcontractor providing labor at the project site of the public improvement.”

**1.6.2.3** “Failure of a contractor to require a subcontractor to be enrolled in and be in good standing in the Bureau of Workers’ Compensation’s Drug-Free Workplace Program or a comparable program approved by the Bureau that meets the requirements specified in section 153.03 of the Revised Code prior to the time that the subcontractor provides labor at the project site will result in the contractor being found in breach of the contract and that breach shall be used in the responsibility analysis of that contractor or the subcontractor who was not enrolled in a program for future contracts with the State for five years after the date of the breach.”

**1.6.2.4** “Failure of a subcontractor to require a lower-tier subcontractor to be enrolled in and be in good standing in the Bureau of Workers’ Compensation’s Drug-Free Workplace Program or a comparable program approved by the Bureau that meets the requirements specified in section 153.03 of the Revised Code prior to the time that the lower-tier subcontractor provides labor at the project site will result in the subcontractor being found in breach of the contract and that breach shall be used in the responsibility analysis of that subcontractor or the lower-tier subcontractor who was not enrolled in a program for future contracts with the State for five years after the date of the breach.”

**1.6.3** Prior to authorizing a Subcontractor to commence Work on the Site, the Contractor shall obtain the Contracting Authority’s approval, and shall also submit to the A/E written confirmation of the Subcontractor’s enrollment on the **Subcontractor and Material Supplier Declaration** form.

**1.6.4** In addition to OBWC-approved DFSP Basic requirements, the Contractor, each Subcontractor, and each Separate Contractor that provides labor on the Site shall participate in a pool that performs random drug testing of at least five percent of its employees who perform labor on the Site. The random drug testing percentage shall also include the on-site supervisors of the Contractor, Subcontractors, and Separate Contractors. Basic random drug testing shall otherwise comply with the same testing guidelines and criteria as required for OBWC-approved advanced testing. The Contractor and Subcontractor shall provide evidence of required testing to the Contracting Authority upon request.

## **1.7 Use of Project Management Software**

**1.7.1** If the Contracting Authority decides, in its sole discretion, to use project management software for the Project, the Contractor shall use that software for all compatible services required under this Contract.

**1.7.2** All costs for the Contractor’s use of the project management software for the Project shall be included in the Contract Sum. If the Contractor is unfamiliar with the proper use of the software, the Contractor shall provide its employees for training without additional compensation.

## **1.8 EDGE Participation and Reporting**

**1.8.1** The Contractor shall participate in the “Encouraging Diversity, Growth and Equity” (“EDGE”) Program by subcontracting with, and using one or more, businesses certified as an EDGE Business Enterprise (“EDGE-certified Business”) by the Ohio Department of Development.

**1.8.1.1** If the Contractor is an EDGE-certified Business, the Contractor may include its own compensation under this Contract in the reporting.

**1.8.1.2** The amount of EDGE participation cannot exceed 100 percent of the Contract Sum.

**1.8.1.3** The Contractor shall include in the reporting only those expenditures to EDGE-certified Businesses that perform a commercially useful function as described in the OAC.

**1.8.2** The Contractor shall provide an EDGE Participation Report with each Contractor Payment Request.

**1.8.2.1** The Contractor shall provide status reports, produced by the Contractor and each applicable EDGE-certified Business for the Contract, indicating:

- .1 the name of each EDGE-certified Business;
- .2 the federal tax identification number of each EDGE-certified Business;
- .3 the date of the EDGE-certified Business contract, Subcontract, or purchase order;
- .4 the projected and actual start and end dates of the EDGE-certified Business contract, Subcontract, or purchase order;
- .5 the original amount of the EDGE-certified Business contract, Subcontract, or purchase order with the Contractor;
- .6 the current amount of the EDGE-certified Business contract, Subcontract, or purchase order;

- .7 the amount invoiced to date;
- .8 the amount paid to date;
- .9 the status of the EDGE-certified Business contract, Subcontract, or purchase order (active, complete, or void); and
- .10 a statement describing any substantive product or performance deficiencies.

**1.8.2.2** The Contractor shall provide reports for each EDGE-certified Business; however, the reports may be consolidated and submitted as one document.

**1.8.3** The Contractor shall provide an EDGE Participation Final Report simultaneously with its final Contractor Payment Request.

**1.8.3.1** The Contractor and each EDGE-certified Business shall provide in the report certification that the submitted document is a true and accurate accounting of the original contract amount paid to and, received by each EDGE-certified Business.

**1.8.4** The Contractor shall provide the EDGE Participation Reports in detail and form acceptable to the Contracting Authority.

**1.8.4.1** Failure to timely submit EDGE Participation Reports may result in withholding payment in accordance with **Section 9.8**.

**1.8.5** The Contractor shall cooperate fully with requests for additional EDGE information and documentation from the Ohio Department of Development or Contracting Authority.

## **1.9 Owner Work Rules**

**1.9.1** The Contractor shall consult with the Owner to obtain full knowledge of the Owner's rules, regulations, or requirements affecting the Project.

## **1.10 Emergency**

**1.10.1** In the event of an emergency affecting the safety of the Project, other property, or individuals, the Contractor, without special instruction or authorization, shall act to prevent the threatened damage, injury, or loss.

**1.10.2** If the Contractor believes that it is entitled to an adjustment of the Contract Sum or Contract Times, or both, on account of its actions in response to an emergency, the Contractor shall initiate a Change Request **(1)** as required under **Section 7.6**; and **(2)** within the time period required under **Section 7.6**, which begins to run on the day that the emergency began.

## **1.11 Contractor's Standard of Care**

**1.11.1** The Contractor shall perform the Work in a workmanlike manner, consistent with the standards of skill and care exercised by entities licensed to perform (where required under Applicable Law) and regularly performing comparable work in the same or similar locality under the same or similar circumstances.

## **1.12 Limit of Contractor's Responsibility**

**1.12.1** The Contractor is not responsible for the A/E's negligence or the A/E's failure to properly perform the A/E's contract.

## **1.13 Sustainability Requirements**

**1.13.1** This Project shall be designed and constructed in accordance with the requirements, rules, policies, and procedures adopted by the Ohio Facilities Construction Commission establishing Sustainability Requirements for Capital Improvements Projects, including but not limited to the applicable provisions of OAC 3318-3.

**1.13.2** If the Project is designed and constructed under the Leadership in Energy and Environmental Design ("LEED") Rating System developed by the U.S. Green Building Council or another rigorous rating system used to facilitate achievement of sustainability goals for the Project, the Contractor shall provide submittals certifying achievement of sustainable design rating system criteria for verification by the Green Building Certification Institute or other third party in accordance with the Contract Documents.

**ARTICLE 2 - STATE'S RIGHTS AND RESPONSIBILITIES****2.1 Contracting Authority**

**2.1.1** The Contracting Authority shall designate a Project Manager for the Project. The Project Manager is authorized to act on behalf of the Contracting Authority to perform specific responsibilities under the Contract.

**2.1.2** The Contracting Authority shall furnish information and services required of it in a timely manner.

**2.1.3** The Contracting Authority shall have access to the Work at all times, whenever the Project is in preparation or progress.

**2.1.4** The Ohio Facilities Construction Commission requires use of its forms where indicated in the Contract Documents. The party responsible for initiating forms shall utilize the latest edition obtained from the Commission's website: <https://ofcc.ohio.gov>. The Commission may make modifications to its forms at any time.

**2.1.4.1** The Contractor shall not modify any form provided by the Commission or Contracting Authority.

**2.1.4.2** If the Project is administered using project management software, the Contractor shall utilize the web-based forms and reports within the applicable business process. The project management software is sponsored by the Commission, and the web-based forms and reports are acceptable to the Commission in lieu of its paper forms.

**2.1.5** The Contracting Authority is not responsible for construction means, methods, manners, techniques, sequences, procedures, or for safety precautions and programs in connection with the Work, or for the Contractor's failure to carry out the Work in conformity with the Contract Documents.

**2.2 Owner**

**2.2.1** The Owner shall designate a representative authorized to act on behalf of the Owner during the Project.

**2.2.2** The Owner shall furnish information and services required of it in a timely manner.

**2.2.3** The Owner shall have access to the Work at all times whenever the Project is in preparation or progress.

**2.2.4** Upon issuance of the Notice to Proceed, the Owner shall provide the Site to the Contractor in a condition to permit the Contractor to perform the Work.

**2.2.5** The Owner may request a change in the Work if the A/E recommends and the Contracting Authority approves the change.

**2.2.6** The Owner shall communicate with the Contractor through the Contracting Authority.

**2.2.7** The Owner is not responsible for construction means, methods, manners, techniques, sequences, procedures, or for safety precautions and programs in connection with the Work, or for the Contractor's failure to carry out the Work in conformity with the Contract Documents.

**2.3 Approval of Owner, Contracting Authority, and State**

**2.3.1** The Owner, Contracting Authority, or State's review and approval of the Work and any information the Contractor submits to them is for the sole purpose of determining whether the Work and information are generally consistent with the Contract's intent, and will not relieve the Contractor of its sole responsibility for the performance, preparation, completeness, and accuracy of the Work and information.

**2.4 Neutral Facilitation**

**2.4.1** The Contracting Authority or Owner may engage a Neutral Facilitator for the purposes of **(1)** building cooperative relationships among the Project participants to achieve discrete objectives; **(2)** encouraging educated, productive, and expedited attempts to avoid, minimize, and resolve disputes; and **(3)** maximizing the effectiveness of each participant's resources.

**2.4.1.1** For example, a Neutral Facilitator may facilitate the organizational meeting, partnering session(s), and efforts to resolve disputes throughout the Project.

**2.4.2** The Contracting Authority, Owner, and Contractor are entitled to interact with the Neutral Facilitator with the full expectation that **(1)** they may act, speak, and disclose information with complete candor and **(2)** all communication, whether oral or written, made in the course of facilitated sessions is confidential.

**2.4.3** At any hearing or proceeding regarding any dispute arising out of or related to the Project **(1)** the Neutral Facilitator will not be competent to testify and shall not be called as a witness and **(2)** the Neutral Facilitator's testimony and work product will not be admissible.

**2.4.4** The Neutral Facilitator will not **(1)** perform any services with respect to or bear any responsibility for any legal services, design-professional services, construction, or construction management associated with the Project or **(2)** have any liability whatsoever for any claims related to any legal services, design-professional services, construction, or construction management associated with the Project, including without limitation, claims for legal or design-professional errors or omissions, delays, cost overruns, faulty construction, or increased costs.

**2.4.5** The Neutral Facilitator's participation in the Project will not relieve the Contracting Authority, Owner, and Contractor of any of their respective rights or obligations under the Contract.

## **2.5 Contractor Performance Evaluation**

**2.5.1** The Contracting Authority may evaluate the Contractor's performance during the progress of the Work, at completion of a Phase of the Project, completion of the Project, or any of the foregoing. The Contracting Authority shall retain the evaluation(s).

**2.5.1.1** The Contractor may request a copy of the completed evaluation(s). If the Contractor wishes to comment or take exception to any rating or remark, the Contractor shall send a response in writing to the Contracting Authority within 30 days after receiving the evaluation(s).

**2.5.1.2** The Contracting Authority may use the evaluation(s) in determining the responsibility of the Contractor for award of future contracts.

**2.5.1.3** The Contracting Authority may request information from the Contractor for use in evaluating the A/E's performance. If information is requested, the Contractor shall comply in a timely and responsive manner.

**2.5.1.4** If a breach of the Contract is committed by the Contractor or is attributable to a Subcontractor, that breach will be used in the responsibility analysis of the Contractor and Subcontractor (where applicable) for future contracts with the State or subcontracts on State projects for five years after the date of the breach.

## **ARTICLE 3 - A/E'S RESPONSIBILITIES**

### **3.1 The A/E's Contract Administration Duties**

**3.1.1** The A/E shall administer the Contract as provided in the Contract Documents and Architect/Engineer Agreement, including, but not limited to, performance of the functions described as follows:

**3.1.1.1** The A/E shall attend and conduct progress meetings. The A/E shall prepare an agenda and produce a written report of each progress meeting, and distribute the report to the Contracting Authority, Owner, and Contractor within three business days after the meeting. The A/E shall not delegate the duty to prepare the agenda and written reports of any progress meeting.

**3.1.1.2** The A/E may authorize minor changes or alterations in the Work that are consistent with the intent of the Contract Documents and do not involve adjustment of the Contract Sum or Contract Times, or both. The A/E has no authority to authorize the Contractor to perform additional or extra Work for which the Contractor may seek adjustment of the Contract Sum or Contract Times, or both.

**3.1.1.3** The A/E shall review and recommend, certify, or approve applicable forms required under the Contract Documents.

**3.1.1.4** The A/E shall render decisions in connection with the Contractor's responsibilities under the Contract Documents, and submit recommendations to the Contracting Authority for enforcement of the Contract as necessary.

**3.1.2** The A/E is the initial interpreter of all requirements of the Contract Documents. All decisions of the A/E are subject to final determination by the Contracting Authority.

### **3.2 Site Visits and Observation**

**3.2.1** The A/E shall notify, advise, and consult with the Contracting Authority and Owner and protect the State against Defective Work throughout completion of the Project, which includes the Correction Period.

**3.2.1.1** The A/E shall designate a field representative, subject to the Contracting Authority's approval, to attend to the Project, to observe and check the progress and quality of the Work, and to take action as necessary or appropriate to achieve conformity with the Contract Documents.

**3.2.1.2** The A/E shall have its consultants attend to the Project at intervals required by its agreement or the Contracting Authority.

**3.2.2** The A/E is authorized to disapprove or reject Defective Work. The A/E shall immediately notify the Contracting Authority any time the A/E disapproves or rejects an item of Work.

**3.2.3** The A/E is not responsible for construction means, methods, manners, techniques, sequences, procedures, or for safety precautions and programs in connection with the Work, or for the Contractor's failure to carry out the Work in conformity with the Contract Documents.

### **3.3 Testing and Inspection Services**

**3.3.1** Unless otherwise specified in the Contract Documents, the A/E, directly or through a consultant, shall manage, apply for, secure, and pay for the costs of structural testing and special inspections under Chapter 17 of the Ohio Building Code; testing including geotechnical analysis, environmental testing and analysis, concrete, masonry, structural steel, reinforcing steel, welding, bolts, steel connections, HVAC systems and controls, plumbing and piping, air and water balancing and testing, or other testing; or approval required by Applicable Law. The Contractor shall coordinate with the A/E and cooperate in the A/E's effort to complete the testing and inspection services required in this **Section 3.3**

### **3.4 Approval of A/E**

**3.4.1** The A/E's review and approval of the Work and any information the Contractor submits to the A/E is for the sole purpose of determining whether the Work and information are generally consistent with the Contract's intent, and will not relieve the Contractor of its sole responsibility for the performance, preparation, completeness, and accuracy of the Work and information.

### **3.5 Limitation of A/E's Authority**

**3.5.1** Under no circumstances is the A/E authorized to:

**3.5.1.1** bind the Owner or Contracting Authority to any authorizations under, modifications of, or amendments to any contract other than as expressly described under **Section 3.1.1.2**;

**3.5.1.2** accept any defective or non-conforming services, Work, or vendor-furnished items;

**3.5.1.3** make any settlements on behalf of the Owner or Contracting Authority; or

**3.5.1.4** assume any responsibilities of the Contractor or Subcontractors.

## **ARTICLE 4 - SUBCONTRACTORS**

### **4.1 Evaluation and Approval**

**4.1.1** Within ten days after the Notice to Proceed, or other period as mutually agreed by the Contractor and Contracting Authority, the Contractor shall submit to the A/E a **Subcontractor and Material Supplier Declaration** form through which the Contractor identifies its Subcontractors.

**4.1.2** The Contractor's failure to timely submit the information regarding a proposed Subcontractor may result in withholding payment in accordance with **Section 9.8**.

**4.1.3** After receiving the **Subcontractor and Material Supplier Declaration** form, the A/E shall verify that it is complete and deliver it to the Contracting Authority and Owner. If the A/E finds the form incomplete, the A/E shall return it to the Contractor and identify the incomplete information. If the A/E returns such incomplete forms to the Contractor, the Contractor shall resubmit the forms with revisions complying with the corrective action identified by the A/E.

**4.1.4** If the Contracting Authority rejects any proposed Subcontractor, the Contractor shall propose a replacement Subcontractor with no adjustment of the Contract Sum. The proposed replacement Subcontractor will be evaluated as described above.

**4.1.5** No less than ten days before Work is to be performed by the Subcontractor, or within a shorter period as mutually agreed by the Contractor and Contracting Authority, the Contractor shall submit to the Contracting Authority and A/E a complete copy of the executed Subcontract between the Contractor and Subcontractor. After receiving the Subcontract,



the A/E shall verify that it is complete and deliver it to the Contracting Authority. If the A/E finds the Subcontract incomplete, the A/E shall return it to the Contractor and identify the incomplete information.

#### **4.2 Form of Subcontract**

**4.2.1** All Subcontracts shall be on the **State of Ohio Subcontract Form** prescribed by OAC Section 153:1-03-02.

#### **4.3 Replacement of Subcontractors**

**4.3.1** The Contractor shall not replace any Subcontractor after execution of the Subcontract without the prior written approval of the Contracting Authority.

#### **4.4 Contractor's Responsibility**

**4.4.1** The Contractor is fully responsible for all acts and omissions of its Subcontractors and is responsible for scheduling and coordinating the Work of its Subcontractors.

**4.4.1.1** The Contractor is fully responsible for any delay, interference, disruption, or hindrance attributable to its Subcontractors.

**4.4.1.2** The Contractor shall require each of its Subcontractors to have a competent supervisor at the Site whenever the Subcontractor is performing Work.

**4.4.1.3** The Contractor shall bind its Subcontractors to the terms of the Contract Documents, so far as applicable to the Work of the Subcontractor.

**4.4.1.4** The Contractor shall not agree to any provision, which seeks to bind the State to terms inconsistent with or at variance from the Contract Documents.

**4.4.2** The Contractor will not be relieved of its full responsibility for Subcontractors and their performance of the Work by **(1)** the participation of the Owner, Contracting Authority, and A/E in the processes described under this **Article 4** or other related provisions of the Contract Documents or **(2)** the Contracting Authority's rejection of a Subcontractor or failure to reject a Subcontractor under **Section 4.1**.

#### **4.5 Contingent Assignment of Subcontracts**

**4.5.1** The Contractor hereby assigns its agreement with each Subcontractor to the Contracting Authority provided that the assignment is effective only after termination of the Contract in whole or in part by the Contracting Authority and only for those agreements that the Contracting Authority accepts by notifying the Contractor and applicable Subcontractors in writing. The Contracting Authority may re-assign accepted agreements.

**4.5.1.1** If the Contracting Authority terminates the Contract in part, the Contracting Authority may **(1)** take assignment of any entire Subcontract affected by the termination or **(2)** take partial assignment of only the portion of any Subcontract associated with the terminated part of the Contract.

#### **4.6 Prompt Payment**

**4.6.1** The Contractor shall make payments to Subcontractors in accordance with Applicable Law, including ORC Sections 153.12 and 4113.61.

**4.6.2** The Contractor may reduce the amount paid to a Subcontractor pursuant to **Section 4.6.1** at a rate equal to the percentage retained from the Contractor and may withhold amounts necessary to **(1)** resolve disputed liens or claims involving the Work of the Subcontractor or **(2)** account for the failure of the Subcontractor to perform its obligations under its agreement with the Contractor.

### **ARTICLE 5 - PRECONSTRUCTION ACTIVITIES**

#### **5.1 Neutral Facilitation**

**5.1.1** The Contracting Authority or Owner may engage a Neutral Facilitator for the purposes of **(1)** building cooperative relationships among the Project participants to achieve discrete objectives; **(2)** encouraging educated, productive, and expedited attempts to avoid, minimize, and resolve disputes; and **(3)** maximizing the effectiveness of each participant's resources.

**5.1.1.1** For example, a Neutral Facilitator may facilitate a preconstruction organizational meeting, a partnering session, or efforts to resolve disputes throughout the Project, all of which the Contractor shall participate in at the Contracting Authority's request. The Contractor's compensation for participating in those meetings, sessions,

efforts, and related activities is included in the Contract Sum, and the Contractor will not be entitled to an increase of the Contract Sum for participating as requested.

**5.1.2** The Contracting Authority, Owner, and Contractor are entitled to interact with the Neutral Facilitator with the full expectation that **(1)** they may act, speak, and disclose information with complete candor and **(2)** all communication, whether oral or written, made in the course of facilitated sessions is confidential.

**5.1.3** At any hearing or proceeding regarding any dispute arising out of or related to the Project **(1)** the Neutral Facilitator will not be competent to testify and shall not be called as a witness and **(2)** the Neutral Facilitator's testimony and work product will not be admissible.

**5.1.4** The Neutral Facilitator will not **(1)** perform any services with respect to or bear any responsibility for any legal services, design-professional services, construction, or construction management associated with the Project or **(2)** have any liability whatsoever for any claims related to any legal services, design-professional services, construction, or construction management associated with the Project, including without limitation, claims for legal or design-professional errors or omissions, delays, cost overruns, faulty construction, or increased costs.

**5.1.5** The Neutral Facilitator's participation in the Project will not relieve the Contracting Authority, Owner, and Contractor of any of their respective rights or obligations under the Contract.

## **5.2 Building and Trade Permits and Licenses**

### **5.2.1 Plan Approval.**

**5.2.1.1** The A/E shall secure the required structural, plumbing, HVAC, and electrical plan approvals.

**5.2.1.2** The Contractor shall schedule and attend all intermediate and final inspections required for any permit applicable to the Work. The Contractor shall schedule the State Fire Marshal or local fire authority for the life safety inspection for occupancy permits. The Contractor shall give the A/E, Contracting Authority, and Owner reasonable notice of the dates and times arranged for inspections.

- .1** The Contractor shall pay for any reinspections required as a result of the Contractor's failure to receive approval of its Work, unless the reinspection is required because the design does not comply with Applicable Law.

### **5.2.2 Trade Permits and Licenses.**

**5.2.2.1** The Contractor shall obtain, maintain, and pay for any permit, inspection, or license applicable to the Contractor's particular trade.

### **5.2.3 Local Permits.**

**5.2.3.1** The Contractor shall secure and pay the fees for any permits, inspections, licenses, capacity charges, or tap fees required by local authorities having jurisdiction over the Project. The Contractor shall give the A/E, Contracting Authority, and Owner reasonable notice of the date arranged for inspections.

### **5.2.4 National Pollutant Discharge Elimination System ("NPDES") Storm Water General Permit.**

**5.2.4.1** The A/E shall secure the NPDES general permit by submitting a Notice of Intent ("NOI") application form to the Ohio Environmental Protection Agency at least 45 days prior to the start of construction. The Contractor shall be a "co-permitee" if required under Applicable Law.

**5.2.4.2** The A/E shall prepare and certify a storm water pollution prevention plan to provide sedimentation and erosion controls at the Project.

**5.2.4.3** The A/E shall prepare and process the required Notice of Termination ("NOT") prior to Contract Completion.

## **ARTICLE 6 - CONSTRUCTION AND CLOSEOUT**

### **6.1 Commencement of Work on the Site**

**6.1.1** The Construction Stage will start and the Contract Times will begin to run on the Date of Commencement established in a Notice to Proceed, which the Contracting Authority will issue to the Contractor. The date on which the Contracting Authority issues the Notice to Proceed **(1)** is not relevant to the running of the Contract Times, and **(2)** may differ from Date of Commencement. Unless the Contracting Authority agrees otherwise in writing, the Contractor shall begin to perform the Work within seven days after the Date of Commencement and thereafter diligently prosecute the Work. The Construction Stage terminates upon Contract Completion.

## 6.2 Contractor's General Responsibilities

**6.2.1** The Contractor shall (1) maintain a competent, full-time staff at the Site at all times that Work is in preparation or progress on the Project, (2) shall supervise the Work; (3) establish and implement on-Site organization and authority so that the Work is accomplished in conformance with the Project Schedule; and (4) complete portions of the Work in the sequence and time in the Construction Progress Schedule.

**6.2.2** The Contractor shall perform the Work so as not to interfere with, disturb, hinder, or delay the services of Separate Consultants or the work of Separate Contractors. The Contractor shall cooperate and coordinate fully with all Separate Consultants and Separate Contractors and shall freely share all of the Contractor's Project-related information with them to facilitate the timely and proper performance of the Work and of the services and work of the Separate Consultants and Separate Contractors.

**6.2.3** The Contractor shall afford every Separate Consultant and Separate Contractor proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of their services and work.

**6.2.4** If the Contractor damages the property or work of any Separate Consultant or Separate Contractor, or by failure to perform the Work with due diligence, delays, interferes with, hinders, or disrupts the services of any Separate Consultant or the work of any Separate Contractor who suffers additional expense and damage as a result, the Contractor is responsible for that damage, injury, or expense.

**6.2.5** The intent of Sections 6.2.2 through 6.2.4 is to benefit the Separate Consultants and Separate Contractors, and to demonstrate that the Separate Consultants and Separate Contractors are intended third-party beneficiaries of the Contractor's obligations under the Contract.

**6.2.6** If the proper execution or results of any part of the Work depends upon work performed or services provided by the Owner, a Separate Consultant, or a Separate Contractor, the Contractor shall inspect that other work and appropriate instruments of service, and promptly report to the Contracting Authority in writing any defects or deficiencies in that other work or services that render it unavailable or unsuitable for the proper execution and results of the Work. The Contractor's failure to report before starting the affected part of its Work will constitute an acceptance of the other work and services as fit and proper for integration with the Contractor's Work except for defects and deficiencies in the other work or services that were not reasonably discoverable at the time of the Contractor's inspection.

**6.2.7** The Contractor shall not delay the Work on account of any claim, dispute, or action between the Contractor and a Separate Consultant or Separate Contractor.

**6.2.8** The Contractor shall develop and keep current the Construction Progress Schedule in accordance with Section 6.5, and prepare and keep current a schedule of submittals that is coordinated with the Construction Progress Schedule, for the A/E and Contracting Authority's acceptance.

**6.2.9** The Contractor shall monitor the progress of the Work for conformance with the Construction Progress Schedule and shall initiate revisions as required by Section 6.5.6.

**6.2.10** The Contractor shall establish the Project's regular working hours, subject to approval by the A/E and the Owner.

**6.2.11** The Contractor shall coordinate the Work with the activities and responsibilities of the A/E, Owner, and Contracting Authority to complete the Project in accordance with the Contract Documents.

**6.2.12** In the event of default of the Contractor, the Contractor shall cooperate with the A/E, Owner, Contracting Authority, and Contractor's Surety to achieve the Substantial Completion date and Contract Completion.

**6.2.13** The Contractor shall remove all snow and ice as may be required for reasonably safe access to the Project including, but not limited to, building entries, driveways, parking lots, and sidewalks.

**6.2.14** The Contractor shall keep a daily log containing a record of weather, number of workers on Site, identification of equipment, Work accomplished, problems encountered, and other similar relevant data.

## 6.3 Construction Procedures

**6.3.1** The Contractor is solely responsible for and has control over all construction means, methods, manners, techniques, sequences, and procedures, for safety precautions and programs in connection with the Work, and for coordinating all portions of the Work.

**6.3.1.1** If the Contract Documents give instructions that affect construction means, methods, manners, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety of them and, except as stated below, shall

be fully and solely responsible for the jobsite safety of the means, methods, manners, techniques, sequences, or procedures.

**6.3.1.2** If the Contractor determines that the means, methods, manners, techniques, sequences, or procedures specified in the Contract Documents may not be safe, the Contractor shall give timely written notice to the A/E, Owner, and Contracting Authority. The Contractor shall not proceed with that portion of the Work without further written instructions from the A/E. Any modification of the Contract shall be in accordance with **Article 7**.

**6.3.2** The Contractor shall lay out and coordinate all lines, levels, elevations, and measurements for all of the Work, coordinate and verify existing conditions, and notify the A/E of discrepancies and conflicts before proceeding with installation or excavation.

**6.3.3** The Contractor shall perform all cutting, fitting, or patching required for the Work and shall not endanger the Project by cutting, excavating, or otherwise altering the Project, or any part of it.

**6.3.3.1** If the Contractor requires sleeves for the Work, the Contractor shall furnish and install the sleeves. The Contractor is responsible for the exact location and size of all holes and openings required to be formed or built for the Work.

**6.3.3.2** The Contractor's patching shall match and blend with the existing or adjacent surface(s).

**6.3.4** The Contractor shall comply with ORC Sections 3781.25 through 3781.32. In addition, before starting excavation or trenching, the Contractor shall determine the location of any underground utilities and notify any public authority or utility having jurisdiction over the Project and secure any required approval.

**6.3.5** The Contractor shall install all Work in accordance with the Contract Documents and any installation recommendations of the manufacturer, including required temperature and humidity limits for installation of the various materials.

**6.3.6** The Contractor shall comply with all requirements and conditions of the NPDES general permit, including, but not limited to, implementing and maintaining the sedimentation and erosion control measures specified in the storm water pollution prevention plan prepared by the A/E pursuant to **Section 5.2.4**, which are related to the Work, maintaining records of its construction activities, removing materials no longer required, and taking proper action if there is a reportable quantity spill.

**6.3.7** The Contractor shall communicate with the Contracting Authority and Owner through the A/E.

## **6.4 Construction Supervision**

**6.4.1** Unless waived by the Contracting Authority in writing, the Contractor shall provide continuous supervision at the Site by a competent superintendent when any Work is being performed, and the Contractor's superintendent shall not be involved with any work other than the Project.

**6.4.2** The Contractor's project manager and superintendent shall each have the responsibility and authority to act on behalf of the Contractor. All communications to the Contractor's project manager or superintendent shall be binding as if given directly to the Contractor.

**6.4.3** Within ten days after the Date of Commencement, the Contractor shall submit to the Contracting Authority an outline of the qualifications and experience of the Contractor's proposed project manager and proposed superintendent, including references. Upon receiving a request from the Contracting Authority, the Contractor shall submit to the Contracting Authority an outline of the qualifications and experience of any Subcontractor's proposed project manager and proposed superintendent.

**6.4.3.1** The Contracting Authority may reject the Contractor's or Subcontractor's proposed project manager or proposed superintendent. If the Contracting Authority does not notify the Contractor of the rejection within 30 days after receiving the required information, it shall indicate that the Contracting Authority has no objection, but does not affect the Contracting Authority's rights under **Section 6.12.2** or any other provision relative to that project manager or superintendent.

**6.4.3.2** If the Contracting Authority rejects the Contractor's or Subcontractor's proposed project manager or proposed superintendent, the Contractor shall replace, or cause the Subcontractor to replace the project manager or superintendent (as appropriate) with someone acceptable to the Contracting Authority at no additional cost.

**6.4.4** The Contractor and its Subcontractors shall not replace their respective project managers or superintendents without prior written approval of the Contracting Authority.

**6.4.4.1** If the Contractor or a Subcontractor proposes to change its project manager or superintendent, the Contractor shall submit written justification to the Contracting Authority, along with the name and qualifications of the proposed replacement.

**6.4.4.2** The procedure provided in **Section 6.4.3** shall be conducted to evaluate the Contractor's or Subcontractor's (as applicable) proposed replacement project manager or superintendent.

## **6.5 Construction Progress Schedule**

### **6.5.1 General Requirements**

**6.5.1.1** The Contractor shall prepare and maintain the Construction Progress Schedule using the critical path method of scheduling and commercially available computer software acceptable to the Contracting Authority.

- .1** In the Construction Progress Schedule, the Contractor shall **(1)** organize all Work activities into a logical work breakdown structure; **(2)** set forth a reasonable, efficient, economical, and practical plan to complete the Work within the Contract Times, and **(3)** convey the prosecution and progress of the Work in a manner that accounts for **(a)** normal adverse weather, as defined under **Section 7.10**, through reasonably anticipated productivity variations for weather-sensitive activities, **(b)** Legal Holidays, and **(c)** similar reasonably anticipated events.

**6.5.1.2** The Contractor shall use the most-current, accepted Construction Progress Schedule **(1)** to plan, organize, execute, and manage the Work using early start dates and early finish dates; **(2)** to record and report actual performance and progress of the Work; **(3)** to show how it plans to coordinate and complete all remaining Work within applicable Milestones; and **(4)** as the basis for requests for extensions of the Contract Times.

**6.5.1.3** The Project participants will use the Construction Progress Schedule as a tool for scheduling and reporting sequenced progress of the Work.

**6.5.1.4** The Contracting Authority's, Owner's, or A/E's review, acceptance, or approval of any Construction Progress Schedule will not **(1)** relieve the Contractor of any of the Contractor's responsibilities under the Contract including the responsibility to perform the Work in accordance with the Construction Progress Schedule and within the Contract Times, or **(2)** imply, warrant, or acknowledge the reasonableness or accuracy of the logic, durations, cost, resource loading, or any other attributes of the Construction Progress Schedule.

**6.5.1.5** The Contracting Authority may withhold payment from the Contractor on account of the Contractor's failure to prepare, maintain, or update the Construction Progress Schedule as required under the Contract.

### **6.5.2 Submission Requirements**

**6.5.2.1** The Contractor shall provide each submission of the Construction Progress Schedule **(1)** as a Gantt chart in PDF; **(2)** as a Gantt chart in hardcopy if the Contracting Authority requests; and **(3)** an Electronic File.

- .1** The hardcopy format for the Construction Progress Schedule shall be 11x17 inch.
- .2** The Electronic File of the Construction Progress Schedule shall be in .xer, .xml, or .mpp format.

**6.5.2.2** At the Contracting Authority's request, the Contractor shall prepare and submit to the Contracting Authority reports produced through the scheduling software (collectively "Schedule Reports").

- .1** Unless the Contracting Authority requests otherwise, the Contractor shall submit each Schedule Report in Electronic File format, PDF format, and 8.5x11 hardcopy format.

### **6.5.3 Schedule Information Requirements**

**6.5.3.1** General Requirements. The Contractor shall include at least the following information in the Construction Progress Schedule:

- .1** a clear graphics legend;
- .2** the Contracting Authority's Project number and Project name;
- .3** a graphic presentation of the sequence of all of the Work;
- .4** identification of each stage of the Work and any Milestone dates;
- .5** identification of activities and durations for **(1)** entering into each Subcontract with an anticipated value in excess of 10% of the Construction Budget or as otherwise requested by the Contracting Authority; **(2)** preparation, review, and approval of Shop Drawings and other action submittals; **(3)** fabrication and review of mock-up Work; **(4)** product review and procurement, fabrication, shop inspection, and delivery, including, but not limited to, lead time and coordination drawing delivery; **(5)** Date of Commencement identified as "Start Milestone"; **(6)** date(s) of Substantial Completion identified as "Finish Milestone"; **(7)**

- Punch List development; **(8)** Punch List correction; **(9)** Project close-out requirements; **(10)** occupancy requirements; and **(11)** Contract Completion;
- .6** for each activity:
    - 1.** Activity ID, Activity Description, and Calendar ID;
    - 2.** identification of the single organization responsible for performing the activity;
    - 3.** early start, early finish, late start, late finish, duration, and total float;
    - 4.** in other than the baseline Construction Progress Schedule: original duration, remaining duration, and percentage of completion;
    - 5.** identification of predecessor and successor activities, constraints, and percentage of completion; and
    - 6.** a maximum duration that is appropriate for the activity but not in excess of 15 days except **(1)** non-construction activities such as procurement of materials, delivery of equipment, concrete curing, etc.; and **(2)** other activities for which the Contracting Authority may approve a longer duration;
  - .7** identification of disruptions and shutdowns due to other operations;
  - .8** identification of all planned work hours for each Work Day;
  - .9** identification of the longest path of the Work (in red) and all critical paths of the Work;
  - .10** identification of the crew size and total resource hours for each activity in the schedule;
  - .11** other items required by the Contracting Authority, Owner, or A/E; and
  - .12** the Contractor's signature approval and date lines, which the Contractor shall complete indicating approval of each submitted schedule.
- 6.5.3.2 Activity Identifications ("ID")**
- .1** Activity ID's shall follow the naming convention agreed upon between the Contracting Authority and the Contractor before the Contractor begins to prepare the baseline Construction Progress Schedule.
  - .2** Each Activity ID for a specific Activity Description shall remain unchanged and connected to its original Activity Description throughout the Project.
- 6.5.3.3 Activity Descriptions**
- .1** Each activity shall have a clear and concise Activity Description..
- 6.5.3.4 Activity Relationships**
- .1** All activities except Date of Commencement shall have at least one predecessor, and all activities except Contract Completion shall have at least one successor.
  - .2** To link activities, the Contractor may use **(1)** finish-to-start relationships with no leads or lags; **(2)** start-to-start relationships with lags no greater than the predecessor duration; or **(3)** finish-to-finish relationships when both activities are already aligned with a start-to-start relationship.
- 6.5.3.5 Project Level Activity Codes**
- .1** For each activity, the Contractor shall assign responsibility to an identified, single performing organization.
- 6.5.3.6 Project Level Calendars**
- .1** The Contractor shall create and maintain calendars at the project level.
- 6.5.3.7 No Global Data**
- .1** The Contractor may not use global data of any kind (e.g., codes, calendars, etc.).
- 6.5.3.8 Float and Critical Activities**
- .1** "Float" is the amount of time between the early start date and the late start date (or the early finish date and the late finish date) for each activity. Float is for the benefit of both the Contracting Authority and the Contractor; i.e., float is not for the Contractor's exclusive benefit. Either the Contracting Authority or the Contractor may use float on a first-come-first-served basis without cost impact. The Contractor may not suppress or consume float by artificially extending activity durations, creating dummy activities, or applying preferential sequencing.
    - 1.** The Contractor shall exhaust existing float before claiming additional time for a Modification, or show that it is not possible to use float to cover the time requirements of the Modification.
    - 2.** The Contractor may not suppress or sequester float through, for example, artificial/illogical sequencing, excessive durations, date constraints, float constraints, improper use of lag, or calendar manipulation.

- .2 "Critical Activities" are activities (1) occurring on the longest path through the Construction Progress Schedule; or (2) with float of less than one day; or (3) both. The Contractor shall monitor and diligently pursue any activities with ten or fewer days of total float.

#### **6.5.4 Baseline Construction Progress Schedule**

**6.5.4.1** Unless the Contracting Authority and Contractor agree otherwise, within 45 days after the execution of the Agreement, the Contractor shall submit to the Contracting Authority and A/E a fully developed, baseline Construction Progress Schedule in compliance with this **Section 6.5** that demonstrates the longest path and all critical paths for all of the Work.

- .1 The Contracting Authority's approval of the baseline Construction Progress Schedule is a condition precedent to the Contractor's entitlement to payment under the Contract.

**6.5.4.2** The Contractor shall develop the baseline Construction Progress Schedule based upon (1) the Contract Times defined in the Agreement, and (2) the schedule information included in the Bidding Documents.

**6.5.4.3** In the event of a significant change or combination of changes, as determined by the Contracting Authority in its discretion, the Contracting Authority may identify a Contracting Authority-approved, updated or revised Construction Progress Schedule as the new baseline Construction Progress Schedule for future updates and reports.

#### **6.5.5 Monthly Construction Progress Schedule Updates**

**6.5.5.1** The Contractor shall include a monthly Construction Progress Schedule update as a component of each of the Contractor's Progress Status Reports.

**6.5.5.2** The Contractor shall generate monthly Construction Progress Schedule updates based upon and relative to the Contracting Authority-approved baseline Construction Progress Schedule and using retained logic (as opposed to logic override) to reflect and include:

- .1 the actual progression and sequence of the Work;
- .2 actual and projected start and completion dates;
- .3 actual Modifications; and
- .4 the longest path of the Work and all critical paths of the Work.

**6.5.5.3** The Contractor shall use the first date of the next month at 12:01 a.m. as the data date for calculating the monthly Construction Progress Schedule update (e.g., progress through March will have a data date of April 1 @ 12:01 am).

**6.5.5.4** The Contractor shall accurately input actual start and actual completion dates and correct all logic errors. If the Contractor changes/corrects any actual dates in any following month, the Contractor shall clearly identify the change/correction and provide a written explanation for it.

**6.5.5.5** If the Contracting Authority requests, the Contractor shall include with each monthly Construction Progress Schedule update any of the associated Schedule Reports produced by the scheduling software.

**6.5.5.6** The Contractor's submission of a monthly Construction Progress Schedule update shall serve as an affirmation that the Contractor intends to and is capable of performing the Work consistent with the associated monthly Construction Progress Schedule update.

**6.5.5.7** The Contracting Authority and the A/E will review and may approve or reject and return the monthly Construction Progress Schedule update to the Contractor with recommendations for revisions.

#### **6.5.6 Revised Construction Progress Schedules**

**6.5.6.1** Unless and until the Contracting Authority agrees in writing, the Contractor shall not change any of the accepted activities, activity durations, schedule logic, interdependencies, Milestones, planned sequence of operations, or resource loading set forth in the Construction Progress Schedule.

**6.5.6.2** Once the Contracting Authority accepts a Modification involving Construction Progress Schedule changes (including no-cost time extensions such as on account of excessive weather days and other excusable delays), but not before then, the Contractor shall promptly incorporate the associated activity, duration, and logic changes, additions, combinations, eliminations, or other modifications into the then-current Construction Progress Schedule and submit for the Contracting Authority's approval (1) that revised Construction Progress Schedule; and (2) if the Contracting Authority requests, any of the associated Schedule Reports produced by the scheduling software.

**6.5.6.3** If the Contractor incurs an inexcusable delay, the Contractor shall promptly incorporate any associated activity, duration, and logic changes, additions, combinations, eliminations, or other modifications into the then-current Construction Progress Schedule and submit for the Contracting Authority's approval (1) that revised

Construction Progress Schedule; and **(2)** if the Contracting Authority requests, any of the associated Schedule Reports produced by the scheduling software. The Contracting Authority's approval will not constitute an extension of the Contract Times due to the inexcusable delay.

**6.5.6.4** The Contractor's submission of a revised Construction Progress Schedule shall serve as an affirmation that the Contractor intends to and is capable of performing the Work consistent with the associated revised Construction Progress Schedule update.

**6.5.6.5** If the Contracting Authority and the Contractor cannot reach agreement on Construction Progress Schedule modifications resulting from a Modification or inexcusable delay, and the Contracting Authority requests, the Contractor shall prepare and submit a time-impact analysis when and as described under **Section 7.9.3**.

#### **6.5.7 Short-Interval Schedules and Weekly Schedule Reports**

**6.5.7.1** A "Short-Interval Schedule" is a three- to four-week (past week, current week, and the next one to two weeks) schedule window that **(1)** breaks down existing schedule activities into smaller and more-manageable components with relatively short durations; and **(2)** is consistent with the then-current Construction Progress Schedule.

**6.5.7.2** On a weekly basis, and no less than 24 hours before the next regularly scheduled Progress Meeting, the Contractor shall prepare and submit a Short-Interval Schedule to the A/E. The Contractor shall present and be prepared to discuss the Short-Interval Schedule during that Progress Meeting, and the A/E shall attach the Short-Interval Schedule to the minutes of that Progress Meeting.

#### **6.5.8 Recovery Plan and Revised Construction Progress Schedule**

**6.5.8.1** If it is apparent to the Contracting Authority or A/E that the Contractor may be unable to meet critical path activities, Milestone completion dates, or the Substantial Completion date(s); the A/E shall direct the Contractor to submit within three days a recovery plan to avoid or minimize delay to the Project.

**6.5.8.2** A recovery plan shall include, but is not limited to, adjustments to the following:

- .1 workforce;
- .2 hours per shift;
- .3 shifts per workday;
- .4 workdays per week;
- .5 material and equipment procurement; and
- .6 activity logic.

**6.5.8.3** The Contractor's submission of a recovery plan shall serve as an affirmation that the Contractor **(1)** prepared the recovery plan in consultation with its Subcontractors, and **(2)** intends to and is capable of performing the Work consistent with that recovery plan.

**6.5.8.4** If the Owner and Contracting Authority approve the recovery plan, within seven days after the plan approval, the Contractor shall incorporate that plan into a revised Construction Progress Schedule which the Contractor shall prepare and submit for review and approval in accordance with **Section 6.5.6**. If the Owner and Contracting Authority do not approve the recovery plan, the Contractor shall submit an alternate recovery plan within three days.

#### **6.5.9 Small-Project Exceptions**

**6.5.9.1** This **Section 6.5** applies to a Small Project, which is a Project for which the initial Contract Sum is less than \$500,000, except as explicitly provided in this **Section 6.5.9**.

**6.5.9.2** In lieu of **Section 6.5.2**, the Contractor shall provide each submission of the Construction Progress Schedule **(1)** as a Gantt chart in PDF; **(2)** as a Gantt chart in hardcopy if the Contracting Authority requests; and **(3)** an Electronic File in its native format.

**6.5.9.3** In lieu of **Section 6.5.3**, the Contractor shall include at least the following information in the Construction Progress Schedule:

- .1 a clear graphics legend;
- .2 the Contracting Authority's Project number and Project name;
- .3 identification of each stage of the Work and any Milestone dates;
- .4 identification of activities and durations for **(1)** date(s) of Substantial Completion; **(2)** Project close-out requirements; and **(3)** and Contract Completion;
- .5 for each activity, a maximum duration that is appropriate for the activity but not in excess of 15 days;
- .6 other items required by the Contracting Authority, Owner, or A/E; and



- .7 the Contractor's signature approval and date lines, which the Contractor shall complete indicating approval of each submitted schedule.

**6.5.9.4** In lieu of **Section 6.5.4.1**, unless the Contracting Authority and Contractor agree otherwise, within 15 days after the execution of the Agreement, the Contractor shall submit to the Contracting Authority and A/E a fully developed, baseline Construction Progress Schedule in compliance with this **Section 6.4**.

**6.5.9.5** In lieu of **Section 6.5.5.2**, the Contractor shall generate monthly Construction Progress Schedule updates based upon and relative to the Contracting Authority-approved baseline Construction Progress Schedule to reflect and include (1) the actual progression and sequence of the Work; (2) actual and projected start and completion dates; and (3) actual Modifications.

**6.5.9.6** The Contractor may, but is not obligated to comply with **Sections 6.5.3.4, 6.5.3.5, 6.5.3.6, 6.5.3.7, 6.5.5.3, 6.5.5.4, and 6.5.5.5**.

## 6.6 Progress Meetings

**6.6.1** The A/E shall schedule a weekly progress meeting for the Contractor and other Persons involved in the Project. The purpose of the progress meeting is to review progress on the Project during the previous week, discuss anticipated progress during the following weeks, review critical operations, and discuss critical problems.

**6.6.2** The Contractor shall be represented at every progress meeting by a Person authorized with signature authority to make decisions regarding possible modification of the Contract Documents or Construction Progress Schedule.

**6.6.2.1** The A/E shall notify the Contractor and other Persons involved in the Project of the time and place of the progress meeting that shall thereafter be the same day and hour of the week for the duration of the Project, unless the A/E notifies the Contractor and other Persons involved in the Project of a different day and hour at least two days in advance.

**6.6.2.2** The Contractor shall have any of its Subcontractors attend the progress meeting as determined advisable by the Contractor, or as requested by the A/E.

**6.6.3** The A/E shall prepare a written report of each progress meeting and distribute the report to the Contracting Authority, Owner, and Contractor. The A/E shall not delegate the duty to prepare a written report of any progress meeting.

**6.6.3.1** If any Person in attendance objects to anything in a report of a progress meeting, the Person shall notify the A/E, Contracting Authority, and any other affected Person in writing explaining the objection within five days.

**6.6.3.2** The report of each progress meeting shall reflect any objection made to the report of the previous progress meeting and any response.

## 6.7 Project Coordination

**6.7.1** The Contractor shall prepare drawings ("Coordination Drawings") after the Contractor and appropriate Subcontractors ("Coordination Participants") (1) determine the sequence of the Project, (2) identify the areas requiring special attention ("Coordination Areas"), and (3) determine the need for a coordination drawing for any Coordination Area. The Contractor shall prepare the Coordination Drawings with Computer-Aided Design ("CAD") or BIM software acceptable to the Contracting Authority. The Coordination Drawings shall show the sheet metal work with plan and elevation dimensions, which specifically locate all HVAC ductwork, HVAC equipment, and HVAC piping for each Coordination Area based upon the information, discussion, and resulting consensus of the Coordination Participants.

**6.7.1.1** After the Contractor completes the Coordination Drawings, the Contractor shall forward a copy of the Coordination Drawings to the A/E, Contracting Authority, and Owner.

**6.7.1.2** The A/E shall review the Coordination Drawings to determine whether the Coordination Participants achieved the goals listed in **Section 6.7.1**. The A/E shall report any concerns, in writing, to the Coordination Participants within 14 days after receiving the drawings.

## 6.8 Review of Contract Documents and Field Conditions

**6.8.1** Before starting each portion of the Work, the Contractor shall carefully study and compare the various Contract Documents relative to that portion of the Work, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the Site affecting it.

**6.8.2** If the Contractor finds any perceived ambiguity, conflict, error, omission, or discrepancy on or between any of the Contract Documents, or between any of the Contract Documents and any Applicable Law, the Contractor, before proceeding with the Work, shall promptly submit a RFI to the A/E for an interpretation or clarification.

**6.8.2.1** Before submitting any RFI to the A/E, the Contractor shall carefully review the Contract Documents to ensure that the Contract Documents do not answer the RFI.

**6.8.2.2** The A/E shall promptly respond to each RFI.

**6.8.2.3** Any interpretation or clarification of the Contract Documents made by any Person other than the A/E, or in any manner other than writing, shall not be binding and the Contractor shall not rely upon it.

**6.8.3** If the Contractor believes that it is entitled to an adjustment of the Contract Sum or Contract Times, or both, on account of clarifications or instructions issued by the A/E in response to a RFI, the Contractor shall initiate a Change Request **(1)** as required under **Section 7.6**, and **(2)** within the time period under **Section 7.6**, which begins to run on the day that the Contractor receives the A/E's RFI response.

## **6.9 Differing Site Conditions**

**6.9.1** If the Contractor reasonably believes that it has encountered a Differing Site Condition, the Contractor shall immediately stop Work on that suspected Differing Site Condition and verbally report the condition to the Contracting Authority and A/E, and within one business day deliver written notice of the condition to the Contracting Authority and A/E.

**6.9.1.1** The Contractor's failure to give notice of the Differing Site Condition as required under this **Section 6.9** will constitute an irrevocable waiver of any associated Claim.

**6.9.1.2** The written notice of a Differing Site Condition under this **Section 6.9** shall be required before submission of a Change Request under **Section 7.6** or notice of Claim under **Article 8**.

**6.9.2** Promptly after receiving notice from the Contractor under **Section 6.9.1**, the A/E shall investigate to determine whether the Contractor has encountered a Differing Site Condition. The A/E shall give written notice of its determination to the Contracting Authority and Contractor within ten days after completing the investigation.

**6.9.2.1** If the A/E determines that the Contractor has encountered a Differing Site Condition and the Contracting Authority and Contractor agree with the A/E's determination, the A/E shall process an associated Change Order or Change Directive as appropriate.

**6.9.2.2** If the A/E determines that the Contractor has encountered a Differing Site Condition, but the Contracting Authority disagrees with the A/E's determination, the A/E shall process an associated Change Directive through which the Contracting Authority may convey its disagreement with the A/E's determination.

**6.9.2.3** If the A/E determines that the Contractor has not encountered a Differing Site Condition and the Contractor does not agree with that determination, the Contractor shall initiate a Change Request **(1)** as required under **Section 7.6**; and **(2)** within the time period required under **Section 7.6** which begins to run on the day that the A/E issues its determination.

## **6.10 Protection of the Project**

**6.10.1** The Contractor shall protect the Work from weather and maintain the Work and all materials, apparatus, and fixtures free from injury or damage until Substantial Completion of the Work.

**6.10.1.1** The Contractor shall at all times cover or protect the Work.

**6.10.1.2** The Contractor, at its expense, shall remove, and replace with new, any Work damaged as a result of the Contractor's failure to provide coverage or protection.

**6.10.1.3** The Contractor, at its expense, shall repair or replace any adjacent property, including, but not limited to, roads, walks, shrubbery, plants, trees, or turf, damaged during performance of the Contract.

**6.10.1.4** After the date of Substantial Completion of the Work, the Owner is responsible for protecting and maintaining all materials, apparatus, and fixtures for the occupied portion of the Project free from injury or damage.

**6.10.2** The Contractor shall protect the Project and existing or adjacent property from damage at all times and shall erect and maintain necessary barriers, furnish and keep lighted necessary danger signals at night, and take reasonable precautions to prevent injury or damage to individuals or property.

**6.10.3** The Contractor shall not load, or permit any part of the Project to be loaded, in any manner that endangers the Project, or any portion thereof. The Contractor shall not subject any part of the Project or existing or adjacent property to stress or pressure that endangers the Project or property.

**6.10.4** The Contractor shall provide all temporary bracing, shoring, and other structural support required for safety and proper execution of the Work.

**6.10.5 Vibration, Noise, and Dust Control.**

**6.10.5.1** The Contractor shall provide controls/barriers for vibrations, noise, and dust control in occupied buildings as required by the construction operations.

**6.10.5.2** The Contractor will not be permitted to exhaust or release unfiltered air, dust, construction debris, or other undesirable products into the exterior atmosphere or into occupied areas of the building outside the Site. The Project Manager may limit or stop the Work if the Contractor does not maintain proper air-quality standards.

**6.10.5.3** In certain occupied buildings, tasks might be of such a nature that noise and vibration cannot be tolerated. In such spaces, Work shall be scheduled for other than normal working hours. The Contractor is cautioned that weekend or overtime work, if required, shall be performed at no additional cost. The Contractor shall obtain the Contracting Authority's written permission before working other than standard hours. Weekend and overtime Work shall be reflected in the Construction Progress Schedule.

**6.10.5.4** The Contractor is responsible for vibration control and control of transmission of noise arising from the Work. Principal considerations that shall be given to noise and vibration control are:

- .1** Noise control in compliance with Occupational Safety and Health Administration ("OSHA") requirements for the health and safety of building occupants; control shall be for all areas of the facility, including equipment rooms, boiler rooms, and fan rooms.
- .2** Vibration control to limit sound produced by construction equipment, and for protection of the equipment existing in a building and the building structure.
- .3** Vibration control to provide for maximum usefulness of the facility by keeping levels of vibration within ranges conducive to study and work or other uses for which the facility is designed.

**6.11 Materials and Equipment**

**6.11.1** The Contractor shall bring to or store at the Site only the materials and equipment required in the Work. If possible, materials and equipment should be installed in their final positions when brought to the Site.

**6.11.1.1** The Contractor shall properly store and protect all materials and equipment it provides to the Project.

**6.11.1.2** The Contractor shall timely remove from the Site any materials or equipment no longer required for the Work.

**6.11.2** The Contractor shall not allow materials or equipment to damage the Project or adjacent property, or to endanger any individual at or near the Site.

**6.11.3** If the Contractor provides an Acceptable Component, the Contractor shall be solely responsible for the costs of coordination and modification required.

**6.11.4** If the Contractor provides approved Substitutions that require changes to the Contract Documents, the Contractor shall be solely responsible for the additional costs incurred as a result, including, but not limited to, changes to the design by the A/E.

**6.11.5** The A/E shall consider Requests for Substitutions after the Bid opening only when the Contractor can conclusively demonstrate to the A/E the following conditions:

**6.11.5.1** the specified Basis of Design Components, Acceptable Components, or previously-approved Substitutions, through no fault of the Contractor or a Subcontractor, are not available; or

**6.11.5.2** the specified Basis of Design Components, Acceptable Components, or previously-approved Substitutions will not perform as designed or intended.

**6.11.6** The Contractor's incorporation of unapproved Substitutions in the Work is Defective Work.

**6.12 Labor**

**6.12.1** The Contractor shall maintain a sufficient workforce and enforce good discipline and order among its employees and the employees of its Subcontractors. The Contractor shall not permit employment of individuals not skilled in tasks assigned to them.

**6.12.2** The Contractor shall dismiss from the Project any individual employed by the Contractor, or a Subcontractor, who the Contracting Authority finds, in its sole discretion, to be incompetent, guilty of misconduct, or detrimental to the Project.

**6.12.3** The Contractor shall employ all legal efforts to minimize the likelihood or effect of any strike, Work stoppage, or other labor disturbance. Informational pickets shall not justify any Work stoppage.

**6.13 Safety Precautions**

**6.13.1** The Contractor shall take reasonable precautions to ensure the safety of individuals on the Project.

**6.13.1.1** The Contractor is responsible for designing and implementing its own safety program, including compliance with OSHA regulations. The Contractor's safety plans, such as fall protection, hazards, communications, competent person, etc., shall meet or exceed the Owner's safety plan (if any).

**6.13.2** The Contractor shall pay any fine or cost incurred because of the Contractor's violation, or alleged violation, of Applicable Law.

**6.13.3** Before starting any Work, the Contractor shall submit to the Contracting Authority a copy of the Contractor's site-specific safety plan and safety manuals.

**6.13.4** The Contractor shall not introduce Hazardous Materials to the Project (other than as specified in the Contract Documents or customary construction materials or equipment) or burn any fires on the Site.

**6.13.4.1** If the Contractor brings Hazardous Materials to the Project, the Contractor shall take reasonable precautions to prevent the Hazardous Materials from causing bodily injury or death, property damage, or environmental damage.

**6.13.4.2** The Contractor shall notify the Project Manager 24 hours before the start of non-routine or non-recurring hot-work. Use of sources of fire, flame or sparks and flammable materials shall be kept to an absolute minimum. At the beginning of the Project, the Contractor shall inform the Project Manager of its intent to use blowtorches, welding apparatus or similar exposed flame and sparking devices. The Contractor shall give similar notice in regard to the use of flammable liquids, adhesives, and cleaners.

**6.13.4.3** The Contractor shall furnish an appropriate number of fire extinguishers (minimum of one), which shall be within the immediate areas where work is being done at all times. The extinguisher(s) shall be adequate and suitable for the class of fire likely to be caused by the Contractor's operations.

**6.13.5** Work Stoppage Due to Hazardous Materials.

**6.13.5.1** If the Contractor encounters material the Contractor reasonably believes to be or contain, a Hazardous Material that has not been rendered harmless, the Contractor shall immediately stop Work in the affected area and verbally report the condition to the Contracting Authority and A/E, and within one business day deliver written notice of the condition to the Contracting Authority and A/E.

**6.13.5.2** The Contracting Authority will promptly determine the necessity of the Owner retaining a qualified environmental consultant to evaluate the suspected Hazardous Material and to issue a related written report. Where appropriate, the Owner will engage a licensed abatement contractor to remove the material or render it harmless as directed.

**6.13.5.3** The Contractor shall resume Work in the affected area upon written notice from the A/E that **(1)** the suspect material was evaluated and found not to be or contain a Hazardous Material, or **(2)** the suspect material has been removed or rendered harmless.

**6.13.5.4** If the Contractor knowingly or negligently proceeds with the Work in an area where a Hazardous Material exists and has not been rendered harmless, the Contractor shall be solely responsible for all related claims, damages, losses, and expenses, including, but not limited to, attorneys' fees, arising out of or resulting from performing the Work in the affected area.

**6.13.5.5** The term "rendered harmless" means that the level of exposure is less than any applicable exposure standards set forth in Applicable Law.

**6.13.6** Safety Data Sheets.

**6.13.6.1** The Contractor shall identify any material it uses at the Site with a Safety Data Sheet ("SDS") meeting the requirements of OSHA's Hazard Communication Standard.

**6.13.6.2** The Contractor shall maintain a notebook containing all of its applicable SDSs. That notebook shall be kept at the Site for the duration of the Project.

**6.14 Construction Facilities, Utilities, and Equipment**

**6.14.1** Facilities.

**6.14.1.1** The Contractor shall provide and maintain clean and suitable temporary facilities, equipment, services, and enclosed storage for its use at the Site.

**6.14.1.2** The Contractor shall provide and maintain in a clean condition:

- .1 suitable facilities, equipment, and services for use by the A/E and Contracting Authority;
- .2 adequate space, equipment, furnishings, and services to conduct progress meetings including Wi-Fi internet access and the ability to conduct internet-based video conferences, and a large-format electronic display of suitable scale for the meeting room;
- .3 adequate space to store approved documents and permits; and
- .4 adequate sanitary facilities for use by all Persons at the Site.

**6.14.2** Environmental Controls.

**6.14.2.1** The Contractor shall protect its Work and materials from weather and damage from heat, cold, and humidity.

**6.14.2.2** Until the permanent HVAC system is complete and available for use:

- .1 the Contractor shall make arrangements and pay for installation and maintenance of temporary heating and ventilating systems; and
- .2 the Contractor shall pay the costs incurred in operating the temporary heating and ventilating systems.

**6.14.2.3** When the permanent HVAC system is complete and available for use:

- .1 The Contractor shall start up and maintain operation of the permanent HVAC system, including filters, and promptly remove temporary heating and ventilating systems.
- .2 If the Project consists entirely of new construction, the Contractor shall pay the costs of energy consumed in operating the permanent HVAC system until Substantial Completion.
- .3 If the Project is a renovation of an existing building or structure, addition(s) to an existing building or structure, or any combination of new construction and renovation work that does not allow separate metering of utilities, the Owner shall pay the costs of energy consumed in operating the permanent HVAC system.

**6.14.2.4** From the date of Substantial Completion, the Owner shall pay the cost of operating the permanent HVAC system for the occupied portion of the Project.

**6.14.2.5** If the permanent HVAC system is used during construction, the Contractor shall furnish an extended warranty and service contract in effect until the expiration of the Correction Period.

**6.14.3** Water and Drainage.

**6.14.3.1** The Contractor shall provide water necessary for the Work until the permanent plumbing system is available for use.

**6.14.3.2** The Contractor shall provide temporary drainage and dewatering necessary for the Work and shall employ pumps, trenches, drains, sumps, and other necessary elements required to provide satisfactory working conditions for the protection, execution, and completion of the Project.

**6.14.3.3** The Contractor shall make arrangements and pay for installation and maintenance of temporary plumbing systems until the permanent plumbing system is available for use.

**6.14.3.4** When the permanent plumbing system is complete and available for use:

- .1 The Contractor shall start up and maintain operation of the permanent plumbing systems, and make arrangements and pay for removal of temporary plumbing systems.
- .2 If the Project consists entirely of new construction, the Contractor shall pay the costs of water consumed and sewerage charges until Substantial Completion.
- .3 If the Project is a renovation of an existing building or structure, addition(s) to an existing building or structure, or any combination of new construction and renovation work that does not allow separate metering of utilities, the Owner shall pay the costs of water consumed and sewerage charges.

**6.14.3.5** From the date of Substantial Completion, the Owner shall pay the costs of water consumed and sewerage charges for the occupied portion of the Project.

**6.14.3.6** If the permanent plumbing system is used during construction, the Contractor shall furnish an extended warranty and service contract in effect until the expiration of the Correction Period.

**6.14.4** Electric Service.

**6.14.4.1** The Contractor shall provide temporary light and power; and pay the charges for temporary electric service installation and removal if required.

**6.14.4.2** If the Project consists entirely of new construction, the Contractor shall pay the cost of energy consumed until Substantial Completion.

**6.14.4.3** If the Project is a renovation of an existing building or structure, addition(s) to an existing building or structure, or any combination of new construction and renovation work that does not allow separate metering of utilities, the Owner shall pay the cost of energy consumed.

**6.14.4.4** From the date of Substantial Completion, the Owner shall pay the cost of energy consumed for the occupied portions of the Project.

**6.14.4.5** If the permanent electrical system is used during construction, the Contractor shall furnish an extended warranty and service contract in effect until the expiration of the Correction Period.

**6.14.5 Hoisting Facilities.**

**6.14.5.1** The Contractor shall erect and maintain any hoisting equipment required for its Work.

**6.14.5.2** If the electric service requirements of hoisting facilities differ from that available at the Site, the Contractor shall provide and pay for all necessary connections.

**6.14.5.3** If a permanent elevator is identified in the Contract Documents to be used for hoisting materials or personnel during construction, the Contractor shall furnish an extended warranty and service contract in effect until the expiration of the Correction Period.

**6.15 Progress Cleaning**

**6.15.1** The Contractor shall remove all waste materials, rubbish, and mud attributable to the Work to an appropriate disposal location at or near the Site.

**6.15.2** The Contractor shall perform weekly broom cleaning of hard flooring surfaces in the area of the Work.

**6.15.3** The Contractor shall remove, once each working day or as appropriate for the Project, all waste materials and rubbish from the disposal location at or near the Site.

**6.15.4** The Contractor shall remove, as appropriate for the Project or as the A/E or Owner directs, any waste materials or rubbish from areas adjacent to the Project.

**6.15.4.1** The Contractor shall dispose of waste materials, rubbish, and construction debris in a lawful manner in approved recycling facilities or landfills.

**6.15.5** If the Contractor fails to clean up during the progress of the Work, the Contracting Authority may clean up on behalf of the Contractor and at the Contractor's expense. If the Contractor fails to maintain the areas adjacent to the Project clean and free of waste materials and rubbish, the Contracting Authority may also direct the local jurisdiction responsible for the area to have the area cleaned to its satisfaction at the Contractor's expense.

**6.15.5.1** The Contracting Authority may deduct the cleaning costs from payments then or thereafter due the Contractor. If payments then or thereafter due the Contractor are not sufficient to cover those amounts, the Contractor shall immediately pay the amount of the insufficiency to the Owner.

**6.15.6** The Contractor shall remove excavated material and spoil to a suitable off-site location approved by the Contracting Authority.

**6.15.6.1** If the Owner designates a location on its property for disposal or storage of clean topsoil and/or subsoil in the Contract Documents, the Contractor shall remove such materials to the designated location.

**6.16 Use of Premises**

**6.16.1** The Contractor shall use corridors, stairs, and elevators as designated by the Contracting Authority. The Contractor shall exercise extreme care to not exceed the carrying capacity of elevators or damage the cab interior in any way.

**6.16.2** Loitering or wandering through the interior of buildings or exterior grounds outside the limits of the Work will not be permitted.

**6.16.3** The Contractor shall confine its apparatus, materials, and the operations of its workers to the limits indicated by Applicable Law and the directions of the A/E or Project Manager.

**6.16.4** No signs or advertising of any kind will be permitted on or about the Site, except those appearing on trucks and trailers.

**6.16.5 Site Logistics Plan.**

**6.16.5.1** No later than seven days after the Date of Commencement, the Contractor shall prepare a Site Logistics Plan and submit it to the Contracting Authority and Owner for their review and approval. Through the Site Logistics Plan, the Contractor shall indicate how the Contractor intends to use the Site, and illustrate things such as areas to be used for lay down of material and equipment; office and storage trailer locations; vehicular access gates with ingress and egress routes; locations of wheel wash and concrete truck wash out activities; and offloading and hoisting locations.

**6.16.6 Smoking and Tobacco Products.**

**6.16.6.1** All State buildings are smoke free. Smoking will not be permitted in any indoor area. The ban on tobacco products will be observed in all indoor and outdoor areas and parking areas on all State-owned and -leased property. The Contractor shall enforce these restrictions on any individual employed by the Contractor or a Subcontractor.

**6.17 Interruption of Existing Services**

**6.17.1** Whenever it becomes necessary to interrupt existing services in use by the Owner or its tenants, including but not limited to sewer, water, gas, and steam lines, electric, telephone, and cable service, the Contractor shall continue the associated Work on a non-stop 24-hour per day basis until that Work is completed and the service restored, or at an alternate time required by the Contracting Authority.

**6.17.2** Before beginning that Work, the Contractor shall apply in writing to, and receive approval in writing from, the Owner, through the A/E, to establish a time when interruption of the service will cause a minimum of interference with the activities of the Owner and its tenants.

**6.18 Explosives and Blasting**

**6.18.1** The Contractor shall not conduct blasting on, or bring explosives to, the Site without the prior written approval of the Contracting Authority, Owner, and other authorities with jurisdiction.

**6.18.2** The Contractor shall perform all blasting, storing, and handling of explosives as required under Applicable Law.

**6.18.2.1** The Contractor shall carry appropriate liability insurance coverage, as required by the Contract Documents, for its blasting and explosives storage and handling operations. Immediately upon request, the Contractor shall deliver evidence of that insurance to the Contracting Authority.

**6.19 Building Commissioning**

**6.19.1** If the Project scope includes building commissioning, the Contractor shall participate in the Commissioning Process, as prescribed in the Contract Documents.

**6.19.2** The Contractor shall permit the A/E, or a third-party Commissioning Agent ("CxA") if applicable, access to commission performance based equipment, fixtures, and systems (e.g., HVAC, fire protection, smoke evacuation, fume hoods, emergency power, etc.), prior to Substantial Completion.

**6.19.3** The A/E, or CxA if applicable, shall promptly notify the Contractor in writing of any deficiency identified during the Commissioning Process.

**6.19.4** To facilitate the Commissioning Process, the Contractor shall submit one hard copy and one electronic copy of Operation and Maintenance Manuals for dynamic and engineered systems to the A/E, and CxA if applicable, for approval. That submission shall occur within 30 days following approval of all related Contractor submittals required by the Contract Documents.

**6.20 Action Submittals**

**6.20.1 Submittal Description.** Shop Drawings, Product Data, Samples, and other submittals for the A/E's review and action shall be provided by the Contractor for any item required by the Contract Documents but not fully described in the Contract Documents, unless waived by the A/E, and include, but are not limited to:

**6.20.1.1** construction of the various parts, method of joinery, type of materials, grade, quality and thickness of materials, alloy of materials, profiles of all sections, reinforcement, method of hanging doors or installing windows, anchorage, and type and grade of finish;

**6.20.1.2** capacities, types of materials and performance charts that are pertinent to the materials, and performance charts that are pertinent to the equipment item; and

**6.20.1.3** wiring diagrams, control diagrams, schematic diagrams, working and erection dimensions, arrangement, and specifications.

**6.20.2** Form of Submittals. The Contractor shall provide a transmittal letter, review and stamp its approval, and transmit the submittals to the A/E in accordance with the submittal schedule established by the A/E and Contractor.

**6.20.2.1** The Contractor shall submit a minimum of one reproducible and three copies of Shop Drawings, and a minimum of four copies of any other submittal, except when using the project management software under **Section 2.1.4.2**.

**6.20.2.2** The data shown on the Shop Drawings shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to communicate to the A/E the materials and equipment that the Contractor proposes to provide.

**6.20.2.3** Each Sample shall be identified clearly as to materials, supplier, pertinent data as catalog numbers, the intended use, and other uses as the A/E may require enabling the A/E to review the submittal.

**6.20.3** Delegated Design.

**6.20.3.1** If the Contract Documents require the Contractor to provide professional design services or certifications by a design professional related to systems, materials, or equipment, the Contractor shall confirm with the A/E the appropriate performance and design criteria that such services shall satisfy. The Contractor shall submit Shop Drawings and other submittals related to the Work designed or certified by the design professional retained by the Contractor to the A/E for review.

**6.20.4** Variation from Contract Documents. If the submittals show variations from the requirements of the Contract Documents, the Contractor shall specifically and clearly identify the variations in its letter of transmittal.

**6.20.4.1** Variations that may affect the construction quality, cost or timeline shall be submitted by the A/E to the Contracting Authority for review, and if approved, shall be incorporated into the Work by Change Order or an order for a minor change in the Work (as appropriate).

**6.20.4.2** The Contractor shall not be relieved of responsibility for deviations from the Contract Documents by the A/E's approval of submittals.

**6.20.4.3** Submittals are not Contract Documents. In the event of conflicts between submittals and the Contract Documents, the Contract Documents take precedence and govern the Work.

**6.20.5** Contractor's Submittal Review. The Contractor shall review and stamp "approved" all submittals before forwarding them to the A/E. If it is apparent to the A/E that the Contractor has not reviewed the submittals, or has conducted an incomplete review, the A/E may reject the submittals.

**6.20.5.1** The Contractor shall field verify conditions as necessary and make corrections of dimensions, locations of various items, encroachments of work of Separate Contractors, or variations from the requirements of the Contract Documents.

**6.20.5.2** If required by the Contract Documents or Applicable Law, the Contractor shall have Shop Drawings or other submittals prepared by Persons possessing expertise and experience in an appropriate trade or profession or by a registered architect, professional engineer, or other professional as required under Applicable Law.

**6.20.5.3** By approving and submitting submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements, and field construction criteria related to the associated Work, or shall do so, and has checked and coordinated the information contained within the submittals with the requirements of the Work and of the Contract Documents.

**6.20.6** A/E's Submittal Review. The A/E shall review submittals for conformity with design intent within 14 days after receiving them or in accordance with the approved submittal schedule, or other period as mutually agreed by the A/E and Contractor. The A/E's review of submittals is to determine if the items covered by the submittals will, after installation and incorporation into the Work, conform to the Contract Documents and be compatible with the design concept of the Project as a functioning whole.

**6.20.6.1** The Contractor shall make corrections required by the A/E and resubmit the required number of corrected copies of submittals until approved, which resubmission shall be acted upon by the A/E within 14 days after receiving them, or other period mutually agreed by the A/E and Contractor.

**6.20.6.2** When resubmitting corrected submittals, the Contractor shall direct the A/E's attention to revisions made by noting revisions on the resubmittal.



**6.20.6.3** The Contractor shall pay all reasonable costs of the A/E, Owner, and Contracting Authority for attendant delay, interference, hindrance, or disruption of the Project due to excessive resubmittals without fault of the A/E, Owner, or Contracting Authority. Resubmittals in excess of two without fault of the A/E, Owner, or Contracting Authority may be determined excessive by the Contracting Authority.

**6.20.6.4** The A/E may hold Samples and other submittals used to coordinate finishes, colors, patterns, textures, or other characteristics until submittals for adjacent materials are available. Within seven days after receiving the submittal, the A/E shall issue a written notice to the Contractor stating that the submittal is being held.

**6.20.6.5** If coordinating submittals are not received within the period required for action on previously received submittals that are held in accordance with **Section 6.20.6.4**, review of the previously received submittals may be delayed.

**6.20.6.6** The A/E's review shall not extend to means, methods, manners, techniques, sequences, or procedures of construction, or to safety precautions or incident programs.

**6.20.6.7** The review and approval of a separate item shall not indicate approval of the assembly in which the item functions.

**6.20.7 Risk of Nonpayment.** The Contractor shall not commence any portion of the Work requiring Shop Drawings, Product Data, Samples, or other submittals until the submittal has been approved by the A/E. If the Contractor starts Work before the A/E's final approval of the submittal, the Contractor does so at its own risk that payment may not be approved by the Contracting Authority or made by the Owner for the related Work.

## **6.21 Warranty**

**6.21.1** The Contractor warrants to the Contracting Authority and Owner that all materials and equipment furnished under the Contract shall be new and of good quality unless otherwise required or permitted by the Contract Documents, that the Work shall be free from defects not inherent in the quality required or permitted, and that the Work shall conform to the requirements of the Contract Documents. Work not conforming to those requirements, including Substitutions not properly approved and authorized is Defective Work. If required by the A/E, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

**6.21.2** If the Contractor or a Subcontractor recommends a particular product, material, system, or item of equipment for incorporation into the Project and the Owner accepts that recommendation, the above warranty includes a warranty from the Contractor to the Owner that the recommended product, material, system, or item of equipment is fit and appropriate for the associated purpose.

## **6.22 Additional Tests and Inspections**

**6.22.1** If before or after Substantial Completion the A/E or the Contracting Authority determines that any portion of the Work requires special inspection, testing, or approval not otherwise required under the Contract Documents, the A/E shall order such inspection, testing, or approval.

**6.22.1.1** If the special inspection, testing, or approval reveals Defective Work, the Contractor shall pay all associated costs and will not be entitled to any related adjustment of the Contract Times. Those costs may include, but are not limited to:

- .1** the cost of the special inspection, testing, or approval;
- .2** the cost of conducting the special inspection, testing, or approval on similar Work regardless of whether the similar Work is also revealed as Defective Work;
- .3** the cost of additional special inspections, testing, or approvals to evaluate remedial Work;
- .4** the cost of correcting the Defective Work; and
- .5** all related Owner-incurred fees and charges of contractors, engineers, architects, attorneys, and other professionals.

**6.22.1.2** The Contracting Authority may deduct the costs described under **Section 6.22.1.1** from payments then or thereafter due the Contractor. If payments then or thereafter due the Contractor are not sufficient to cover those amounts, the Contractor shall immediately pay the amount of the insufficiency to the Owner.

**6.22.1.3** If the special inspection, testing, or approval reveals that the Work complies with the Contract Documents, and the Contractor believes that it is entitled to an adjustment of the Contract Sum or Contract Times, or both, on account of the special inspection, testing, or approval, the Contractor shall initiate a Change Request **(1)** as required under **Section 7.6**, and **(2)** within the time period required under **Section 7.6** which begins to run on the day of the special inspection, testing, or approval.

**6.22.2** If the Contractor is aware of a need for inspection, testing, or approval, or of a need to have any inspection, testing, or approval completed by a particular time to avoid delay, then the Contractor shall timely communicate such information to the A/E and Contracting Authority.

**6.22.3** Except as described under **Section 6.22.1**, the Owner shall pay for any inspection, testing, or approval that did not become a requirement until after it awarded the Contract.

**6.22.4** The Contractor shall coordinate with and give the A/E, Contracting Authority, and Owner reasonable notice of the anticipated dates of all inspections, testing, or approvals.

**6.22.5** Within five days after completion of an inspection, testing, or approval, the A/E shall provide an original report/certificate of the inspection, testing, or approval to the Contractor and Contracting Authority with a recommendation for or against acceptance of the results therein.

## **6.23 Uncovering the Work**

**6.23.1** If the Contractor covers Work contrary to the requirements of the Contract Documents or contrary to the written request of the Contracting Authority or A/E, the Contractor shall, if the Contracting Authority or A/E requests in writing, uncover that Work for observation, correct it if not in conformity with the Contract Documents, and recover it at the Contractor's expense without adjustment of the Contract Times.

**6.23.2** If the Contractor covers Work in accordance with the Contract Documents and not contrary to a request from the A/E or Contracting Authority for an opportunity to observe the Work prior to covering, the Contractor shall, if the A/E requests in writing, uncover that Work.

**6.23.2.1** If the uncovered Work is Defective Work, the Contractor shall pay the costs of uncovering, correcting, and recovering the Work and shall not be entitled to an adjustment of the Contract Times.

**6.23.2.2** If the uncovered Work is not Defective Work and the Contractor believes that it is entitled to an adjustment of the Contract Sum or Contract Times, or both, on account of the uncovering and recovering of the Work, the Contractor shall initiate a Change Request **(1)** as required under **Section 7.6**, and **(2)** within the time period required under **Section 7.6** which begins to run on the day that the Contracting Authority or A/E observes the uncovered Work.

## **6.24 Correction of the Work**

### **6.24.1 Before Substantial Completion.**

**6.24.1.1** If the Contractor provides Defective Work or fails or neglects to perform the Work in accordance with the Construction Progress Schedule, the Contracting Authority or A/E may issue a written notice to the Contractor and Contractor's Surety directing the Contractor to correct the Defective Work or recover schedule deficiencies. Unless otherwise specified in that written notice, the Contractor shall promptly commence and diligently pursue correction of the Defective Work and recovery of schedule deficiencies within three days after the Contracting Authority issues the written notice ("72-Hour Notice").

**6.24.1.2** If the Contractor fails to promptly commence and diligently pursue correction of the Defective Work and recovery of schedule deficiencies required under **Section 6.24.1.1**, the Owner may correct the Defective Work or take action to recover schedule deficiencies without giving further notice to the Contractor or Contractor's Surety.

### **6.24.2 After Substantial Completion.**

**6.24.2.1** In addition to the Contractor's other obligations under the Contract Documents, if any of the Work is found to be Defective Work after Substantial Completion, the Contractor shall correct it promptly after receipt of written notice from the A/E, Contracting Authority, or Owner to do so, unless the Contracting Authority and Owner have previously acknowledged and accepted the Defective Work in writing as described under **Section 6.25.1**. The A/E, Contracting Authority, or Owner may send a copy of the written notice to the Contractor's Surety, but are not obligated to do so.

**6.24.2.2 During the Correction Period.** If the Contracting Authority or Owner issues a notice under **Section 6.24.2.1** during the Correction Period, the Owner may correct the Defective Work itself without giving further notice to the Contractor or Contractor's Surety if the Contractor fails to **(1)** notify the Owner in writing of the Contractor's intent to correct the Defective Work within seven days after the Contracting Authority or Owner issues the notice and **(2)** thereafter promptly commence and diligently pursue correction of Defective Work.

**6.24.2.3** The Correction Period:

- .1** commences on the date of Substantial Completion of the Work or a designated portion of the Work which the Contracting Authority and Owner have agreed to take Partial Occupancy;

- .2 relates only to the Contractor's specific obligation and opportunity to correct the Work during the Correction Period;
- .3 does not establish a period of limitation with respect to any of the Contractor's other obligations under the Contract Documents;
- .4 has no relationship to the time within which the State or Owner may seek to enforce the Contract;
- .5 does not establish a period of limitation within respect to the commencement of litigation to establish the Contractor's liability under the Contract or otherwise; and
- .6 shall not be extended by corrective Work performed by the Contractor under this **Section 6.24.2**.

**6.24.2.4 After the Correction Period.** If the Owner issues a notice under **Section 6.24.2.1** after expiration of the Correction Period, the Owner may correct the Defective Work without giving further notice to the Contractor or Contractor's Surety if the Contractor fails to **(1)** notify the Owner in writing of the Contractor's intent to correct the Defective Work within 14 days after the Owner issues the notice and **(2)** thereafter promptly commence and diligently pursue correction of Defective Work.

**6.24.3 Emergency Correction of Defective Work.**

**6.24.3.1** Notwithstanding any other provision of the Contract to the contrary, if in the Contracting Authority's or Owner's opinion the Defective Work presents a threat of imminent harm or danger to people, property, or the environment, the Contracting Authority or Owner may order the Contractor to immediately correct Defective Work or the Owner may correct the Defective Work itself without any prior notice to the Contractor or Contractor's Surety.

**6.24.4 Responsibility for Costs of Correction.**

**6.24.4.1** The Contractor shall pay all of the costs and damages associated with the correction of Defective Work and the recovery of schedule deficiencies under this **Section 6.24**. Those costs and damages may include, but are not limited to, the related fees and charges of contractors, engineers, architects, attorneys, and other professionals; and the cost of correcting or replacing adjacent work. The Contracting Authority may deduct those costs and damages from payments then or thereafter due the Contractor. If payments then or thereafter due the Contractor are not sufficient to cover those amounts, the Contractor shall immediately pay the amount of the insufficiency to the Owner.

**6.25 Acceptance of Defective Work**

**6.25.1** Before final Contract Completion, the Owner may accept any Defective Work instead of requiring its removal or correction, in which case the Contract Sum shall be equitably reduced as described under **Article 7**.

**6.25.1.1** The Owner may only accept Defective Work through a deduct Change Order that makes explicit reference to this **Section 6.25**.

**6.25.1.2** After final Contract Completion, the Owner may only accept Defective Work by giving written notice to the Contractor that the Owner is accepting the associated Defective Work.

**6.25.2** None of the following will constitute **(1)** acceptance of Defective Work, **(2)** a release of the Contractor's obligation to perform the Work in accordance with the Contract, or **(3)** a waiver of any rights set forth in the Contract or otherwise provided by Applicable Law:

**6.25.2.1** observations or inspections by the Owner, Contracting Authority, or A/E;

**6.25.2.2** the making of any payment;

**6.25.2.3** Substantial Completion or the issuance of a Certificate of Substantial Completion;

**6.25.2.4** Partial Occupancy and the Owner's use or occupancy of the Work or any part of it;

**6.25.2.5** Contract Completion or the issuance of a partial or final Certificate of Contract Completion;

**6.25.2.6** any review or approval of a submittal;

**6.25.2.7** any inspection, test, or approval by other Persons; or

**6.25.2.8** any correction of Defective Work by the Owner.

**6.26 Project Document Maintenance and Submittal****6.26.1 During Construction.**

**6.26.1.1** The Contractor shall maintain in good order at a secure location on the Site:

- .1** a complete copy of all Contract Documents; Shop Drawings, Product Data, Samples and similar required submittals; manufacturer operating and maintenance instructions; certificates; warranties; RFIs and responses thereto; and other Project-related documents, all marked currently and accurately to record field changes and selections made during construction and to show actual installation where installation varies from Work as originally shown, including the exact location and depth of underground utility lines; and
- .2** a set of Drawings and Specifications, approved in accordance with **Section 5.2.1.1**, and the records required by **Section 6.2.14**.

**6.26.1.2** Before submitting each Contractor Payment Request, the Contractor shall record all changes on the Contract Documents, neatly in a contrasting color, noting new information not shown on the original Contract Documents. Failure to record all changes may cause payment to be withheld or delayed by the Contracting Authority.

**6.26.1.3** The Contractor shall keep a record of changes made to the Specifications, noting particularly any approved variation from manufacturers' installation instructions and recommendations.

**6.26.1.4** If the Contractor uses Shop Drawings to indicate as-built conditions, the Contractor shall cross-reference the Shop Drawing sheet numbers to the corresponding sheet numbers on the Contract Documents. The Contractor shall note related numbers where applicable.

**6.26.1.5** The Contractor shall at all times permit access to the documents described in this **Section 6.26.1** to authorized representatives of the State, local authorities with jurisdiction over the Project, Contracting Authority, Owner, and A/E.

**6.26.2 Before Contract Completion.**

**6.26.2.1** As a condition precedent to execution of the Certificate of Contract Completion and final payment, the Contractor shall submit to the A/E:

- .1** all LEED-related documents not previously submitted (if applicable); and
- .2** the As-Built Documents including one electronic version and one hard-copy version organized into suitable sets of manageable size bound with durable cover sheets and appropriate identification marked on the front and the spine of each binder.

**6.26.2.2** The Contractor's As-Built Documents submission shall include, but is not limited to:

- .1** Certificate of Occupancy;
- .2** inspection certificates for pressure piping, elevator, boiler, electrical, plumbing or piping purification, etc.;
- .3** Letter of Approval from the local fire authority or State Fire Marshal for the fire suppression system;
- .4** Operation and Maintenance Manuals;
  - .1** The Contractor shall organize the hard copy of the Operation and Maintenance Manuals into suitable sets of manageable size, and include indexed data bound in individual binders, with pocket folders for folded sheet information.
- .5** neatly and accurately marked sets of As-Built Documents, and other Contract Documents reflecting the actual construction of the Project;
- .6** detailed Drawings reflecting the exact location of any concealed utilities, mechanical or electrical systems, and components;
- .7** assignment to the Owner of all warranties and guarantees, including the most-recent address and telephone number of any Subcontractors or manufacturers.

**6.26.2.3** By submitting the As-Built Documents to the A/E, the Contractor certifies that its As-Built Documents are complete, correct, and accurate.

**6.26.3 Record Documents.**

**6.26.3.1** The A/E shall revise the original Contract Documents and related Electronic Files with the information contained on the As-Built Documents. The A/E shall label the revised original Contract Documents and related Electronic Files as "Record Documents" and reflect the date of the A/E's incorporation of the As-Built Documents.

**6.26.3.2** The Owner may thereafter use the Record Documents for any purpose relating to the Project including, but not limited to, additions to or completion of the Project.

**6.27 Final Cleaning**

**6.27.1** Before requesting the Substantial Completion inspection of the Work, the Contractor shall clean the Site, remove waste materials and rubbish attributable to the Project, and restore the property to its original condition so that upon Substantial Completion, the premises are ready for occupancy by the Owner.

**6.27.2** If the Contractor performs any Work after final cleaning, the Contractor shall clean the affected area as provided above so that upon Substantial Completion, the premises are ready for occupancy by the Owner.

**6.27.3** Final cleaning shall be done to the reasonable satisfaction of the A/E and Contracting Authority.

**6.28 Substantial Completion****6.28.1 Contractor's Punch List.**

**6.28.1.1** When the Contractor considers the Work, or a designated portion thereof, Substantially Complete the Contractor shall inspect the Work and prepare a list of Defective Work and incomplete or unacceptable Work ("Contractor's Punch List"). The Contractor shall list all items of Work not in compliance with the Contract Documents, including items the Contractor is requesting to be deferred.

- .1** The Contractor shall proceed to correct all items listed on the Contractor's Punch List and certify that the incomplete items listed on the Contractor's Punch List are to its knowledge an accurate and complete list by signing the Contractor's Punch List.
- .2** The Contractor's failure to include an item on the Contractor's Punch List shall not alter the Contractor's responsibility to complete the Work in accordance with the Contract Documents.
- .3** The Contractor shall submit the signed Contractor's Punch List to the A/E, together with a request for the Substantial Completion inspection of the Work.

**6.28.2 Substantial Completion Inspection.**

**6.28.2.1** Within three business days after receipt of the request for the Substantial Completion inspection of the Work, the A/E shall notify the Contractor of acceptance or rejection of the request, stating reasons for any rejection.

- .1** Within seven days after its acceptance of the Contractor's request, the A/E shall conduct the Substantial Completion inspection to determine whether the Work, or designated portion, is in conformity with the Contract Documents and Substantially Complete. The A/E shall notify the Contractor, Contracting Authority, and Owner of the scheduled time of the inspection.
- .2** If the A/E determines that the Work is Substantially Complete, within three business days after the Substantial Completion inspection, the A/E shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion and include a list of Defective, incomplete, or unacceptable Work ("A/E's Punch List"). The A/E's Punch List shall include **(1)** the items on the Contractor's Punch List that are not yet completed or corrected as of the date of the Substantial Completion inspection, and **(2)** comments from the Contracting Authority and Owner.
- .3** The A/E shall submit the Certificate of Substantial Completion to the Contracting Authority, Owner, and Contractor for their written acceptance. Upon their acceptance and consent of the Contractor's Surety, and subject to the Owner's right to withhold payment, the Owner shall release retainage as described under **Section 9.6.1**.
- .4** The A/E's failure to include an item on the A/E's Punch List shall not alter the Contractor's responsibility to complete the Work in accordance with the Contract Documents.
- .5** If the A/E accepts the request for the Substantial Completion inspection and subsequently determines that the Work is not Substantially Complete, the A/E may request compensation for expenses related to excessive Punch List activities. The Contracting Authority may deduct that additional compensation to the A/E from payments then or thereafter due the Contractor. If payments then or thereafter due the Contractor are not sufficient to cover those amounts, the Contractor shall immediately pay the amount of the insufficiency to the Owner.

**6.28.3 Completion of Punch List Items.**

**6.28.3.1** Before expiration of the Punch List Milestone and before the date of Final Contract Completion, the Contractor shall complete all items on the A/E's Punch List. After completing all items on the A/E's Punch List, the Contractor shall provide a written request for Final Inspection of the Work to the A/E.

- .1** If Work on the A/E's Punch List cannot be timely completed, the Contractor shall justify in writing to the reasonable satisfaction of the Contracting Authority and A/E, the reasons the items cannot be completed, and the Contractor may propose, for the Contracting Authority and A/E's approval, an adjustment of the

- Punch List Milestone for the associated Punch List items to establish a time when the Contractor shall complete those items.
- .2 Within three business days after receipt of the Contractor's request for the Final Inspection, the A/E shall complete a Final Inspection of the Work for compliance with the Contract Documents.
  - .3 If multiple inspections of items on the A/E's Punch List are required due to the Contractor's failure to properly and timely complete them, the Contractor shall pay any additional costs incurred by the A/E, Owner, and Contracting Authority resulting from any attendant delay and re-inspections. The Contracting Authority may deduct those additional costs from payments then or thereafter due the Contractor. If payments then or thereafter due the Contractor are not sufficient to cover those amounts, the Contractor shall immediately pay the amount of the insufficiency to the Owner.

## 6.29 Partial Occupancy

**6.29.1** The Owner may occupy or use a portion of the Project prior to Substantial Completion of all Work if:

**6.29.1.1** the building authority with jurisdiction over the Project issues a partial certificate of occupancy for the portion of the Project the Owner intends to occupy (if applicable);

**6.29.1.2** the Owner with the Contractor's and A/E's assistance has provided written notice of the Partial Occupancy to the insurers providing builder's risk property insurance for the Project; and

**6.29.1.3** the Contracting Authority has received notice of the Partial Occupancy from the A/E and has consented to it.

**6.29.2** Before the Owner commences Partial Occupancy, the Owner, Contracting Authority, A/E, and Contractor shall proceed as described under **Section 6.28** for the area designated for Partial Occupancy. The Owner may commence Partial Occupancy before the Contractor has achieved Substantial Completion of the area designated for Partial Occupancy.

**6.29.3** The Contractor shall be relieved of the obligation to maintain the area accepted for Partial Occupancy, but shall remain obligated to complete and correct the Work and to carry the insurance required by the Contract Documents during performance of any such Work.

## 6.30 Demonstration and Training, Operating Appurtenances

**6.30.1** The Contractor, as a condition precedent to execution of the Certificate of Contract Completion and final payment, shall perform demonstration and training of the Owner's maintenance personnel as specified in the Contract Documents.

**6.30.2** The Contractor, as a condition precedent to execution of the Certificate of Contract Completion and final payment, shall organize and submit operating appurtenances and loose items related to operation and maintenance of the completed Project to the Owner, including, but not limited to:

**6.30.2.1** keys to door and window hardware, panels, and other devices not directly provided to the Owner from the manufacturer;

**6.30.2.2** operating handles, levers, cranks, specialized wrenches or drivers, remote controls, and similar items; and

**6.30.2.3** extra materials (e.g., attic stock).

## 6.31 Contract Completion

### **6.31.1** Partial Contract Completion.

**6.31.1.1** When items of Work cannot be completed until a subsequent date, the A/E shall prepare a partial Certificate of Contract Completion that shall include a detailed list of the deferred Work and the date(s) by which the Contractor will complete that Work.

**6.31.1.2** The A/E shall submit the partial Certificate of Contract Completion to the Contracting Authority, Owner, and Contractor for their written acceptance. After they accept the partial Certificate of Contract Completion and the Contractor has submitted the Contractor's Surety's consent to payment, the Contracting Authority may release payment to the Contractor in the Contracting Authority's sole discretion.

### **6.31.2** Final Contract Completion.

**6.31.2.1** When all items on the A/E's Punch List have been completed to the satisfaction of the A/E, all requirements of the Contract Documents have been completed, and the provisions of **Sections 6.26** through **6.30** have been fulfilled, the A/E shall prepare and recommend execution of a final Certificate of Contract Completion.

The date that the Contracting Authority executes the final Certificate of Contract Completion is the date of Contract Completion.

**6.31.2.2** Within 30 days after the Contracting Authority executes the final Certificate of Contract Completion, the Contracting Authority will make final payment to the Contractor of all remaining funds then due and payable including any funds retained following Substantial Completion as described under **Section 9.7**.

## ARTICLE 7 - MODIFICATIONS

### 7.1 General

#### 7.1.1 Changes in the Work.

**7.1.1.1** The Contracting Authority may order changes in the Work without invalidating the Contract. Subject to the limitations stated in this **Article 7** and elsewhere in the Contract Documents, a change in the Work may be accomplished by a Change Order, Change Directive, or order for a minor change in the Work.

- .1** The Contractor shall proportionately increase the amount of the Bond whenever the Contract Sum is increased.
- .2** If notice of any change affecting the Contract is required by the provision of any Bond, notice is the Contractor's responsibility, and the amount of each applicable Bond shall be adjusted accordingly.

**7.1.1.2** The Contractor shall not proceed with any change in the Work without the Contracting Authority's prior written authorization except as provided under **Sections 1.10** and **7.4**.

**7.1.1.3** Except as provided in **Section 1.10**, the Contractor's failure to obtain prior written authorization for a change in the Work will prejudice the Owner and Contracting Authority and constitute a waiver by the Contractor of any adjustment to the Contract Sum or Contract Times, or both, for the related Work.

**7.1.1.4** The Contractor shall perform all changes in the Work under the applicable provisions of the Contract Documents, and the Contractor shall proceed promptly with the change unless otherwise provided in the Change Order, Change Directive, or order for a minor change in the Work

#### 7.1.2 Paperwork Consolidation.

**7.1.2.1** Related Modifications, with the same or similar justification (e.g., Owner Request or field resolution), may be consolidated into the same Change Order.

**7.1.2.2** Add and deduct Modifications, with the same or similar justification, may be included on the same Change Order.

**7.1.2.3** Modifications resulting from errors or omissions shall not be combined with other modifications for which the A/E will receive a fee.

#### 7.1.3 Modification Numbering.

**7.1.3.1** The A/E shall assign a number to each Modification, which shall uniquely identify it.

**7.1.3.2** The A/E shall not duplicate or reuse any number throughout the Project or reuse assigned numbers for Proposal Requests that are initiated but cancelled in process.

**7.1.3.3** The number for each Change Order shall be coordinated with any associated Proposal Request, Change Request, or Change Directive.

#### 7.1.4 Modification Log.

**7.1.4.1** The A/E shall create and maintain a Modification Log for the Project, which shall contain the following minimum information:

- .1** number of the Modification;
- .2** a brief description of the Modification;
- .3** cost of the Modification;
- .4** schedule impact of the Modification; and
- .5** dates sent to, and received from, the parties.

#### 7.1.5 Reconciliation of Unit Price Items.

**7.1.5.1** The Contracting Authority may increase, decrease, or delete entirely the scheduled quantities of Unit Price Work.

**7.1.5.2** If the actual quantity of a Unit Price item exceeds or appears that it will exceed the scheduled quantity, the Contractor shall immediately notify the A/E in writing. The A/E, after consulting with the Contracting Authority, will issue a Change Order or Change Directive to authorize an adjustment of the scheduled quantity or to otherwise address the excess.

**7.1.5.3** If the actual quantity of a Unit Price item differs from the scheduled quantity by 20 percent or more, so that application of the Unit Price to the quantities of Work performed or reasonably expected to be performed would create an undue hardship on either the Owner or Contractor:

- .1** the Contractor shall initiate a Change Request seeking an adjustment of the Unit Price **(1)** as required under **Section 7.6**, and **(2)** within the time period required under **Section 7.6** which begins to run on the day that the Contractor knew or should have known that the actual quantity of a Unit Price item would differ from the scheduled quantity by 20 percent or more; or
- .2** the A/E, after consulting with the Contracting Authority, will issue a Change Directive to adjust the Unit Price.

**7.1.5.4** If a Unit Price is adjusted as described under **Section 7.1.5.3**, the new Unit Price will only apply to the units of Work performed that are **(1)** less than the 20 percent threshold if the Unit Price is changed on account of an over-estimation of the scheduled quantity of a Unit Price item involved in the Work or **(2)** in excess of the 20 percent threshold if the Unit Price is changed on account of an under-estimation of the scheduled quantity of a Unit Price item involved in the Work.

**7.1.5.5** Before final payment, the A/E shall issue a Change Order to reconcile any difference between the scheduled and actual quantities of Unit Price Work performed and materials furnished.

**7.1.5.6** Notwithstanding **Section 7.1.5.3**, if the actual quantity of any item of Unit Price Work is zero, there shall be no adjustment of the Unit Price.

#### **7.1.6 Notice of Credits and Schedule Reductions.**

**7.1.6.1** Notwithstanding any other provision of the Contract to the contrary, the Contractor shall promptly notify the Contracting Authority, Owner, and A/E in writing whenever any change in the Project (including without limitation through an order for a minor change in the Work) may entitle the Owner to a credit from the Contractor or a reduction of the time for completion of the Project.

## **7.2 Change Orders**

**7.2.1** A Change Order is a written instrument prepared by the A/E and executed by the Contracting Authority, Owner, and Contractor, stating their agreement upon all of the following:

- 7.2.1.1** a change in the Work;
- 7.2.1.2** the amount of the adjustment of the Contract Sum, if any; and
- 7.2.1.3** the extent of the adjustment of the Contract Times, if any.

**7.2.2** Except with the Contracting Authority's written consent as explicitly provided under **Sections 7.3.9, 7.3.10, 7.6.2, and 7.6.3**, the Contractor is not entitled to reserve any rights or take other similar action with respect to a Change Order if the effect or intent of the reservation or action would be to accommodate a further adjustment of the Contract Sum or Contract Times, or both, after the Contractor signs the Change Order. By signing a Change Order, the Contractor irrevocably certifies that the elements of a Change Order described in **Section 7.2.1** are completely and fully satisfied, and waives all rights, if any, to seek further adjustment of the Contract Sum or Contract Times, or both, at a later date with respect to the associated change in the Work including without limitation on account of **(1)** the "cumulative impact" of the associated change in the Work in combination with one or more other changes in the Work; **(2)** all costs, including interest on those costs; and **(3)** any delays, inefficiencies, disruptions, suspensions, extended overhead, and acceleration.

**7.2.3** The A/E shall prepare each Change Order form, attach the supporting documentation, and issue the Change Order to the Contractor for signature.

**7.2.4** If the Contractor is in agreement with the Change Order under **Section 7.2.1**, the Contractor shall sign and return the Change Order to the A/E within three days after receiving it.

**7.2.5** When the A/E receives the Change Order signed by the Contractor, the A/E will recommend approval by signing the form and transmitting the Change Order and the revised Change Order Log to the Owner.

**7.2.6** When the Owner receives the Change Order, the Owner may sign the form accepting the Change Order, attach certification of funding, and transmit the Change Order to the Contracting Authority; or, if the Owner does not accept the Change Order, the Owner will reject and return it to the A/E.



**7.2.7** When the Contracting Authority receives the Change Order, the Contracting Authority may sign the form approving the Change Order, and transmit the fully executed Change Order to all signers; or, if the Contracting Authority does not accept the Change Order, the Contracting Authority will reject and return it to the A/E.

**7.2.8** When the Change Order is signed by the Contractor, A/E, Owner, and Contracting Authority, the fully executed Change Order modifies the Contract Documents and authorizes and directs the Contractor to proceed, and the Contractor shall promptly proceed with the associated change in the Work.

### **7.3 Change Directives**

**7.3.1** A Change Directive is a written order prepared by the A/E and executed by the Contracting Authority and Owner directing a change in the Work or the performance of disputed Work as described under **Section 7.3.4.1**.

**7.3.1.1** The parties will endeavor to resolve each Change Directive through the Field Meeting described under **Section 7.7**.

**7.3.2** Through a Change Directive, the Contracting Authority may:

**7.3.2.1** propose a basis for adjustment, if any, in the Contract Sum or Contract Times, or both; or

**7.3.2.2** limit the scope of the change in the Work on a time and materials basis, not to exceed a fixed adjustment of the Contract Sum.

**7.3.3** If a change in the Work must start immediately to avoid an imminent impact to the schedule of the Project, the A/E may prepare a Change Directive for the Contracting Authority's and the Owner's signatures pursuant to **Section 7.3.1**, authorizing the Contractor to proceed.

**7.3.4** A Change Directive shall be used to direct a change in the Work in the absence of total agreement on the terms of a Change Order.

**7.3.4.1** For the purposes of clarity, the Contract refers to a Change Directive as if it is only to be used in the absence of total agreement on the terms of a Change Order concerning the associated change of the Work. A Change Directive may also be used in the absence of agreement as to whether the subject of the Change Directive actually constitutes a change in the Work; such as but not limited to the situations described under **Sections 6.9.2** and **7.4.3**.

**7.3.5** Upon receipt of a Change Directive, the Contractor shall promptly proceed with the change in the Work involved.

**7.3.6** If the Change Directive contains a proposed basis for adjustment of the Contract Sum or Contract Times, or both, within ten days after receiving it, the Contractor may sign the Change Directive to accept the proposed basis for adjustment, and return it to the A/E. Thereafter, the A/E shall prepare and the A/E, Contracting Authority, Owner, and Contractor shall promptly execute an associated Change Order as described under **Section 7.2**.

**7.3.7** Within ten days after receiving the Change Directive, or other period as mutually agreed by the Contractor and Contracting Authority, the Contractor shall submit to the A/E and Contracting Authority a Proposal meeting the requirements of **Section 7.5** for adjustment of the Contract Sum or Contract Times, or both, on account of the change, unless the Change Directive is performed on a time and materials basis under **Section 7.3.2.2**. If the Change Directive is performed on a time and materials basis, the Contractor shall submit its Proposal within ten days after completing the changed Work, which is the subject of the Change Directive.

**7.3.8** If the Contractor does not respond to a Change Directive as and when required under **Section 7.3.6** or **Section 7.3.7** (1) the Contracting Authority shall determine the adjustments, if any, of the Contract Sum and Contract Times and issue its determination to the Owner, A/E, and Contractor, and (2) the A/E shall prepare a Change Order consistent with that determination and issue it to the Contractor as described under **Section 7.2.3**. If the Contractor does not agree with the Contracting Authority's determination, the Contractor shall initiate a Claim as and when required under **Article 8**.

**7.3.9** Pending final determination of the total adjustment of the Contract Times on account of a Change Directive, to the extent that the Contracting Authority, Owner, and Contractor agree on a portion of the adjustment of the Contract Times, that the period of time not in dispute may be included in the Construction Progress Schedule accompanied by a Change Order indicating the parties' agreement with only that portion of the time adjustment.

**7.3.10** Pending final determination of the total adjustment of the Contract Sum on account of a Change Directive, to the extent that the Contracting Authority, Owner, and Contractor agree on a portion of the adjustment of the Contract Sum, the amount not in dispute for that change in the Work may be included in a Contractor Payment Request accompanied by a Change Order indicating the parties' agreement with only that portion of the cost adjustment.

**7.3.11** If the Contracting Authority, Owner, and Contractor agree on the adjustments of the Contract Sum and Contract Times associated with a Change Directive, the A/E shall prepare an appropriate Change Order. The A/E, Contracting Authority, Owner, and Contractor shall sign the Change Order as described under **Section 7.2**.

**7.3.12** If the Contracting Authority, Owner, and Contractor do not agree on the adjustments of the Contract Sum and Contract Times associated with a Change Directive, **(1)** the Contracting Authority shall determine the adjustments, if any, of the Contract Sum and Contract Times and issue its determination to the Owner, A/E, and Contractor, and **(2)** the A/E shall prepare a Change Order consistent with that determination and issue it to the Contractor as described under **Section 7.2.3**. If the Contractor does not agree with the Contracting Authority's determination, the Contractor shall initiate a Claim as and when required under **Article 8**.

**7.3.13** The Contracting Authority may at any time reject the Contractor's Proposal submitted under **Section 7.3.7**. If the Contractor does not agree with the Contracting Authority's rejection, the Contractor shall initiate a Claim as and when required under **Article 8**.

**7.3.14** If a Change Directive or portion of a Change Directive remains pending or otherwise unresolved 60 days after the date on which the Change Directive was issued, the associated Contractor's Proposal or portion of the Contractor's Proposal still pending will be deemed rejected by the Contracting Authority. If the Contractor does not agree with the deemed rejection, the Contractor shall initiate a Claim as and when required under **Article 8**.

**7.3.15** The Contractor's failure to comply with the requirements of this **Section 7.3** will constitute an irrevocable waiver of the Contractor's Proposal and any related Claim.

#### **7.4 Minor Changes in the Work**

**7.4.1** The A/E may order minor changes in the Work not involving adjustment of the Contract Sum or extension of the Contract Times and not inconsistent with the intent of the Contract Documents. Those changes shall be effected by written order issued to the Contractor.

**7.4.2** The Contractor shall promptly carry out each order for a minor change in the Work if the Contractor agrees that the order does not involve adjustment of the Contract Sum or Contract Times, or both.

**7.4.3** If the Contractor reasonably believes that it would be entitled to an adjustment of the Contract Sum or Contract Times, or both, on account of an order for a minor change in the Work, the Contractor, within five business days after receiving the order, shall give the Contracting Authority and A/E written notice of the Contractor's position, and not proceed with the subject Work without first receiving a Change Directive or Change Order related to it.

**7.4.4** The Contractor waives its right to an adjustment of the Contract Sum or Contract Times on account of an order for a minor change in the Work by:

**7.4.4.1** starting the Work that is the subject of the order for a minor change in the Work; or

**7.4.4.2** failing to give the notice described under **Section 7.4.3** within five business days after receiving the order for a minor change in the Work.

#### **7.5 Proposal Requests and Contractor Proposals**

**7.5.1 Proposal Requests.** The A/E shall prepare and issue a Proposal Request to the Contractor to obtain the Contractor's Proposal for the adjustment of the Contract Sum or Contract Times, or both, associated with a contemplated change in the Work.

**7.5.1.1** The Contractor shall respond with a Proposal to the A/E and Contracting Authority within ten days after receiving the Proposal Request. The allowable time for the Contractor's response may be extended by written agreement of the Contractor and A/E.

**7.5.1.2** If the Contractor does not submit a Proposal within the time required in **Section 7.5.1.1**, the Contractor waives its right to an adjustment of the Contract Sum or Contract Times, or both, associated with the contemplated change in the Work.

**7.5.1.3** A Proposal Request does not authorize the Contractor to proceed with a change in the Work.

#### **7.5.2 Contractor Proposals in General.**

**7.5.2.1** In any Proposal for an adjustment of the Contract Sum, the Contractor shall specifically identify the items set forth in **Section 7.8**. By submitting a Proposal for an adjustment of the Contract Sum, the Contractor represents to the Contracting Authority and Owner that the proposed adjustment is the entire adjustment of the Contract Sum to which the Contractor is entitled on account of the associated change or proposed change in the Work.

**7.5.2.2** In any Proposal for an adjustment of the Contract Times, the Contractor shall specifically identify the items set forth in **Section 7.9**. By submitting a Proposal for an adjustment of the Contract Times, the Contractor represents to the Contracting Authority and Owner that the proposed adjustment is the entire adjustment of the Contract Times to which the Contractor is entitled on account of the associated change or proposed change in the Work.

**7.5.2.3** The Contractor shall hold every Proposal valid and open for acceptance for at least 45 days. The acceptance period may be adjusted by mutual consent of the Contractor and Contracting Authority.

**7.5.2.4** A Proposal may be accepted by the Contracting Authority and Owner only through a Change Order.

**7.5.2.5** The Contractor's cost of preparing and providing Proposals is included in the Contract Sum and shall not be included in any cost or credit determination under the Contract.

**7.5.3 Contractor Proposals Related to Change Requests.** In addition to complying with **Section 7.5.2**, if the Proposal relates to a Change Request, the Contractor shall include in the Proposal the following information to permit timely and appropriate evaluation of the Change Request, determination of responsibility, and opportunity for mitigation:

**7.5.3.1** if applicable, the Contractor's planned actions to mitigate costs and delays by avoiding interference, disruption, hindrance, delay, or impact;

**7.5.3.2** recommended action to mitigate costs and delays by avoiding interference, disruption, hindrance, delay, or impact; and

**7.5.3.3** additional information **(1)** the Contracting Authority requests or **(2)** the Contractor believes is relevant to resolution of the Change Request.

## **7.6 Change Requests**

**7.6.1** The Contractor shall initiate a change in the Work by submitting to the Contracting Authority and A/E a Change Request accompanied by a Proposal meeting the requirements of **Section 7.5** within ten days after the occurrence of the event giving rise to the Change Request.

**7.6.1.1** The parties will endeavor to resolve each Change Request through the Field Meeting described under **Section 7.7**.

**7.6.2** Pending final determination of the total adjustment of the Contract Times on account of a Change Request, to the extent that the Contracting Authority, Owner, and Contractor agree on a portion of the adjustment of the Contract Times, that period of time not in dispute may be included in the Construction Progress Schedule accompanied by a Change Order indicating the parties' agreement with only that portion of the time adjustment.

**7.6.3** Pending final determination of the total adjustment of the Contract Sum on account of a Change Request, to the extent that the Contracting Authority, Owner, and Contractor agree on a portion of the adjustment of the Contract Sum, the amount not in dispute for that change in the Work may be included in a Contractor Payment Request accompanied by a Change Order indicating the parties' agreement with only that portion of the cost adjustments.

**7.6.4** If the Contracting Authority, Owner, and Contractor agree on the adjustments of the Contract Sum and Contract Times associated with a Change Request, the A/E shall prepare an appropriate Change Order. The A/E, Contracting Authority, Owner, and Contractor shall sign the Change Order as described under **Section 7.2**.

**7.6.5** If the Contracting Authority, Owner, and Contractor do not agree on the adjustments of the Contract Sum and Contract Times associated with a Change Request, **(1)** the Contracting Authority may determine the adjustments, if any, of the Contract Sum and Contract Times and issue its determination to the Owner, A/E, and Contractor, and **(2)** the A/E shall prepare a Change Order consistent with that determination and issue it to the Contractor as described under **Section 7.2.3**. If the Contractor does not agree with the Contracting Authority's determination, the Contractor shall initiate a Claim as and when required under **Article 8**.

**7.6.6** The Contracting Authority may at any time reject the Contractor's Change Request and Proposal submitted under **Section 7.6.1**. If the Contractor does not agree with the Contracting Authority's rejection, the Contractor shall initiate a Claim as and when required under **Article 8**.

**7.6.7** If a Change Request or portion of a Change Request remains pending or otherwise unresolved 60 days after the date on which the Change Request was submitted, the Change Request or portion of the Change Request still pending will be deemed rejected by the Contracting Authority. If the Contractor does not agree with the deemed rejection, the Contractor shall initiate a Claim as and when required under **Article 8**.

**7.6.8** The Contractor's failure to comply with the requirements of this **Section 7.6** will constitute an irrevocable waiver of the Change Request and any related Claim.

## **7.7 Field Meeting**

**7.7.1** The Contracting Authority, Owner, and Contractor shall meet to review and endeavor to resolve **(1)** a Change Directive within 14 days after the Contracting Authority and Owner issue it under **Section 7.3.1** and **(2)** a Change Request within seven days after the Contractor initiates it under **Section 7.6.1**.

### **7.7.2** Notwithstanding **Section 7.7.1**:

**7.7.2.1** a Field Meeting is not a condition precedent to the exercise of any right or the performance of any obligation under the Contract;

**7.7.2.2** whether and when a Field Meeting is convened does not alter any right or any obligation under the Contract; and

**7.7.2.3** the Contracting Authority, Owner, and Contractor may convene a Field Meeting at any time to address and attempt to resolve any pending Change Directive, Change Request, or other matter.

## **7.8 Change Order Cost or Credit Determination**

### **7.8.1** General.

**7.8.1.1** The maximum cost or credit resulting from a change in the Work shall be determined as described below.

- .1** Proposals shall include the information required by **Section 7.8.1.4**.
- .2** A Unit Price Proposal shall only be valid when incorporated into the Contract by Change Order except for Unit Price Work included in the Contract.
- .3** The maximum cost or credit includes all compensation for impact costs. Additional costs for impacts shall not be allowed.

**7.8.1.2** The Contractor shall not assign any portion of the Work to another Person whereby the Contractor would benefit directly or indirectly from the double application of charges for overhead or profit.

***Example:*** Assume that **(1)** the Contractor is or is capable of self-performing general trades Work and **(2)** the change in the Work includes both electrical trade Work and general trades Work. The Contractor may not assign the general trades Work to the Contractor's electrical Subcontractor and then perform that general trades Work as a sub-subcontractor to the Contractor's electrical Subcontractor.

**7.8.1.3** The Contracting Authority may require notarized invoices for material costs and may audit the records of the Contractor and Subcontractors.

**7.8.1.4** For each change in the Work, the Contractor shall furnish a detailed Proposal itemized on the **Proposal Worksheet Summary Form (Contractor)** published by the Ohio Facilities Construction Commission through which the Contractor shall document the related changes in the Contract Sum as described under **Section 7.8.2**. Any Subcontractor pricing shall be itemized on the appropriate **Proposal Worksheet Summary Form**.

- .1** The Contractor's cost of preparing and providing Proposals is included in the Contract Sum and shall not be included in any cost or credit determination under the Contract.

**7.8.1.5** **Section 7.8.2** establishes the exclusive and maximum amount that the Owner shall pay for any change in the Work, including, but not limited to, all amounts for interference with, delay, hindrance, disruption of, or impact on the Work ("Pricing Criteria"). These Pricing Criteria also govern the value of deduct Change Orders and the Contractor's entitlement to additional compensation or damages through the Change Directive, Change Request, Claims, and dispute resolution processes on account of changes in the Work. In order to expedite the review and approval process, Proposals shall be prepared in the categories and order listed in **Section 7.8.2**.

### **7.8.2** Pricing Criteria.

**7.8.2.1** Contractor Personnel Costs. Any cost or credit arising from a change in the quantity of the Contractor's on-site management (including supervision and administrative personnel) not subject to prevailing wage under ORC Chapter 4115 shall be calculated on an hourly basis according to the rates acceptable to the Contracting Authority.

- .1** In no event will the Contractor be entitled to an increase in the Contract Sum on account of Contractor Personnel Costs unless the Contractor actually incurs additional Contractor Personnel Costs solely on account of the associated change in the Work.
- .2** Under no conditions will the increase under this **Section 7.8.2.1** exceed those additional Contractor Personnel Costs the Contractor actually incurs.

**7.8.2.2 Labor.** Any cost or credit arising from a change in the quantity of field labor directly involved in the Work shall be based upon the actual rate of pay to the worker. If the Project is subject to payment of prevailing wage rates, field labor shall be paid according to the relevant classification of labor as established in the applicable prevailing wage determination for the Project locality, as determined by the Ohio Department of Commerce, Wage and Hour Bureau.

- .1 In no event will the Contractor be entitled to an increase in the Contract Sum on account of labor costs unless the Contractor actually incurs additional labor costs solely on account of the associated change in the Work.
- .2 Under no conditions will the increase under this **Section 7.8.2.2** exceed those additional labor costs the Contractor actually incurs.
- .3 The cost for supervision above the level of working forepersons (such as general forepersons, superintendent, project manager, etc.) is included in the adjustment under **Section 7.8.2.1** for the Contractor and under **Section 7.8.2.10** for Subcontractors.

**7.8.2.3 Fringes.** Fringe benefit credit for labor provided under **Section 7.8.2.2** is only allowable for prevailing wage fringe benefits pursuant to ORC Chapter 4115, including, but not limited to, Health and Welfare, vacation, apprenticeship training, and certain types of pension plans. The parties shall defer to the Ohio Department of Commerce's policy on which benefits are granted fringe benefit credit. Each fringe benefit for which credit is requested shall be calculated on an hourly basis and listed as a separate line item. The Contractor shall submit documentation supporting the calculation of the amounts for each fringe benefit for each worker classification, including labor provided by Subcontractors.

**7.8.2.4 Allowable Payroll Expenses.** Allowable payroll expenses for labor provided under **Section 7.8.2.2** including payroll taxes as well as other benefits that are required by Applicable Law, such as federal and state unemployment and workers' compensation shall each be a separate line item and shall not be credited for compliance with ORC Chapter 4115.

**7.8.2.5 Equipment Rentals.** Any cost or credit arising from a change in the quantity of non-owned heavy or specialized equipment shall be based on the documented rental cost, but shall not exceed 100 percent of that documented cost. No rental charges shall be allowed for hand tools, minor equipment, simple scaffolds, etc. Downtime due to repairs, maintenance, and weather delays shall not be allowed. The Contractor shall submit copies of actual paid invoices to substantiate rental costs.

**7.8.2.6 Owned Equipment.** Any cost or credit arising from a change in the quantity of heavy or specialized equipment owned by the Contractor or Subcontractor performing the Work shall be based on the cost listed by the current edition of the Associated Equipment Distributors' *AED Blue Book* heavy equipment rental rates, but shall not exceed 100 percent of that documented cost. No recovery shall be allowed for hand tools, minor equipment, simple scaffolds, etc. The longest period of time that the equipment is to be required for the Work shall be the basis for the pricing. Downtime due to repairs, maintenance, and weather delays shall not be allowed.

**7.8.2.7 Trucking.** Any cost or credit arising from a change in the quantity of trucking shall be based on a reasonable delivery charge or per-mile trucking charge for delivery of required materials or equipment. Charges for use of a pick-up truck shall not be allowed.

**7.8.2.8 Materials.** Any cost or credit arising from a change in the quantity of materials incorporated into the changed Work shall be based on the actual cost (including all discounts, rebates, or related credits) of those materials. Documentation shall show costs, quantities, or Unit Prices of all items, as appropriate.

- .1 The cost or credit for reusable materials (e.g., concrete form lumber, shoring, or temporary enclosures) shall be limited to 33 percent of the material cost for each use.

**7.8.2.9 Contractor's General Conditions Costs.** Any cost or credit arising from a change in the quantity of the Contractor's General Conditions Costs shall be limited to the extent to which the change is attributable to an associated change in the Contract Time for achievement of Substantial Completion resulting from the change in the Work.

- .1 In no event shall the Contract Sum adjustment per day of Contract Time adjustment exceed an amount equal to (1) the sum of the General Conditions Costs line items in the Contractor's Schedule of Values approved by the Contracting Authority, (2) divided by the total number of days of the original Contract Time for achievement of Substantial Completion.
- .2 The Contractor shall (1) exclude the Bond premium from the Schedule of Values for the purposes of the calculation under **Section 7.8.2.9.1**, and (2) include the actual adjustment of the Bond premium attributable to an associated change in the Contract Sum.

- .3 If the Contractor purchases the builder's risk insurance for the Project, the Contractor shall (1) exclude the builder's risk insurance premium from the Schedule of Values for the purposes of the calculation under **Section 7.8.2.9.1**, and (2) include the actual adjustment of the builder's risk insurance premium attributable to an associated change in the Contract Sum.

**7.8.2.10 Subcontractor Overhead and Profit.** Any cost or credit arising from a change in Subcontractor-performed Work shall include the Subcontractor's aggregate overhead and profit allowance equal to 15 percent of the sum of the Subcontractor's costs described under **Sections 7.8.2.2** through **7.8.2.8** that are associated with that changed Work.

- .1 The allowance applies to each Subcontractor tier. The Contractor is not entitled to recover overhead and profit under **Section 7.8.2.10** on account of changes in Contractor self-performed Work or Work the Contractor performs as a Subcontractor at any tier.

**Example:** Assume that (1) the Contractor is self-performing general trades Work and (2) the change in the Work includes both \$25,000 of electrical trade Work and \$10,000 of general trades Work. Under this **Section 7.8.2.10**, (1) the Contractor's Subcontractor would be entitled to overhead and profit mark-up but (2) the Contractor would not be entitled to any mark-up. Under **Section 7.8.2.11**, the Contractor would be entitled to Contractor's Fee mark-up on its self-performed Work and on the electrical Work. The amount of the Change Order would be calculated as follows: Subcontractor Change Order = \$25,000 + (\$25,000 x 15%) = \$28,750; Contractor Change Order = \$10,000 + \$28,750 + ((\$10,000 + \$28,750) x 10%) = \$42,625.

- .2 The allowance covers Subcontractor general conditions costs, home office overhead, and profit including, but not limited to: payroll costs, the costs required to schedule and coordinate the Work, telephone, telephone charges, facsimile, telegrams, postage, photos, photocopying, hand tools, simple scaffolds (one level high), tool breakage, tool repairs, tool replacement, tool blades, tool bits, home office estimating and expediting, home office clerical and accounting support, home office labor (management, supervision, engineering), all costs related to Subcontractor-provided insurance, all other home office expense, legal services, travel, and parking expenses.
- .3 An exception is allowed for shop or engineering labor on items in **Section 7.8.2.10.2**, which shall not be subject to Prevailing Wage rates for steel fabricators, sheet metal fabricators, and sprinkler system fabricators performing work off Site. Recovery for these matters shall be allowed on an hourly basis under items in **Sections 7.8.2.2**, **7.8.2.3**, and **7.8.2.4** of these Pricing Criteria.
- .4 An exception is allowed for field supervision labor on items in **Section 7.8.2.10.2**, for those portions of the Change Order Work that will be performed, or was performed, at times when the superintendent is not required to be on Site under **Section 6.4**, including but not limited to overtime hours due to acceleration and extensions of the Contract Times. Recovery for this matter will be allowed on an hourly basis under items in **Sections 7.8.2.2**, **7.8.2.3**, and **7.8.2.4** of these Pricing Criteria.

**7.8.2.11 Contractor's Fee.** Any cost or credit arising from a change in the Work shall include an allowance for the Contractor's Fee equal to (1) ten percent times (2) the sum of the costs described under **Sections 7.8.2.1** through **7.8.2.10** that are associated with that changed Work.

**7.8.2.12 Miscellaneous.** Any cost or credit arising from a change in Work may include the following costs with no allowance for Contractor's Fee under **Section 7.8.2.11** or Subcontractor overhead and profit under **Section 7.8.2.10**.

- .1 The premium portion only for approved overtime (labor and fringes). The straight time portion is included in items in **Sections 7.8.2.2**, **7.8.2.3**, and **7.8.2.4**.
- .2 State sales tax shall be allowed on items as defined by **Section 12.7**.

**7.8.3** Costs that shall not be reimbursed for changes in the Work include the following:

**7.8.3.1** Voluntary employee deductions including, but not limited to, deductions for charitable donations or U.S. savings bonds.

**7.8.3.2** Employee profit sharing.

## 7.9 Time Extension

**7.9.1** Every adjustment of the Contract Times associated with any change in the Work shall be determined as provided in this **Section 7.9**, which establishes the Contractor's maximum entitlement for any change in the Work, including without limitation all adjustments for interference, delay, hindrance, disruption of, or impact on the Work. This **Section 7.9** also governs time adjustments for deduct Change Orders and the Contractor's entitlement to additional time through the Change Directive, Change Request, Claims, and dispute resolution processes on account of changes in the Work.

**7.9.2** The Contractor shall substantiate all changes in the Contract Times with:

- 7.9.2.1** a written description of the nature of the interference, disruption, hindrance, or delay;
- 7.9.2.2** identification of Persons and events responsible for the interference, disruption, hindrance, or delay;
- 7.9.2.3** date or anticipated date of commencement of the interference, disruption, hindrance, or delay;
- 7.9.2.4** identification of activities by schedule activity number and name on the Construction Progress Schedule, which may be affected by the interference, disruption, hindrance, or delay, or new activities created by the interference, disruption, hindrance, or delay and the relationship with existing activities;
- 7.9.2.5** anticipated duration of the interference, disruption, hindrance, or delay and of any remobilization period;
- 7.9.2.6** specific number of days of extension requested and specific number of days for remobilization requested;
- 7.9.2.7** recommended action to avoid or minimize any future interference, disruption, hindrance, or delay; and
- 7.9.2.8** If the Contracting Authority requests, a Proposal as described under **Section 7.8** for an increase in the Contract Sum which would fully compensate the Contractor for all costs of acceleration of the Work needed to completely overcome the associated delay, if any.

**7.9.3** If the Contracting Authority requests, in addition to the requirements under **Section 7.9.2**, the Contractor shall also substantiate changes in the Contract Times with a prospective time-impact analysis (in native format), which illustrates the influence of each change on all affected Milestones and all affected activities. The Contractor shall submit the time-impact analysis within 30 days after the Contracting Authority requests, unless the Contracting Authority and Contractor agree otherwise.

**7.9.3.1** The Contractor shall prepare the time-impact analysis consistent with a currently published, recognized standard for construction schedule analysis.

**7.9.3.2** The Contractor shall prepare the time-impact analysis on the basis of **(1)** the last Construction Progress Schedule the Contracting Authority approved before the first day of the delay which is the subject of the analysis or **(2)** an interim update of the Construction Progress Schedule if the Contracting Authority determines that the period between the last approved Construction Progress Schedule and first day of the delay which is the subject of the analysis is too long.

**7.9.3.3** The time-impact analysis shall include a fragmentary network analysis (fragnet), which **(1)** illustrates the sequence of new activities, activity revisions, or both, that the Contractor proposes to add to the Construction Progress Schedule upon which the time-impact analysis is based and **(2)** mathematically and graphically demonstrates the influence and proper measurement of the delay and how the Contractor proposes to incorporate that delay into the Construction Progress Schedule.

**7.9.3.4** The time-impact analysis shall include a written narrative of the analysis.

**7.9.4 Critical Path.** Time extensions shall depend upon the extent to which the Work on the critical path of the Construction Progress Schedule is affected, if applicable.

**7.9.4.1** A Change Order granting a time extension may provide that the Contract Times shall be extended for only those specific elements so interfered with, disrupted, hindered, or delayed and related remobilization and that remaining Milestone dates shall not be altered and may further provide for adjustment of Liquidated Damages.

## **7.10 Weather Delays**

**7.10.1** The parties expect adverse weather to delay the Work to some extent, and have included in the Contract Times a certain number of Work Days lost on account of adverse weather as follows:

| <b>Month</b> | <b>Expected Number of Work Days<br/>Lost Due to Weather</b> |
|--------------|-------------------------------------------------------------|
| January      | 8                                                           |
| February     | 8                                                           |
| March        | 7                                                           |
| April        | 6                                                           |
| May          | 5                                                           |
| June         | 5                                                           |
| July         | 4                                                           |
| August       | 4                                                           |

|           |   |
|-----------|---|
| September | 5 |
| October   | 6 |
| November  | 6 |
| December  | 6 |

**7.10.2** The Contractor will not be entitled to an extension of the Contract Times on account of adverse weather unless the actual number of Work Days lost due to adverse weather in a particular calendar month exceed the expected number of Work Days lost in that calendar month due to adverse weather. The Contractor shall reconcile lost Work Days with the A/E on a weekly basis.

**7.10.3** A Work Day will be “lost” if adverse weather reduces the Contractor’s efficiency on the Work on the critical path that Work Day to less than 50%. The Contractor shall substantiate its claim that its efficiency on the Work on the critical path that Work Day was less than 50%.

**7.10.4** If the Contractor reasonably believes that it is entitled to an extension of the Contract Times on account of Work Days lost due to adverse weather in a particular month, the Contractor shall initiate a Change Request **(1)** as required under **Section 7.6**, and **(2)** within the time period required under **Section 7.6** which begins to run on the last calendar day of that month.

## **7.11 Examination and Audit of Contractor’s Records**

**7.11.1** The Contracting Authority and Owner may examine all books, records, documents and other data of the Contractor and its Subcontractors related to the bidding, pricing, or performance of the Work for the purpose of evaluating any Contractor Payment Request, Proposal, Modification, or Claim.

**7.11.2** The above referenced materials shall be made available at the office of the Contractor or Subcontractor, as applicable, at all reasonable times for inspection, audit, and reproduction until the expiration of ten years after the date of Substantial Completion of all Work.

**7.11.2.1** The Contractor shall maintain and require its Subcontractors to maintain complete and accurate business records at its principal place of business. If the principal place of business is greater than 50 miles from the Site, the Contractor shall timely make records available, and shall require its Subcontractors to timely make records available, at the office of the Contracting Authority or Owner upon request for the records.

**7.11.3** To the extent that the Contractor or Subcontractor, as applicable, informs the Contracting Authority or Owner in writing that any documents provided to the Contracting Authority or Owner are trade secrets, the Contracting Authority or Owner shall treat those documents, to the extent permitted by Applicable Law, as trade secrets of the Contractor or Subcontractor, as applicable.

**7.11.3.1** If a dispute arises with any other Person about whether that Person should be given access to the documents, the Contractor or Subcontractor as applicable, shall indemnify the Contracting Authority and Owner against all costs, expenses, and damages, including but not limited to attorneys’ fees, incurred or paid by reason of that dispute.

**7.11.4** The right of inspection, audit, and reproduction extends to all documents necessary to permit adequate evaluation of the cost of pricing data submitted along with the computations and projections used therein.

**7.11.5** If the Contract has been terminated in whole or in part, the records relating to the Work terminated shall be made available to the Contracting Authority or Owner for a period of ten years from the date of any applicable final settlement or payment, as applicable.

**7.11.6** Records that relate to disputes, litigation, or settlement of Claims arising out of the performance of the Work shall be made available until the dispute, litigation or Claims have been finally decided or settled.

## **ARTICLE 8 - DISPUTE RESOLUTION**

### **8.1 Initiation of a Claim**

**8.1.1** Every Claim shall accrue upon the date of occurrence of the event giving rise to the Claim.

**8.1.2** The Contractor shall initiate every Claim by giving written notice of the Claim to the A/E and Contracting Authority within ten days after occurrence of the event giving rise to the Claim, including:

**8.1.2.1** with regard to a Change Directive, the ten-day time limit on initiating a Claim begins to run on the earlier of the date that **(1)** the Contracting Authority issues its determination under **Sections 7.3.8** or **7.3.12**; **(2)** the A/E issues



a Change Order to the Contractor under **Sections 7.3.8 or 7.3.12**; (3) the Contracting Authority rejects the Contractor's Proposal in whole or in part under **Section 7.3.13**; or (4) the Contracting Authority is deemed to have rejected the Contractor's Proposal in whole or in part under **Section 7.3.14**; and

**8.1.2.2** with regard to a Change Request, the ten-day time limit on initiating a Claim begins to run on the earlier of the date that (1) the Contracting Authority issues its determination under **Section 7.6.5**; (2) the A/E issues a Change Order to the Contractor under **Section 7.6.5**; (3) the Contracting Authority rejects the Contractor's Proposal in whole or in part under **Section 7.6.6**; or (4) the Contracting Authority is deemed to have rejected the Change Request in whole or in part under **Section 7.6.7**.

**8.1.3** The Contractor's written notice of a Claim shall provide the following information to permit timely and appropriate evaluation of the Claim, determination of responsibility, and opportunity for mitigation:

**8.1.3.1** nature and anticipated amount of the impact, including all costs for any interference, disruption, hindrance, or delay, which shall be calculated in accordance with **Section 7.8** and be a fair and reasonably accurate assessment of the damages suffered or anticipated by the Contractor;

**8.1.3.2** identification of the circumstances responsible for causing the impact, including, but not limited to, the date or anticipated date, of the commencement of any interference, disruption, hindrance, or delay;

**8.1.3.3** identification of activities on the Construction Progress Schedule that will be affected by the impact or new activities that may be created and the relationship with existing activities;

**8.1.3.4** anticipated impacts and anticipated duration of any interference, disruption, hindrance, delay, or impact, and any remobilization period;

**8.1.3.5** the Contractor's completed and planned actions to mitigate damages by avoiding interference, disruption, hindrance, delay, or impact; and

**8.1.3.6** recommended action to avoid or minimize any interference, disruption, hindrance, delay, or impact.

**8.1.4** The Contractor's failure to initiate a Claim as and when required under this **Section 8.1** will constitute the Contractor's irrevocable waiver of the Claim.

## **8.2 Substantiation of Claims – General Requirements**

**8.2.1** Within 30 days after the initiation of a Claim, the Contractor shall submit three copies of all information and statements required to substantiate a Claim as provided in this **Article 8** and all other information that the Contractor believes substantiates the Claim. The Contractor shall file the three copies by delivering one copy to the A/E, one copy to the Owner, and one copy to the Contracting Authority.

**8.2.2** The Contractor shall substantiate all of its Claims by providing the following minimum information:

**8.2.2.1** a narrative of the circumstances, which gave rise to the Claim, including without limitation the start date of the event or events and the actual or anticipated finish date;

**8.2.2.2** detailed identification of the Work (e.g., activity codes from the Construction Progress Schedule) affected by the event giving rise to the Claim;

**8.2.2.3** copies of the Contractor's daily log (**Section 6.2.14**) for each day of impact;

**8.2.2.4** copies of relevant correspondence and other information regarding or supporting Contractor entitlement;

**8.2.2.5** copies of the Contractor's most-recent income statement and complete and detailed job-cost report, including segregated general and administrative expenses for the most-recent reporting period, and for the period of the Contract, if available, and similar information for any Subcontractor claim included; and

**8.2.2.6** the notarized certification described under **Section 8.5.1.1**.

**8.2.3** The Contractor's failure to comply with the requirements of this **Section 8.2** will constitute an irrevocable waiver of any related Claim.

## **8.3 Substantiation of Claims – Increase of the Contract Sum**

**8.3.1** The Contractor shall substantiate each Claim for an increase of the Contract Sum with:

**8.3.1.1** written documentation as described under **Section 7.8** of the actual additional costs to the Contractor due to the event giving rise to the Claim; and

**8.3.1.2** the general substantiation documentation described under **Section 8.2**.

**8.3.2** The Contractor's failure to comply with the requirements of this **Section 8.3** will constitute an irrevocable waiver of any related Claim.

#### **8.4 Substantiation of Claims – Extension of the Contract Times**

**8.4.1** The Contractor shall substantiate each Claim for an extension of the Contract Times with:

**8.4.1.1** written documentation as described under **Section 7.9** of the actual delay to the critical path of the Construction Progress Schedule due to the event giving rise to the Claim;

**8.4.1.2** a Proposal as described under **Section 7.8** for an increase in the Contract Sum that would fully compensate the Contractor for all costs of acceleration of the Work needed to completely overcome the associated delay together with a statement consistent with **Section 8.3.1.1**; and

**8.4.1.3** the general substantiating documentation described under **Section 8.2**.

**8.4.2** The Contractor's failure to comply with the requirements of this **Section 8.4** will constitute an irrevocable waiver of any related Claim.

#### **8.5 Certification of the Claim**

**8.5.1** The Contractor shall certify each Claim within 30 days after initiating the Claim under **Section 8.1** by providing the notarized certification specified in **Section 8.5.1.1**, signed and dated by the Contractor:

**8.5.1.1** "The undersigned Contractor certifies that the Claim is made in good faith; that the supporting data is accurate and complete to the best of the Contractor's knowledge and belief; that the amount of money, time, or both requested is a fair, reasonable, and necessary adjustment; that the amount of money, time, or both requested is the entire amount of money, time, or both to which the Contractor is entitled on account of the Claim; and that the undersigned is duly authorized to certify the Claim on behalf of the Contractor."

**8.5.2** The date that the Contractor's certified and fully substantiated Claim is received by the Contracting Authority, or the date that the Contractor is required to certify and fully substantiate a Claim pursuant to **Sections 8.2.1** and **8.5.1**, shall trigger the 120-day period for exhaustion of administrative remedies pursuant to ORC Section 153.16(B).

**8.5.3** The Contractor's failure to comply with the requirements of this **Section 8.5** will constitute an irrevocable waiver of any related Claim.

#### **8.6 Delay and Delay Damage Limitations; Derivative Claims**

**8.6.1** Subject to other provisions of the Contract, the Contractor will be entitled only to an extension of the Contract Times on account of delay in the commencement or progress of Work on the critical path of the Construction Progress Schedule caused by acts of Nature or the public enemy, acts of the government not arising from the Contractor's failure to comply with Applicable Law, fires, floods, epidemics, weather, and labor disputes beyond the Contractor's control.

**8.6.2** Notwithstanding any other provision of the Contract Documents to the contrary, the Contractor shall not be entitled to an increase in the Contract Sum, or an extension of the Contract Times, or both:

**8.6.2.1** on account of the impact of any normal adverse weather on any of the Work or on account of the impact of any abnormal adverse weather as indicated under **Section 7.10** on Work not on the critical path;

**8.6.2.2** to the extent that a delay occurs concurrently with a delay attributable to the Contractor; or

**8.6.2.3** on account of the delay of any Work not on the critical path.

**8.6.3** Notwithstanding any other provision of the Contract Documents to the contrary, the Contractor shall not be entitled to an increase in the Contract Sum or any type of damages on account of a delay in the commencement or progress of Work on the critical path unless **(1)** the delay is caused by the Owner and **(2)** the delay was not authorized or permitted under the Contract.

**8.6.4** Notwithstanding any other provision of the Contract Documents to the contrary, the Contractor shall not be entitled to an increase in the Contract Sum or any type of damages arising from a delay in the commencement or progress of any of the Work caused by the occurrence or non-occurrence of an event beyond the Owner's control such as acts of Nature or the public enemy, acts of the government, fires, floods, epidemics, labor disputes, unusual delivery delays, weather, or damages caused by the Contractor.

**8.6.5** Derivative Claims. Notwithstanding any other provision of the Contract to the contrary, if the Owner prosecutes a claim, suit, or appeal against a Separate Consultant or Separate Contractor to recover damages the Contractor suffers on account of the acts or neglects of a Separate Consultant or Separate Contractor or a person or entity for whom either is

legally responsible, the Owner's liability to the Contractor shall not exceed the amount the Owner actually recovers from the Separate Consultant or Separate Contractor on account of those damages less the costs the Owner incurs recovering them. The Owner is not obligated to prosecute any such claim, suit, or appeal.

## 8.7 Liquidated Damages

**8.7.1** If the Contractor fails to achieve a Milestone within the associated Contract Time, it would be difficult, if not impossible, to determine the Owner's resulting damages. Therefore, if the Contractor fails to achieve a Milestone within the associated Contract Time, the Contractor shall (at the Owner's option) pay to or credit the Owner the Liquidated Damages per day sum determined according to the following schedule for each day that the Contractor fails to achieve a Milestone within the associated Contract Time. If the Project involves more than one Phase as explicitly identified in the Agreement, the Contract Sum in the below schedule refers to the total Contract Sum for each of the Phases individually as opposed to the aggregate Contract Sum for all Phases.

| Contract Sum                         | Liquidated Damages per day for Milestones other than the Punch List Milestone | Liquidated Damages per day for the Punch List Milestone |
|--------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------|
| Less than \$1,000,000                | \$500                                                                         | \$125                                                   |
| From \$1,000,000.01 to \$2,000,000   | \$1,000                                                                       | \$250                                                   |
| From \$2,000,000.01 to \$5,000,000   | \$2,000                                                                       | \$500                                                   |
| From \$5,000,000.01 to \$10,000,000  | \$5,000                                                                       | \$1,250                                                 |
| From \$10,000,000.01 to \$20,000,000 | \$7,500                                                                       | \$1,875                                                 |
| From \$20,000,000.01 to \$50,000,000 | \$10,000                                                                      | \$2,500                                                 |
| More than \$50,000,000               | \$15,000                                                                      | \$3,750                                                 |

**8.7.2** The Liquidated Damages described in this **Section 8.7** are only intended to compensate the Owner for the damages it incurs as a direct result of the Contractor's failure to achieve the Milestones within their associated Contract Times.

**8.7.3** The Liquidated Damages described in this **Section 8.7** are not intended to compensate the Owner for any damages the Owner incurs on account of **(1)** any claims attributable to the Contractor that are brought by others including Separate Consultants and Separate Contractors as a result of the Contractor's failure to achieve the Milestones within their associated Contract Times or **(2)** any failure of the Contractor to timely, properly, and completely perform the Contract other than the failure to achieve the Milestones within their associated Contract Times.

**8.7.4** The parties acknowledge that the above-listed Liquidated Damages per day sums are not penalties but are a reasonable estimate of the damages the Owner itself would incur as a direct result of the Contractor's failure to achieve the Milestones within their associated Contract Times. The parties each irrevocably waive the right (if any) to challenge the validity and enforceability of those Liquidated Damages per day sums. Notwithstanding any other provision of the Contract Documents to the contrary, if a court determines that the Liquidated Damages per day sums or their application are void and unenforceable, the Owner shall be entitled to recover the actual damages that it incurs on account of the Contractor's failure to achieve one or more of the Milestones within the Contract Times.

**8.7.5** In addition to other rights that the Owner may have relative to the Liquidated Damages, the Contracting Authority may deduct Liquidated Damages from the Contract Sum as the damages accrue. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall immediately pay the amount of the insufficiency to the Owner.

## 8.8 Mutual Waiver of Consequential Damages

**8.8.1** Except as provided under **Section 8.8.2**, the Owner and Contractor each waive against the other all Claims for consequential damages that may arise out of or relate to this Contract.

**8.8.1.1** The Owner's waiver includes Claims for loss of use, income, profit, revenue, financing, cost of capital, business and reputation, management and employee productivity, and consequential damages arising from termination of the Contract or related to insolvency.

**8.8.1.2** The Contractor's waiver includes Claims for unabsorbed home-office overhead; any other form of overhead in excess of that specifically provided for under **Section 7.8**; delay damages except as otherwise specifically provided for in **Section 8.6**; increased cost of funds for the Project; lost opportunity to work on other projects; losses of financing, business, and reputation; loss of profit except anticipated profit arising directly from properly performed Work; loss of bonding capacity; and consequential damages arising from termination of the Contract or related to insolvency.

**8.8.2** Notwithstanding **Section 8.8.1**, this **Section 8.8**:

**8.8.2.1** does not apply to any damages that would be covered by insurance provided in connection with the Project if the Contract did not include **Section 8.8.1**;

**8.8.2.2** does not apply to the Contractor's indemnity obligations for third-party claims against the Indemnified Parties even if those claims are for damages that **Section 8.8.1** would otherwise preclude;

**8.8.2.3** does not preclude the Owner's recovery of Liquidated Damages under **Section 8.7**; and

**8.8.2.4** does not apply to Claims for damages arising from the Owner's or the Contractor's gross negligence or willful misconduct.

**8.8.3** This **Section 8.8** shall survive termination of the Contract.**8.9 Review of the Claim****8.9.1** The A/E shall review the Claim and prepare a written analysis of its content, which shall include:

**8.9.1.1** a narrative of the A/E's examination of the facts giving rise to the Claim;

**8.9.1.2** identification of relevant Contract Documents and language;

**8.9.1.3** an analysis of whether the Contractor complied with the requirements of the Contract Documents pertaining to Claim initiation and substantiation including, without limitation, the issues of entitlement to, and calculation of, adjustments of the Contract Sum, Contract Times, or both;

**8.9.1.4** an analysis of claimed additional labor, materials, and equipment for the scope of the Work items described;

**8.9.1.5** an analysis of any time extension for any interference, disruption, hindrance, impact, or delay claimed (to include the calculation of any concurrent delays affecting entitlement);

**8.9.1.6** a concluding opinion regarding Contractor entitlement to, and the appropriateness and reasonableness of all, or any part of, the Claim; and

**8.9.1.7** an appendix containing copies of contemporaneous documentation supporting the concluding opinion.

**8.9.2** The A/E shall submit the written analysis to the Project Manager no more than 30 days after receiving the Contractor's substantiated and certified Claim.

**8.10 Claim Decision**

**8.10.1** The Project Manager shall examine the Contractor's Claim and A/E's analysis.

**8.10.2** The Project Manager shall approve or deny all, or any part, of the Contractor's Claim and forward a written decision to the Contractor, A/E, Owner, and Contracting Authority within 14 days after receiving the A/E's analysis. The Project Manager may employ independent resources to assist in its review, or refer evaluation of the Claim to a consultant.

**8.10.3** If the Contractor and Owner agree with the Project Manager's decision, the decision shall be incorporated into a Change Order.

**8.10.4** Any Claim remaining unresolved after completion of the process described under this **Section 8.10** shall be subject to Claim decision review as described under **Section 8.11**.

**8.11 Claim Decision Review**

**8.11.1** The Contractor may request review of the Project Manager's decision by written notice delivered by certified mail within 14 days after the Project Manager's decision.

**8.11.1.1** If the Project is administered by the Commission, jointly administered by the Commission and a public school district, or locally administered by authority granted to an agency of the state of Ohio by the Commission, the written notice shall be delivered to the Executive Director of the Commission.

**8.11.1.2** If the Project is locally administered by an Institution of Higher Education under ORC Section 3345.50 or ORC Section 3345.51, the written notice shall be delivered to the Institutional Designee who will review the Project Manager's decision instead of the Commission.

**8.11.2** The Commission or Institutional Designee, as applicable, shall schedule and conduct a meeting within 30 days after receiving the Contractor's request for review. The Commission or Institutional Designee may employ independent resources to assist in the meeting and review.

**8.11.3** The Commission or Institutional Designee, as applicable, shall determine the final disposition of the Contractor's request for review and provide a written decision to the Contractor and Owner within 14 days after the meeting.

**8.11.4** The decision of the Commission or Institutional Designee is the final administrative decision of the Contracting Authority as described under ORC Section 153.12(B).

**8.11.5** If the Contractor and Owner agree with the Commission's or the Institutional Designee's decision, the decision shall be incorporated into a Change Order.

**8.11.6** Any Claim remaining unresolved after completion of the process described under this **Section 8.11** shall be subject to litigation, which may be preceded by Alternative Dispute Resolution ("ADR") as described under **Section 8.13**.

## **8.12 Delegation**

**8.12.1** No provision of this **Article 8** shall prevent the Executive Director from delegating the duties or authorities of the Commission to any other person selected at the Executive Director's sole discretion.

## **8.13 Alternative Dispute Resolution**

**8.13.1** At any point in the Claims and dispute-resolution processes, the Project's key stakeholders may agree to enter into non-binding ADR including progressive negotiation, dispute review board, mediation, or another non-binding ADR procedure accepted by all of the Project's key stakeholders.

## **8.14 Audit of the Claim**

**8.14.1** All Claims shall be subject to audit at any time following filing of the Claim, whether or not the Claim is part of a lawsuit.

**8.14.2** The audit may be performed by employees of the Contracting Authority or by a consultant engaged by the Contracting Authority.

**8.14.3** The audit may begin upon ten-days' notice to the Contractor or affected Subcontractor.

**8.14.4** The Contractor shall cooperate with the request.

**8.14.5** Failure of the Contractor or Subcontractor to produce sufficient records to allow the Contracting Authority to audit and verify a Claim will constitute an irrevocable waiver of the Claim or portion of the Claim that could not be completely audited.

**8.14.6** The Contractor shall make available to the Contracting Authority all Contractor and Subcontractor documents related to the Claim including, without limitation, the following documents:

**8.14.6.1** daily time sheets and superintendent's daily reports;

**8.14.6.2** union agreements, if any, and employer agreements;

**8.14.6.3** insurance, welfare, fringes, and benefits records;

**8.14.6.4** payroll register;

**8.14.6.5** earnings records;

**8.14.6.6** payroll tax returns;

**8.14.6.7** material invoices, purchase orders, Subcontracts, and all material and supply acquisition contracts;

**8.14.6.8** material cost distribution worksheets;

**8.14.6.9** equipment records (list of Contractor equipment, rates, etc.);

**8.14.6.10** vendor rental agreements and Subcontractor invoices;

**8.14.6.11** Subcontractor payment certificates;

**8.14.6.12** canceled checks (payroll and vendors);

**8.14.6.13** complete and detailed job-cost report;

**8.14.6.14** job payroll ledger;

**8.14.6.15** general ledger, general journal (if used), and all subsidiary ledgers and journals together with all supporting documentation pertinent to entries made in those ledgers and journals;

**8.14.6.16** cash disbursements journal;

**8.14.6.17** financial statements for all years reflecting operations on the Project;

**8.14.6.18** income tax returns for all years reflecting operations on the Project;

**8.14.6.19** depreciation records on all equipment utilized whether the records are maintained by the Contractor, its accountant, or others;

**8.14.6.20** if a source other than depreciation records is used to develop costs for the Contractor's internal purposes in establishing the actual cost of owning and operating equipment, all other source documents;

**8.14.6.21** all documents that reflect the Contractor's actual profit and overhead during the years the Project was being performed;

**8.14.6.22** all documents related to the preparation of the Contractor's Bid(s), including the final calculations on which the Bid was based, unless the documents are placed in escrow under provisions of the Instructions to Bidders;

**8.14.6.23** all documents that relate to the Claim together with all documents that support the amount of damages as to the Claim;

**8.14.6.24** worksheets used to prepare the Claim establishing the cost components for items of the Claim including, but not limited to, labor, fringes, benefits and insurance, materials, equipment, Subcontractors, and all documents that establish the periods of time, individuals involved, the hours and rate of pay for the individuals; and

**8.14.6.25** all other documents required by the Contracting Authority to reasonably review the Claim.

### **8.15 False Certification of the Claim**

**8.15.1** If the Contractor falsely certifies all or any part of a Claim, the portion of the Claim falsely certified shall be denied, and may be sufficient cause for the State to debar the Contractor from future State contracting opportunities as permitted by Applicable Law.

### **8.16 Performance and Payment**

**8.16.1** The Contractor shall proceed with the Work during any dispute resolution process, unless otherwise agreed by the Contractor and Contracting Authority in writing.

**8.16.2** The Contracting Authority shall continue to make payment of any undisputed amounts in accordance with the Contract Documents pending final resolution of a Claim, unless otherwise agreed by the Contractor and Contracting Authority in writing.

## **ARTICLE 9 - COMPENSATION AND PAYMENT**

### **9.1 Allowances**

**9.1.1** The Contract Sum includes the Allowances (if any) identified in the Contract.

**9.1.2** Unless otherwise explicitly stated in the Agreement, Allowance amounts cover all compensation to which the Contractor would be entitled for completing the associated Work, including without limitation the cost to the Contractor (less any applicable trade discounts) of materials and equipment required by the Allowances delivered, unloaded, handled, and installed at the Site; all associated labor costs of every kind; all applicable taxes; and the Contractor's Fee.

**9.1.3** Before final payment, an appropriate Change Order will be issued to reconcile the Contract Sum so that it reflects actual amounts due to the Contractor on account of Work covered by Allowances.

### **9.2 Unit Prices**

**9.2.1** Unless otherwise explicitly stated in the Agreement:

**9.2.1.1** The Contract Sum includes the Unit Price Work (if any) identified in the Agreement.

**9.2.1.2** Where the Contract provides that all or part of the Work is to be Unit Price Work, initially the Contract Sum will include for all Unit Price Work **(1)** an amount equal to the sum of the established Unit Prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Contract plus **(2)** the Contractor's Fee, which is included in the Unit Prices.

**9.2.1.3** The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Sum. The Contracting Authority will determine the actual quantities and classifications of Unit Price Work performed by Contractor.

**9.2.2** Before final payment, an appropriate Change Order will be issued as described under **Section 7.1.5** to reconcile the Contract Sum so that it reflects actual amounts due to the Contractor on account of Unit Price Work actually performed including an associated adjustment on account of the Contractor's Fee.

### **9.3 Schedule of Values**

**9.3.1** Within ten days after receipt of the Notice to Proceed, or other period as mutually agreed by the Contractor and Contracting Authority, the Contractor shall submit to the A/E a Schedule of Values on a form published by the Commission, with separate amounts shown for labor and materials for each branch of Work, following the numbers and titles of the Construction Specifications Institute's *MasterFormat* for individual work results, or *UniFormat* for assemblies in place.

**9.3.1.1** The Contractor shall clearly indicate on the Schedule of Values, the amount(s) allocated, including separate items for Contractor's Fee, for each EDGE-certified Business used in the performance of the Work. The amount(s) shall indicate labor and materials, as appropriate, and separate items for Contractor's Fee.

**9.3.2** The grand total shown on the Schedule of Values shall equal the total Contract Sum. The Contracting Authority may use the approved Schedule of Values to determine the cost or credit to the Owner resulting from any change in the Work.

**9.3.2.1** The first items shall be a breakdown of General Conditions Costs.

**9.3.2.2** The amounts for labor and materials shall accurately reflect the cost for each item and include Contractor's Fee. Separate line items shall not be shown for Contractor's Fee, except as provided under **Section 9.3.1.1**.

**9.3.2.3** If the material allocation exceeds 55 percent of the Contract Sum, the Contractor shall provide, upon request, sufficient information to support the higher percentage.

**9.3.2.4** Subcontract Work shall show amounts for labor and materials. Fringe benefits shall be shown as a part of labor costs.

**9.3.2.5** When more than one major structure is included in the Work, the Contractor shall subdivide the Schedule of Values accordingly, with cost details for each structure shown separately.

**9.3.2.6** The line items shall be coordinated with line items in the Project Schedule, which may require division of items of Work by area of the Project by floor, phase, or other appropriate area.

**9.3.2.7** Mechanical and electrical Work shall be included in separate line items for all major pieces of equipment, and group smaller equipment items by type.

**9.3.2.8** Line items shall be included for each Allowance, Coordination Drawings, Punch List Work, Project Record Document Submittals, delivery of attic stock, and specified demonstrations and training.

**9.3.3** The A/E may return the Schedule of Values to the Contractor for re-submittal if it does not meet the requirements or contains insufficient items or details of the Work, or approve the Schedule of Values if the A/E determines that it conforms to this **Section 9.3**.

**9.3.4** No payment shall be made until the A/E has approved the Contractor's Schedule of Values.

### **9.4 Contractor Payment Request**

**9.4.1** After the Date of Commencement, the Contractor may request payment of the Contract Sum. The Owner will pay the Contract Sum to the Contractor on a percent-complete progress basis.

**9.4.2** The Contractor may submit a Contractor Payment Request to the A/E each month or upon another interval approved by the Contracting Authority. When the rate of Work and amount involved is sufficient that it is considered appropriate by the Contracting Authority, the Contractor may submit Contractor Payment Requests twice a month. The Contractor shall base each Contractor Payment Request on the Schedule of Values current as of the date that the Contractor submits the Contractor Payment Request.

**9.4.2.1** The Contractor shall support each Contractor Payment Request with documentation substantiating the Contractor's right to payment. The Contractor shall supply additional documentation as the A/E may request in connection with each payment to the Contractor.

**9.4.2.2** The Contracting Authority may require proof of the renewal of required insurance as a condition precedent to payment.

**9.4.2.3** The Contractor shall attach certified payroll reports for the relevant period to one copy of each Contractor Payment Request, see **Document 00 73 43 - Prevailing Wage Requirements**.

**9.4.2.4** The Contractor may list on the Contractor Payment Request any Change Orders approved and performed prior to submission of the Contractor Payment Request.

**9.4.2.5** The Contractor shall submit its Contractor Payment Request using the Contractor Payment Request form or forms current at the time of each application and as provided by the Contracting Authority in the manner prescribed by the Contracting Authority.

**9.4.2.6** The Contractor shall submit one draft copy of its Contractor Payment Request (“Pencil Copy”) to the A/E not less than one week prior to submitting multiple copies of its Contractor Payment Request. The A/E shall review the Pencil Copy and provide comments to the Contractor within three days after receiving it. The Contractor shall incorporate the A/E’s comments into its Contractor Payment Request prior to submitting multiple copies for payment.

**9.4.2.7** The Contractor shall clearly indicate on the Contractor Payment Request, the amount(s) requested for each EDGE-certified Business used in the performance of the Contract. The amount(s) shall indicate labor and materials, as appropriate.

**9.4.2.8** The Contractor shall submit an electronic copy of the Contractor Payment Request to the A/E with its paper copies of the Contractor Payment Request for collection and reporting of information used for contract compliance evaluation and statistical purposes. The Contractor may issue the copy in any electronic media acceptable to the Contracting Authority.

**9.4.3** Payments for Unit Price Work shall be made to the Contractor only for the authorized actual quantities of Work performed or materials furnished in accordance with the Contract Documents.

**9.4.4** Subject to **Section 9.8**, the Owner shall pay an approved Contractor Payment Request within 30 days after the date the A/E recommends acceptance of the Contractor Payment Request.

## **9.5 Retainage on Labor Payments**

**9.5.1** Partial payments to the Contractor for labor shall be made at the rate of 96 percent of the amount invoiced through the Contractor Payment Request.

**9.5.2** If the Project involves more than one Phase as explicitly identified in the Agreement, this **Section 9.5** will apply on a per-Phase basis.

## **9.6 Release of Retainage on Labor Payments**

**9.6.1** When the Contractor has achieved Substantial Completion of all Work, and there is no other reason to retain funds, the retained funds shall be paid to the Contractor within 30 days after the Contractor’s request, except to the extent necessary, in the Contracting Authority’s sole discretion, to assure the Contractor’s faithful completion of the Work including but not limited to compliance with **Section 6.26.2**.

**9.6.2** Upon consent of the Contractor’s Surety, the Contracting Authority may reduce the amount of funds retained for the faithful performance of Work by up to 50 percent of the amount of funds required to be retained, provided the Contractor’s Surety remains responsible for all damages that may be caused due to default by the Contractor, including, but not limited to, the following:

**9.6.2.1** completion of the Work;

**9.6.2.2** all interference, disruption, hindrance, and delay claims;

**9.6.2.3** all Liquidated Damages; and

**9.6.2.4** all additional expenses incurred by the State.

**9.6.3** Funds retained until Contract Completion will be paid to the Contractor as described under **Section 6.31.2**.

**9.6.4** If the funds retained under **Section 9.5** accrued interest while withheld from the Contractor, the payments of those retained funds to the Contractor will include that accrued interest.

**9.6.5** If the Project involves more than one Phase as explicitly identified in the Agreement, this **Section 9.6** will apply on a per-Phase basis.

## **9.7 Retainage on Material Payments**

**9.7.1** The Owner shall pay the Contractor at the rate of 100 percent of the scheduled value for materials incorporated into the Project.



**9.7.2** The Owner shall pay the Contractor at the rate of 92 percent of the invoice cost, not to exceed the scheduled value, for materials delivered to the Site, or other off-site storage location approved by the A/E, provided the Contractor provides the following information with the Contractor Payment Request:

**9.7.2.1** a list of the fabricated materials consigned to the Project, giving the place of storage, together with copies of invoices verifying quantity and cost, written evidence of insurance covering the off-site stored materials; and

**9.7.2.2** a certification of materials stored off-site, prepared by the Contractor and signed by the A/E to evidence that the materials are in conformity with the Specifications and have been tagged with the Project name and number for delivery to the Project. The Contractor shall directly reimburse the A/E for all costs incurred to visit a storage site, other than the areas adjacent to the Project.

**9.7.3** The Owner shall pay the balance of the scheduled value when the materials are incorporated into and become a part of the Project.

**9.7.4** When payment is allowed for materials delivered to the Site or other approved off-site storage location but not yet incorporated into the Project, the materials are the property of the Owner.

**9.7.4.1** The Owner may, at its sole discretion, retain any material not ultimately incorporated into the Project or return it to the Contractor for credit of an amount proportionate to the value of the extra materials.

## **9.8 Payments Withheld**

**9.8.1** The A/E may recommend to the Contracting Authority that payments be withheld from, or Liquidated Damages be assessed against, a Contractor Payment Request.

**9.8.2** The Contracting Authority may reject any Contractor Payment Request or part thereof, or withdraw any previous Contractor Payment Request, in whole or in part, to the extent necessary in the Contracting Authority's sole opinion to protect the Owner from loss because of:

**9.8.2.1** Defective Work not remedied;

**9.8.2.2** damage caused by the Contractor;

**9.8.2.3** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

**9.8.2.4** reasonable evidence that the Work will not be completed within the Contract Times, and that the unpaid balance would not be adequate to cover damages under the Contract Documents for the anticipated delay;

**9.8.2.5** failure to comply with Applicable Law including, but not limited to, the requirements of ORC Chapter 4115;

**9.8.2.6** failure to timely submit EDGE Participation Reports in accordance with **Section 1.8.2**;

**9.8.2.7** failure to timely identify the Contractor's proposed Subcontractors in accordance with **Section 4.1.1**;

**9.8.2.8** failure to timely fulfill the Contractor's obligations related to the Construction Progress Schedule;

**9.8.2.9** failure to carry out the Work in accordance with the Contract Documents; or

**9.8.2.10** that which is permitted under other provisions of the Contract Documents.

**9.8.3** The Contracting Authority shall notify the Owner, Contractor, and A/E in writing of the Contracting Authority's exercise of its rights under **Section 9.8.2**. If the Contractor remedies the basis for withholding payment under **Section 9.8.2** to the Contracting Authority's satisfaction, the Owner shall pay the amounts withheld.

**9.8.4** If the Contractor takes exception to the withholding of payments under **Section 9.8.2**, the Contractor shall initiate a Claim as and when required under **Article 8**.

## **9.9 Final Contractor Payment Request**

**9.9.1** The Contractor, as a condition precedent to Contract Completion and final payment, shall complete all requirements of the Contract Documents.

**9.9.1.1** The Contractor and each of its Subcontractors, regardless of tier, shall execute a Payment Release Affidavit to certify that the Contractor and each of its Subcontractors, regardless of tier, have complied with all requirements of ORC Chapter 4115, and to certify that all of its Subcontractors have been paid in full for all Work performed or materials furnished for the Project.

**9.9.2** The Owner shall pay the final Contractor Payment Request within 30 days after the date the A/E recommends acceptance of the final Contractor Payment Request.

**9.9.3** Acceptance of final payment by the Contractor or a Subcontractor constitutes the payee's waiver of all claims against the State except those previously made in writing under **Article 8** and identified by that payee as unsettled at the time of the final Contractor Payment Request.

## **ARTICLE 10 - BONDS, INSURANCE, AND INDEMNIFICATION**

### **10.1 Payment and Performance Bonds**

**10.1.1** Before signing the Agreement, the Contractor shall provide the Bond required under Applicable Law and below:

**10.1.1.1** If the Contractor provided **Document 00 43 13 - Bid Security Form** as its Bid Guaranty, then that form shall be the Bond.

**10.1.1.2** If the Contractor provided another form of Bid Guaranty, then **Document 00 61 13 - Performance and Payment Bond Form** shall be the Bond.

**10.1.1.3** Each Surety under the Bond shall be licensed to do business in Ohio and satisfactory to the Contracting Authority.

**10.1.1.4** If there is more than one Surety under the Bond, each of them shall be jointly and severally liable as surety under the Bond.

**10.1.1.5** Unless the Contracting Authority and the Owner are the same entity, the Bond shall name as co-obligees **(1)** the State by and through the Contracting Authority and **(2)** the Owner.

- .1** If any document is used to name the required co-obligees of the Bond (e.g., a form commonly known as a "dual obligee rider"), that document will not alter the terms of the Contract in any way or the terms of the Bond in any way beyond merely naming the co-obligees notwithstanding any term of that document to the contrary.
- .2** The Surety will not be obligated to more than the Penal Sum of any Bond solely on account of the existence of more than one obligee under that Bond.

**10.1.1.6** The penal sum of the Bond, when initially submitted, shall be equal to one-hundred percent of the Contract Sum.

**10.1.2** The Contractor shall submit with the executed Bond **(1)** a certified copy of the authority to act (power of attorney) of the agent signing the Bond on behalf of the Surety and **(2)** a current and signed Certificate of Compliance under ORC Section 9.311 issued by the Ohio Department of Insurance showing the Surety is licensed to do business in Ohio.

**10.1.3** If the Contract Sum increases at any time such that it exceeds the penal sum of the Bond, the Contractor shall cause the penal sum of the Bond to be increased such that the penal sum equals one-hundred percent of the increased Contract Sum.

**10.1.4** Any time the Contractor increases the penal sum of the Bond under **Section 10.1.3**, the Contractor shall deliver to the Contracting Authority an Acknowledgment of Surety from the affected Surety or Sureties to evidence the Surety's or Sureties' receipt of notice of the increased penal sum.

**10.1.4.1** The Contracting Authority's receipt of the required Acknowledgement(s) of Surety is a condition precedent to the Owner's obligation to pay the Contractor for any portion of the Work associated with the increase of the penal sum.

**10.1.4.2** The Contractor's failure to submit a required Acknowledgment of Surety or a Surety's failure or refusal to provide an Acknowledgment of Surety will not relieve the Surety of its obligation for the increased penal sum.

**10.1.4.3** If any Surety fails or refuses to provide a required Acknowledgement of Surety, the Contracting Authority may require the Contractor to deliver to the Contracting Authority a new Bond showing the increased penal sum and written consent of the affected Surety or Sureties confirming the increased penal sum. In that event, the Contracting Authority's receipt of replacement Bonds will be a condition precedent to the Owner's obligation to pay the Contractor for any portion of the Work associated with the increase of the penal sum.

**10.1.4.4** Each Acknowledgment of Surety shall be **(1)** on a form provided by the Contracting Authority and **(2)** subject to the acceptance of the Contracting Authority.

**10.1.5** If at any time prior to final payment, any surety providing a Bond for the Project **(1)** is adjudged bankrupt or has made a general assignment for the benefit of its creditors; **(2)** has liquidated all assets or has made a general assignment for the benefit of its creditors; **(3)** is placed in receivership; **(4)** otherwise petitions a state or federal court for protection from its creditors; or **(5)** allows its license to do business in Ohio to lapse or to be revoked, then the Contractor shall, within 21 days after any such action listed above, provide the Contracting Authority with a new Bond in the form and

amount described in this **Section 10.1**. The Contracting Authority's receipt of a replacement Bond is a condition precedent to the Owner's obligation to pay the Contractor.

**10.1.6** If notice of any change affecting the Contract is required by any Surety or by the provision of any Bond, the Contractor shall provide that notice.

## **10.2 Contractor's General Insurance Requirements**

**10.2.1** Throughout the performance of the Work or longer as may be described below, the Contractor shall obtain, pay for, and keep in force, the minimum insurance coverage described in this **Article 10**.

**10.2.1.1** Each requirement of this **Article 10** applies to Subcontractors just as it applies to the Contractor.

**10.2.1.2** If a Subcontractor's usual insurance coverage does not meet the minimum coverage requirements, before entering into an agreement with that Subcontractor, the Contractor shall submit to the Contracting Authority **(1)** a certificate of insurance evidencing the insurance the Subcontractor will carry without additional compensation and **(2)** if the Contracting Authority requests, a written proposal from the Subcontractor to provide coverage that meets the minimum coverage requirements. The Contracting Authority will decide whether to accept the non-conforming insurance coverage or the proposal to provide conforming coverage.

**.1** Notwithstanding any other provision of the Contract to the contrary, the Contractor will not be entitled to any increase of the Contract Sum, Contract Times, or both on account of the Contracting Authority's refusal to accept a Subcontractor's nonconforming insurance coverage.

**10.2.1.3** On a case-by-case basis, the Contracting Authority and Contractor may agree to adjust the below requirements for any particular Subcontractor.

**10.2.2** Before starting the Work on the Site, upon renewal of any policy, and upon a change of any insurance carrier, the Contractor shall deliver to the Contracting Authority certificates evidencing that the required insurance is in force.

**10.2.2.1** Certificates of insurance for other than government-controlled workers' compensation insurance shall identify **(1)** all below-required additional insureds and **(2)** the Project name.

**10.2.3** With the exception of government-controlled workers' compensation coverage:

**10.2.3.1** the Contractor shall place the insurance with companies that **(1)** are satisfactory to the Contracting Authority, **(2)** hold an A.M. Best Rating of A-, X, or higher, and **(3)** are authorized to conduct business in Ohio;

**10.2.3.2** the policies shall be endorsed to require the Contractor's insurance carrier to **(1)** provide 30-days' written notice to the Contracting Authority (as certificate holder) of the cancellation or non-renewal of the insurance and **(2)** provide at least ten-days' written notice to the Contracting Authority (as certificate holder) of the cancellation of the insurance for non-payment of premium; and

**10.2.3.3** within 30 days after the Contracting Authority's request, the Contractor shall submit insurance-company certified copies of the policies, the policy endorsements, loss-run reports, or all three.

**10.2.4** The Contractor shall pay all deductibles, or self-insured retentions, or both contained in the Contractor's policies of insurance required or provided in connection with the Project. The Contracting Authority reserves the right to approve or reject all levels of self-insured retention, captive insurance programs, or other alternative risk financing the Contractor may use to comply with any insurance requirement.

**10.2.5** The Contractor shall pay a proportionate share of the deductibles, or self-insured retentions, or both contained in any insurance policy the Contracting Authority purchases for the Project. The Contractor's proportionate share will derive from the percentage of the associated claim or loss attributable to the alleged or actual negligence of the Contractor or a Subcontractor.

**10.2.6** The Contracting Authority and Owner do not represent that required coverage or limits are adequate to protect the Contractor.

**10.2.7** Failure of the Contracting Authority to demand a certificate or other evidence of full compliance with the insurance requirements or failure of the Contracting Authority to identify a deficiency from evidence that is provided shall not be construed as a waiver of the Contractor's obligation to maintain the required insurance.

**10.2.8** The Contracting Authority may terminate the Contract for cause on account of the Contractor's failure to maintain required insurance.

### 10.3 Contractor's Minimum Coverage Requirements

**10.3.1 Workers Compensation.** The Contractor shall maintain workers' compensation coverage meeting the requirements of Applicable Law including, without limitation, the Jones Act and the Longshore & Harbor Workers Compensation Act if Work involves hazards arising from work on or near navigable waterways, including vessels and docks.

**10.3.2 Employers' Liability Coverage.** The Contractor shall maintain employers' liability coverage with (1) an each-accident limit of not less than \$1,000,000, (2) a disease each-employee limit of not less than \$1,000,000, and (3) a disease policy limit of not less than \$1,000,000.

**10.3.3 Commercial General Liability.** The Contractor shall maintain commercial general liability ("CGL") coverage that provides (1) an each-occurrence limit of not less than \$1,000,000, (2) a general-aggregate limit of not less than \$2,000,000, and (3) a products and completed-operations aggregate limit of not less than \$2,000,000.

**10.3.3.1** The CGL insurance shall be written on ISO occurrence form CG 00 01 04 13 or a substitute form, providing at least equivalent coverage for liability arising from premises, operations, independent contractors, products/completed-operations, personal and advertising injury, and liability assumed under an insured contract.

**10.3.3.2** The Contractor shall include the State, Contracting Authority, Owner, and A/E as additional insureds under the CGL policy using ISO endorsement CG 20 10 07 04 and ISO endorsement CG 20 37 07 04 or a substitute form(s) providing equivalent coverage.

**10.3.3.3** The CGL policy shall be endorsed using ISO endorsement CG 25 03 or a substitute form providing equivalent coverage to provide that the general aggregate limit applies separately to each of the insured's projects.

**10.3.3.4** The CGL policy shall not exclude coverage for property damage to the Work arising out of the products/completed-operations hazard where a Subcontractor performed the damaged Work or the Work out of which the damage arises.

**10.3.3.5** The CGL insurance shall not exclude coverage for property damage to electronic data.

**10.3.3.6** The CGL insurance shall apply as primary and non-contributory insurance with respect to any other insurance or self-insurance programs that cover the additional insured(s).

**10.3.3.7** The CGL policy shall not exclude coverage to the additional insured(s) for bodily injury or property damage arising out of the products/completed-operations hazard.

**10.3.3.8** The Contractor shall maintain the CGL insurance in effect for no less than five years after the earlier of termination of the Contract or Substantial Completion of all Work.

**10.3.4 Business Automobile Liability.** The Contractor shall maintain business automobile ("BA") coverage written on ISO form CA 00 01 04 13 or a substitute form, providing at least equivalent coverage with a limit of not less than \$1,000,000 each accident.

**10.3.4.1** The coverage shall extend to any auto (owned, not owned, leased, rented, hired, or borrowed).

**10.3.4.2** The Contractor shall include the State, Contracting Authority, Owner, and A/E as additional insureds under the BA policy.

**10.3.4.3** The BA policy shall include an MCS-90 endorsement if transporting hazardous wastes/materials.

**10.3.5 Umbrella/Excess Liability.** The Contractor may employ an umbrella/excess liability policy to achieve the above-required minimum coverage.

**10.3.5.1** The Contractor shall maintain umbrella/excess liability coverage with a limit of not less than \$2,000,000 (in addition to the above-required limits) if the Work (or the Work to be performed by the Subcontractor) includes any of the following:

- .1 brick/block masonry;
- .2 exterior caulking/sealant;
- .3 cast-in-place or precast concrete;
- .4 curtain wall;
- .5 dampproofing/waterproofing;
- .6 electrical;
- .7 elevator;
- .8 exterior glass and/or glazing;
- .9 exterior marble, granite, and/or other stonework;
- .10 miscellaneous metals;

- .11 plaster/stucco;
- .12 plumbing;
- .13 HVAC;
- .14 roofing and/or sheet metal;
- .15 scaffolding;
- .16 spray-on fireproofing;
- .17 sprinkler and/or fire protection; or
- .18 structural steel and/or metal deck.

**10.3.5.2** The Contractor shall maintain umbrella/excess liability coverage with a limit of not less than \$5,000,000 (in addition to the above-required limits) if the Work (or the Work to be performed by the Subcontractor) includes any of the following:

- .1 caissons and/or piles;
- .2 demolition;
- .3 excavation and/or utility work;
- .4 sheeting, shoring, and/or underpinning;
- .5 window washing equipment; or
- .6 wrecking.

**10.3.6 Contractor's Pollution Liability.** If the Work includes environmentally sensitive, hazardous types of activities (such as demolition, exterior insulation finish systems, Asbestos abatement, storage-tank removal, or similar activities), or involves Hazardous Materials, the Contractor shall maintain a contractor's pollution liability ("CPL") policy with (1) a per-claim limit of not less than \$1,000,000 and (2) an annual-aggregate limit of not less than \$1,000,000, covering the acts, errors and/or omissions of the Contractor for damages (including from mold) sustained by the Owner by reason of the Contractor's performance of the Work.

**10.3.6.1** The CPL policy shall have an effective date, which is on or before the date that the Contractor first started to perform any Project-related services.

**10.3.6.2** Upon submission of the associated certificate of insurance and at each policy renewal, the Contractor shall advise the Contracting Authority in writing of any actual or alleged claims that may erode the CPL policy's limits.

**10.3.6.3** The Contractor shall maintain the CPL insurance in effect for no less than five years after the earlier of termination of the Contract or Substantial Completion of all Work.

**10.3.7 Professional Liability—Contractor.** The Contractor shall maintain contractor's professional liability ("PL") insurance (including without limitation for sprinkler and/or fire protection and other design-build work included in the Work, and services related to coordination and scheduling of construction activities, and means and methods) without design-build exclusions with limits not less than as identified in the following table:

| Contract Sum           | Each Claim  | Annual Aggregate |
|------------------------|-------------|------------------|
| Up to \$50,000,000     | \$1,000,000 | \$2,000,000      |
| More than \$50,000,000 | \$2,000,000 | \$4,000,000      |

**10.3.7.1** The PL policy shall have an effective date on or before the date that the Contractor first started to provide any Project-related services.

**10.3.7.2** Upon submission of the associated certificate of insurance and at each policy renewal, the Contractor shall advise the Contracting Authority in writing of any actual or alleged claims that may erode the PL policy's limits.

**10.3.7.3** The Contractor shall maintain the PL insurance in effect for no less than five years after the earlier of termination of the Contract or Substantial Completion of all Work.

**10.3.7.4** If the Contractor is authorized under Applicable Law to directly provide professional design services, the Contractor may satisfy the requirements of this **Section 10.3.7** by providing a professional liability insurance policy.

**10.3.7.5** If the Contractor is a joint venture:

- .1 the Contractor may meet the requirements of this **Section 10.3.7** by providing a PL policy under which each joint venturer is the insured; or
- .2 each joint venturer shall individually meet the requirements of this **Section 10.3.7** by providing a PL policy (1) under which the individual joint venturer is the insured and (2) that covers that joint venturer's interests

in the joint venture by endorsement or otherwise. The certificate of insurance shall reflect that the PL policy covers the joint venturer's interest in the joint venture.

*Example:* Assume that the Contractor (1) is the "XY joint venture" of company "X" and company "Y"; and (2) is required under **Section 10.3.7** to maintain PL insurance limits of \$1M/\$2M. In order to comply with **Section 10.3.7.5.2**, "X" must maintain PL insurance limits of \$1M/\$2M and "Y" must maintain PL insurance limits of \$1M/\$2M.

**10.3.7.6** If the Contractor is a limited-liability company, which members consist of two or more separate firms:

- .1 the Contractor may meet the requirements of this **Section 10.3.7** by providing a PL policy under which the limited-liability company is the insured; or
- .2 each member of the limited-liability company shall individually meet the requirements of this **Section 10.3.7** by providing a PL policy (1) under which the individual member is the insured and (2) that covers that member's interests in the limited-liability company by endorsement or otherwise. The certificate of insurance shall reflect that the PL policy covers the member's interest in the limited-liability company.

*Example:* Assume that the Contractor (1) is the "XY limited-liability company," the members of which are "X" and "Y"; and (2) is required under **Section 10.3.7** to maintain PL insurance limits of \$1M/\$2M. In order to comply with **Section 10.3.7.6.2**, "X" must maintain PL insurance limits of \$1M/\$2M and "Y" must maintain PL insurance limits of \$1M/\$2M.

**10.3.8 Professional Liability—Subcontractors.** If the Work to be performed by a Subcontractor includes any professional design services (including without limitation sprinkler and/or fire protection and other design-build work) the Subcontractor shall maintain contractor's PL insurance without design-build exclusions with limits not less than as identified in the following table:

| Subcontract Sum        | Each Claim  | Annual Aggregate |
|------------------------|-------------|------------------|
| Up to \$50,000,000     | \$1,000,000 | \$2,000,000      |
| More than \$50,000,000 | \$2,000,000 | \$4,000,000      |

**10.3.8.1** The PL policy shall have an effective date on or before the date that the Subcontractor first started to provide any Project-related services.

**10.3.8.2** Upon submission of the associated certificate of insurance and at each policy renewal, the Contractor shall advise the Contracting Authority in writing of any actual or alleged claims that may erode the Subcontractor's PL policy's limits.

**10.3.8.3** The Subcontractor shall maintain the PL insurance in effect for no less than five years after the earlier of termination of the Contract or Substantial Completion of all Work.

**10.3.8.4** If the Subcontractor is authorized under Applicable Law to directly provide professional design services, the Subcontractor may satisfy the requirements of this **Section 10.3.7.5** by providing a professional liability insurance policy.

**10.3.9 Aviation Liability.** If the Contractor or a Subcontractor uses manned or unmanned aircraft, including helicopters, in performance of the Work, the Contractor shall maintain aircraft or aviation liability coverage in an amount of no less than \$10,000,000. The Contracting Authority and Owner will not be liable for any damage to any aircraft owned, leased, rented, or borrowed by the Contractor or a Subcontractor.

**10.3.10 Watercraft Liability.** If the Contractor or a Subcontractor uses watercraft in performance of the Work, the Contractor shall maintain watercraft liability coverage including protection and indemnity insurance in an amount of no less than \$5,000,000. The Contracting Authority and Owner will not be liable for any damage to any watercraft owned, leased, rented, or borrowed by the Contractor or Subcontractor.

**10.3.11 Equipment Coverage.** The Contracting Authority and Owner will not insure or be liable for damage to any Contractor or Subcontractor owned, leased, rented, or borrowed tools, equipment, or vehicles. The Contractor and Subcontractors are solely responsible for maintaining all insurance necessary to cover their tools, equipment, and vehicles.

**10.3.12 Ocean Marine Insurance.** If the shipment of equipment or materials for the Work will not be covered by the builder's risk insurance described under **Section 10.4**, the Contractor shall maintain ocean marine insurance to the Site including cost, insurance, and freight with limits of not less than an amount equal to the full replacement cost of equipment/materials shipped to final destination point.

**10.3.12.1** The insurance shall include the following minimum requirements:

- .1 all-risk basis including war risk and all forms of terrorism;
- .2 coverage for general average and salvage charges;
- .3 "on deck" coverage;
- .4 warehouse-to-warehouse coverage;
- .5 coverage to include losses from strikes, riots, and civil commotions ("SR&CC coverage");
- .6 coverage to include losses from free of capture and seizure warranty ("FC&S Warranty coverage");
- .7 "Inchmaree" clause;
- .8 sue and labor;
- .9 "both-to-blame" coverage;
- .10 free of particular average;
- .11 inland coverage including on-land shipment, port storage, and barge transit upon inland waterways; and
- .12 damage by saltwater and rainwater perils and cargo sweat.

**10.3.13 Additional Property Insurance.** For any demolition, blasting, excavating, tunneling, shoring, or similar operations, the Contractor shall provide and maintain Property Damage Liability insurance with a limit of liability equal to the limit as specified in the applicable sections of **Article 10**.

#### **10.4 Builder's Risk Insurance**

**10.4.1** The Contractor shall maintain a builder's risk insurance policy written on a special causes of loss form and an open-perils basis providing coverage for direct physical loss of or damage to covered property arising from insured perils that shall not exclude: theft; fire; vandalism; malicious mischief; earthquake; earth movement; tornado; lightning; explosion; breakage of glass; flood; windstorm; collapse; water damage; hot and cold testing; debris removal and/or demolition occasioned by enforcement of Applicable Law; sudden and accidental equipment breakdown; and resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials.

**10.4.1.1** The policy shall cover the Project in the course of construction including false-work, temporary buildings and structures, and materials used in the construction process, stored on or off-site, or while in transit.

**10.4.1.2** The coverage shall be written on a replacement-cost basis in an amount equal to not less than the initial Contract Sum, plus the value of: **(1)** all subsequent GMP Amendments and Modifications; **(2)** materials supplied and installed by others; and **(3)** any furnishings, fixtures, materials, or equipment located at the Site. All sub-limits of coverage are subject to the prior written approval of the Contracting Authority and Owner.

**10.4.1.3** The policy shall not include any deductible of more than \$25,000 per occurrence. Any deductible over that amount is subject to the prior written approval of the Contracting Authority and Owner.

**10.4.1.4** The named insureds under the policy shall include the State, Contracting Authority, Owner, Contractor, Subcontractors at all tiers, and Separate Contractors.

**10.4.1.5** Coverage shall include the reasonable extra costs of acceleration and expediting temporary and permanent repairs to, or permanent replacement of, damaged property. Those covered costs shall include overtime wages and the extra cost of "express" or other means for rapidly transporting materials and supplies necessary to the repair or replacement.

**10.4.1.6** Coverage shall include a "soft cost endorsement" including, but not limited to, the reasonable extra costs of the A/E and reasonable Contractor extension or acceleration costs.

**10.4.1.7** Coverage shall waive all rights between the Owner, Contracting Authority, Contractor, and Subcontractors at any tier, for damages caused by fire or any other perils to the extent of actual recovery of any insurance proceeds under the policy.

**10.4.1.8** Coverage shall include provisions for mechanical or electrical breakdown, or boiler system testing if a boiler system is part of the Work.

**10.4.1.9** Coverage shall include temporary structures and scaffolding, along with collapse coverage.

**10.4.1.10** Coverage shall be primary to all other applicable insurance.

**10.4.1.11** The policy shall specifically permit and allow for Partial Occupancy as defined under the Contract Documents and for partial occupancy or a similar term as used under the policy.

**10.4.1.12** The Contractor shall maintain the policy in effect until Substantial Completion of all Work. The Contractor shall provide written notice to the Contracting Authority no less than 30 days before the expiration or termination of the policy.

**10.4.1.13** The Contractor's tools and equipment shall not be covered under the builder's risk policy. It is the Contractor's sole responsibility to maintain such coverage, the cost of which shall be included in its Overhead (a component of Contractor's Fee) and not included as a separate item in the Contractor's Schedule of Values.

**10.4.2** If the Contractor is involved solely in the installation of material and equipment and not in new building construction, the Contractor shall purchase and maintain a builder's risk, builder's risk-renovations, or installation floater insurance policy. The policy shall comply with the provisions of **Section 10.4.1**.

**10.4.3** No less than ten days before the Contractor starts to perform any Work on the Site, the Contractor shall provide to the Contracting Authority an insurance-company certified copy of the complete insurance policy required under **Section 10.4.1** or **10.4.2** as applicable. The Contracting Authority's receipt of that copy of the policy is a condition precedent to the Contractor's entitlement to payment of any portion of the Contract Sum.

## **10.5 Waivers of Subrogation**

**10.5.1** To the fullest extent permitted by Applicable Law, the Contractor waives all rights against the Owner, Contracting Authority, and their agents and employees for damages to the extent covered by any insurance, except rights to the proceeds of that insurance. All policies shall accomplish the waiver of subrogation by endorsement or otherwise.

**10.5.2** The Owner, Contracting Authority, and Contractor waive all rights against each other for damages caused by fire or other perils to the extent of actual recovery of any insurance proceeds under any property insurance, inland marine insurance, or builder's risk insurance applicable to the Work.

## **10.6 Indemnification for Injury or Damage**

**10.6.1** To the fullest extent permitted by Applicable Law, the Contractor shall indemnify, defend, and hold harmless the Indemnified Parties from and against all claims, costs, damages, losses, fines, penalties, and expenses (including but not limited to all fees and charges of attorneys and other professionals, and all court, arbitration, or other dispute-resolution costs) arising out of or in connection with the Project, provided that any such claim, cost, damage, loss, fine, penalty, or expense is attributable to:

**10.6.1.1** bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property but only to the extent caused by the negligent acts, errors, or omissions of the Contractor or a person or entity for whom the Contractor may be liable;

**10.6.1.2** infringement of patent rights or copyrights by the Contractor or a person or entity for whom the Contractor may be liable; or

**10.6.1.3** a violation of Applicable Law but only to the extent attributable to the Contractor or a person or entity for whom the Contractor may be liable.

**10.6.2** The Contractor's indemnification obligation under **Section 10.6** exists regardless of whether or not and the extent to which the claim, damage, loss, fine, penalty, or expense is caused in part by a party indemnified under **Section 10.6**. But nothing in **Section 10.6** obligates the Contractor to indemnify any individual or entity from and against the consequences of that individual or entity's own negligence.

**10.6.3** The Contractor's obligations under **Section 10.6** shall not extend to the liability of the A/E, A/E's consultants, agents, representatives, or employees for negligent preparation or approval of Drawings, Specifications, Change Orders, opinions, and any other responsibility of the A/E, except to the extent covered by the Contractor's insurance.

**10.6.4** In claims against an Indemnified Party by any direct or indirect employee (or the survivor or personal representative of that employee) of the Contractor or a person or entity for whom the Contractor may be liable, the indemnification obligation under **Section 10.6** will not be limited by a limitation on the amount or type of damages, compensation, or benefits payable under workers' compensation acts, disability benefit acts, or other employee benefit acts.

**10.6.5** The Contractor's indemnification obligation under **Section 10.6** will not be limited by any insurance policy provided or required in connection with the Project.

**10.6.6** The Contractor's obligations under **Section 10.6** shall not negate, abridge, or reduce other rights or obligations of indemnity, which would otherwise exist as to an Indemnified Party.

**10.6.7** The Contractor's indemnification obligation under **Section 10.6** will survive termination of the Contract and Contract Completion.



**10.6.8** The Contracting Authority may deduct from the Contract Sum the claims, damages, losses, fines, penalties, and expenses for which the Contractor is liable under **Section 10.6**. If those claims, damages, losses, fines, penalties, and expenses exceed the unpaid balance of the Contract Sum, the Contractor shall immediately pay the difference to the Owner.

## **ARTICLE 11 - SUSPENSION AND TERMINATION**

### **11.1 Suspension of the Work**

**11.1.1** The Contracting Authority, without cause and without prejudice to any other right or remedy it may have, may order the Contractor in writing to suspend, delay, or interrupt performance of the Work in whole or in part for such period as the Contracting Authority may determine.

**11.1.1.1** If the Contracting Authority suspends the Work under this **Section 11.1.1** and the Contractor complies with **Article 7** and **Article 8**, the Contract Sum and Contract Times shall be adjusted for increases in the cost and time caused by the suspension, delay, or interruption.

**11.1.1.2** Notwithstanding the foregoing, no adjustment shall be made to the Contract Sum or Contract Times to the extent that:

- .1** performance was or could have been suspended, delayed, or interrupted by a cause for which the Contractor is responsible; or
- .2** an equitable adjustment is made or denied under another provision of the Contract.

**11.1.1.3** If the Contracting Authority suspends the Work under this **Section 11.1.1** and the Contractor submits a proper Contractor Payment Request, subject to all other provisions of the Contract Documents, the Contractor shall be entitled to payment of compensation due under the Contract Documents for Work performed before the suspension based upon the Schedule of Values.

**11.1.2** The Contracting Authority, without prejudice to any other right or remedy it may have, may order the Contractor in writing to suspend, delay, or interrupt the performance of the Work in whole or in part for such period as the Contracting Authority may determine for any of the following reasons: **(1)** Defective Work; **(2)** the Contractor is causing undue risk of damage to any part of the Project or adjacent area; **(3)** the Contractor fails to furnish or perform the Work in such a way that the complete Work will conform to the requirements of the Contract Documents; or **(4)** any other cause the Contracting Authority reasonably believes justifies suspension.

**11.1.2.1** The Contracting Authority's exercise of its right to suspend the Work under this **Section 11.1.2** shall not entitle the Contractor to any adjustment of the Contract Sum, Contract Times, or both.

**11.1.2.2** If the Contracting Authority is adjudged to have improperly or unjustifiably suspended the Work under this **Section 11.1.2**, the suspension shall be deemed to have been a suspension under **Section 11.1.1**.

**11.1.3** Upon receipt of notice of suspension under this **Section 11.1**, the Contractor shall cease Work on the suspended activities and take all necessary or appropriate steps to limit disbursements and minimize respective costs. The Contractor shall furnish a report to the Contracting Authority, within five days after receiving the notice of suspension, describing the status of the Work, including, but not limited to, results accomplished, resulting conclusions, and other information as the Contracting Authority may require.

**11.1.4** The Contracting Authority's right to stop the Work shall not give rise to any duty to exercise the right for the benefit of the Contractor or any other party, and the Contracting Authority's exercise or failure to exercise the right shall not prejudice any of the Contracting Authority's other rights.

### **11.2 Termination for Convenience**

**11.2.1** The Contracting Authority may at any time terminate the Contract in whole or in part for the Owner's convenience and without cause, upon written notice to the Contractor.

**11.2.2** Upon receipt of the notice of termination for convenience, the Contractor shall immediately proceed with performance of the following duties in accordance with instructions from the Contracting Authority:

**11.2.2.1** cease operation as specified in the notice;

**11.2.2.2** proceed as described under **Section 11.3.4**; ;

**11.2.2.3** proceed with Work not terminated; and

**11.2.2.4** take actions that may be necessary, or that the Contracting Authority may direct, for the protection and preservation of the terminated Work.

**11.2.3** After terminating the Contract for convenience, the Owner shall pay the Contractor in accordance with the Schedule of Values for Work completed, including Contractor's Fee, any retained funds, and the value of materials ordered and delivered, less any salvage credit the Contractor may receive for them.

**11.2.3.1** All materials, equipment, facilities, and supplies at the Site or stored off-site, for which the Contractor has received payment, shall become the property of the Owner.

**11.2.3.2** In no event shall the Contractor be entitled to **(1)** Contractor's Fee on or any other compensation for Work not performed or **(2)** compensation in excess of the total Contract Sum.

**11.2.4** If the Contracting Authority terminates the Work under this **Section 11.2**, the termination shall not affect the rights or remedies of the State against the Contractor then existing or which may thereafter accrue.

**11.2.5** Notwithstanding **Section 11.2.3**, if the Contracting Authority terminates the Work under this **Section 11.2**, but there exists an event of the Contractor's default, the Contractor shall be entitled to receive only such amounts as it would be entitled to receive following the occurrence of an event of default as provided in **Section 11.3**.

### **11.3 Termination for Cause**

**11.3.1** The Contracting Authority may terminate the Contract in whole or in part if the Contractor commits a material breach of the Contract including but not limited to:

**11.3.1.1** failure to prosecute the Work with the necessary force or in a timely manner;

**11.3.1.2** refusal to remedy Defective Work;

**11.3.1.3** failure to supply enough properly skilled workers or proper materials;

**11.3.1.4** failure to properly make payment to Subcontractors or Consultants;

**11.3.1.5** performance of any services outside of the United States;

**11.3.1.6** permitting its Subcontractors or Consultants to perform any services outside of the United States; or

**11.3.1.7** disregarding laws, ordinances, rules, regulations, or orders of a public authority with jurisdiction over the Project.

**11.3.2** If the Contracting Authority intends to exercise its termination rights under this **Section 11.3**, the Contracting Authority shall issue not less than five days' written notice to the Contractor and the Contractor's Surety in accordance with ORC Section 153.17 ("Five-Day Notice").

**11.3.2.1** Notwithstanding any provision of the Contract to the contrary **(1)** the issuance of a 72-Hour Notice under **Section 6.24.1** is not a condition precedent to the Contracting Authority's exercise of its rights under **Section 11.3** and **(2)** the Contracting Authority's decision to not issue a 72-Hour Notice under **Section 6.24.1** will not prejudice the Contracting Authority's rights under **Section 11.3**.

**11.3.3** If the Contractor fails to satisfy the requirements set forth in the Five-Day Notice within 15 days after receipt of the Five-Day Notice, the Contracting Authority may declare the Contractor in default, terminate the Contract, and employ upon the Work the additional force or supply materials or either as appropriate, and remove Defective Work.

**11.3.4** After termination, the Contractor shall to the extent related to the performance of the discontinued portion of the Work, unless the notice of termination directs otherwise:

**11.3.4.1** immediately discontinue the Work on that date, place no further orders or Subcontracts for materials, equipment, services, facilities, or otherwise, except as may be necessary for completion of such portion of the Work as is not discontinued;

**11.3.4.2** subject to the Contracting Authority's exercise of its rights under **Section 4.5**, promptly make every effort to procure cancellation upon terms satisfactory to the Contracting Authority of all Subcontracts;

**11.3.4.3** promptly work with the Contracting Authority in good-faith to develop and implement plans to **(1)** secure the Site and off-Site stored materials; **(2)** inventory and verify **(a)** the location and quantity of materials stored on and off-Site and **(b)** the status of the progress of the Work; and **(3)** identify all Project-related permits;

**11.3.4.4** no less than five days after the effective date of the termination, deliver to the Contracting Authority all Contractor-maintained, Project-related permits;

**11.3.4.5** no less than seven days after the effective date of the termination, deliver to the Contracting Authority the following information and documents concerning each Subcontractor: **(1)** name and address; **(2)** name, address, telephone number, and email address of the Subcontractor's primary point of contact for the Project; **(3)** scope of the Subcontract Work (including equipment supplied); **(4)** a complete and unredacted copy of the Subcontract(s); **(5)**

complete and unredacted copies of all Subcontract modifications (e.g., change orders, amendments, etc.) and related documents; **(6)** complete and unredacted copies of all pending claims, requests for additional compensation, requests for additional time, unexecuted change orders, and related documents; **(7)** complete and unredacted copies of all pay applications (paid and pending); **(8)** a complete and unredacted copy of the Contractor's accounts-payable report for the Subcontractor; **(9)** complete and unredacted copies of any non-conforming Work reports/notices and related documents; and **(10)** complete and unredacted copies of any surety bond(s) or other performance security provided by the Subcontractor.

**11.3.4.6** no less than 21 days after the effective date of the termination, pay all undisputed amounts due to each Subcontractor for Work performed before the effective date of termination and deliver to the Contracting Authority lien waivers to evidence those payments; and

**11.3.4.7** do only such Work as may be necessary to protect the Work already in progress and to protect materials and equipment on the Project Site or in transit thereto.

**11.3.5** If the Contract is terminated, the Contractor's Surety may perform the Contract. If the Contractor's Surety does not commence performance of the Contract within ten days after the date of Contract termination, the Contracting Authority may complete the Work by any means the Contracting Authority determines appropriate. The Contracting Authority may take possession of and use all materials, facilities, and equipment at the Site or stored off-site, for which the Owner has paid.

**11.3.6** If the Contract is terminated, the Contractor shall not be entitled to further payment. If the unpaid balance of the Contract Sum is exceeded by the costs of finishing the Work, including without limitation the fees and charges of engineers, architects, attorneys, and other professionals and court costs, and other damages incurred by the Owner and not expressly waived, the Contractor or Surety shall immediately pay the amount of the insufficiency to the Owner. This obligation for payment shall survive termination of the Contract.

**11.3.7** If the Contractor's Surety performs the Work, the provisions of the Contract Documents govern the Surety's performance, with the Surety in place of the Contractor in all provisions including, but not limited to, provisions for payment for the Work, and provisions of the right of the Contracting Authority to complete the Work.

**11.3.8** If the Contracting Authority terminates the Contract under this **Section 11.3**, the termination shall not affect any rights or remedies of the State against the Contractor then existing or which may thereafter accrue. The Contracting Authority's retention or payment of funds due the Contractor shall not release the Contractor or the Contractor's Surety from liability for performance of the Work in accordance with the requirements of the Contract Documents.

**11.3.9** If the Contracting Authority is adjudged to have improperly or unjustifiably terminated the Contract under this **Section 11.3**, the termination will be deemed to have been a termination under **Section 11.2**.

#### **11.4 Contractor Insolvency**

**11.4.1** The Contracting Authority may immediately terminate the Contract for cause if:

**11.4.1.1** the Contractor commences a voluntary case under Title 11 of the United States Code or the corresponding provisions of any successor laws; or

**11.4.1.2** any legal entity commences an involuntary case against the Contractor under Title 11 of the United States Code or the corresponding provisions of any successor laws and **(1)** the case is not dismissed within 60 days after its commencement; or **(2)** the court before which the case is pending issues an order for relief or similar order approving the case; or

**11.4.1.3** a court of competent jurisdiction appoints, or the Contractor makes an assignment of all or substantially all of its assets to, a receiver, trustee, liquidator, or other similar custodian for the Contractor or all or substantially all of the Contractor's assets; or

**11.4.1.4** any attachment, execution, or other judicial seizure is levied against all or substantially all of the Contractor's assets; or

**11.4.1.5** the Contractor takes any action toward the dissolution or winding up of its business; or

**11.4.1.6** the Contractor fails generally to pay its debts as they become due (unless those debts are subject to a good-faith dispute as to liability or amount) or it acknowledges in writing that it is unable to do so.

**11.4.2** If the Contractor files a voluntary petition in bankruptcy or has an involuntary petition in bankruptcy filed against it, the Contractor, the Contractor as the debtor-in-possession, or the trustee of the Contractor's bankruptcy estate shall file a motion to assume or reject the Contract under Bankruptcy Code § 365, 11 U.S.C. § 365, within 20 days after the

filing of the voluntary petition or involuntary petition and shall diligently prosecute that motion to conclusion so as to obtain an order granting or denying that motion within 45 days after the filing of the voluntary or involuntary petition.

**11.4.3** If the Contracting Authority intends to exercise its termination rights under this **Section 11.4**, the Contracting Authority shall notify the Contractor in writing of the Contracting Authority's termination of the Contract and the cause(s) for that termination.

**11.4.4** The Contractor agrees to the granting of relief from the automatic stay of the Bankruptcy Code, 11 U.S.C. § 362(a), to permit the Contracting Authority to terminate the Contract for cause in such instance and issue and serve all notices necessary to terminate the Contract or arising out of the termination of the Contract and to take any and all other action necessary to terminate the Contract.

## ARTICLE 12 - GENERAL PROVISIONS

### 12.1 Contractor's Documents and Contract Documents

#### 12.1.1 Ownership.

**12.1.1.1** The Owner alone owns the Contractor's Documents and the Contract Documents and every right, title, and interest therein.

- .1** The Contractor shall execute and deliver and cause its employees and agents and all Subcontractors and Consultants to execute and deliver to the Owner any transfers, assignments, documents, or other instruments (if any) necessary to vest in the Owner complete right, title, interest in and ownership of the Contractor's Documents and the Contract Documents.

**12.1.1.2** The Contractor may retain copies, including reproducible copies, of the Contractor's Documents and the Contract Documents for information, reference, and performance of the Work.

**12.1.1.3** The submission or distribution of the Contractor's Documents or the Contract Documents to meet official regulatory requirements or for similar purposes in connection with the Project is not a waiver of the Owner's reserved rights in the Contractor's Documents and the Contract Documents. Any unauthorized use of the Contractor's Documents or the Contract Documents shall be at the sole risk of the entity making the unauthorized use.

**12.1.1.4** The Contractor shall provide Electronic Files of the Contractor's Documents to Separate Consultants and Separate Contractors for their use in connection with the Project. The Contractor shall provide the Electronic Files **(1)** at no additional cost to the Separate Consultants, Separate Contractors, and Owner and **(2)** without requiring the Separate Consultants, Separate Contractors, or Owner to agree to any terms or conditions concerning the provision, receipt, or use of the Electronic Files that differ in any material respect from the Contract.

#### 12.1.2 Intent.

**12.1.2.1** The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor.

**12.1.2.2** The Contract Documents are complementary, and what is required by one is binding as if required by all.

**12.1.2.3** The Contractor shall provide all labor and materials necessary for the entire completion of the Work described in the Contract Documents and reasonably inferable to produce the intended results.

**12.1.2.4** The Drawings govern dimensions, details, and locations of the Work. The Specifications govern quality of materials and workmanship.

**12.1.2.5** The organization of the Specifications in divisions, sections, and articles, and the arrangement of Drawings shall not restrict the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

**12.1.2.6** In the event of inconsistency or conflict within the Contract Documents, the Contractor shall provide the better quality or greater quantity of Work, and comply with the stricter requirement.

**12.1.2.7** Unless otherwise defined in the Contract Documents, words that have well-known technical or construction industry meanings are used in accordance with those recognized meanings.

**12.1.2.8** The Sections of Division 01 - "General Requirements" govern the performance of the Work of all Sections of the Specifications.

**12.1.3 Use of Electronic Files.**

**12.1.3.1** The Owner, Contracting Authority, A/E, and Contractor reasonably expect that they will provide Electronic Files to each other to facilitate the design and construction of the Project consistent with current practices and customs in the construction industry.

**12.1.3.2** The Owner, Contracting Authority, A/E, and Contractor acknowledge that the use of Electronic Files involves risks not generally associated with the use of paper documents. Those risks include, for example and without limitation, alteration (inadvertent or intentional) and deterioration, both of which may not be readily apparent through casual observation.

**12.1.3.3** The Owner, Contracting Authority, A/E, and Contractor do not warrant to each other that any Electronic File they provide **(1)** was not altered through transmission; **(2)** is compatible with the recipient's computer system or software; **(3)** will not be altered through degradation of the recipient's storage media; or **(4)** is suitable for conversion/translation to and subsequent use in a system or format other than the Electronic File's original system or format.

**12.1.3.4** Before relying on any Electronic File it receives, the recipient is responsible for verifying that the Electronic File was not altered through transmission, degradation of the recipient's own storage media, or other causes.

**12.1.3.5** If the recipient of an Electronic File converts/translates the Electronic File from its original system or format to an alternate system or format, the recipient assumes the risk that the conversion/translation created errors in the converted/translated file.

**12.1.3.6** The Owner, Contracting Authority, A/E, and Contractor shall each maintain and operate its own computer systems and storage media in a commercially reasonable way and take reasonable steps to prevent errors in and deterioration of the Electronic Files it creates, provides, and receives.

**12.1.3.7** In the event of a discrepancy between information contained in a paper version of a document and the Electronic File of that document, the paper version will govern.

**12.1.3.8** This **Section 12.1.3** does not relieve the Contractor of its responsibility for the preparation, completeness, or accuracy of the Contractor's Documents.

**12.2 Public Relations**

**12.2.1 Publicity prior to completion of the Project.** Prior to completion of the Project, public relations or publicity about the Project shall be solely within the control, and with the consent of, the Owner.

**12.2.2 Publicity after completion of the Project.** After completion of the Project, the Contractor may exercise reasonable public relations and marketing efforts related to the Project, provided the Contractor properly identifies the Owner and Contracting Authority, and their participation in the Project.

**12.2.3 Professional Photography.** If the Contractor commissions photography of the completed Project, the Contractor shall include in its photography agreements a release for unrestricted and unlimited use of photographs by the Owner and Contracting Authority, and shall provide the Owner and Contracting Authority with a reasonable quantity of photographs for use in the Owner's and the Contracting Authority's marketing and awareness activities, including, but not limited to, profiles of the Project on their respective websites.

**12.2.4 Craft Awards and Other Recognition.** If the Contractor submits the Project for craft awards or other similar venues for recognition of the Project, the Contractor shall properly identify the Owner and Contracting Authority, and their participation in the Project. In addition, if the Project receives any craft award or other recognition, the Contractor shall provide duplicate copies of the award plaque or other memento of the award to the Owner and Contracting Authority.

**12.3 Application and Governing Law**

**12.3.1** The Contract and the rights of the parties thereunder shall be governed by the laws of the state of Ohio and only Ohio courts shall have jurisdiction over any action or proceeding concerning the Contract and/or performance thereunder. The Contractor irrevocably consents to such jurisdiction.

**12.3.2** The parties to the Contract shall comply with Applicable Law.

**12.3.3** Other rights and responsibilities of the Contractor, A/E, Contracting Authority, and Owner are set forth throughout the Contract Documents and included under different titles, articles, and paragraphs for convenience.

## 12.4 Conditions of the Contract

**12.4.1** These General Conditions govern, take precedence over, and shall not be superseded or amended by Drawings and Specifications, unless so provided in Supplementary Conditions prepared by the Contracting Authority and approved by the Ohio Facilities Construction Commission.

## 12.5 Notice of Commencement.

**12.5.1** The Contracting Authority shall prepare a Notice of Commencement and make it available as required under ORC Section 1311.252.

**12.5.2** Upon request, the Contracting Authority or the Contractor shall furnish the Notice of Commencement to Subcontractors or any other member of the public.

## 12.6 Written Notice

**12.6.1** Notice under the Contract Documents shall be validly given if:

**12.6.1.1** delivered personally to a member of the organization for whom the notice is intended;

**12.6.1.2** delivered by trackable delivery service, or sent by registered or certified mail, to the last known business address of the organization; or

**12.6.1.3** delivered by facsimile, email, or project management software.

**12.6.2** When the Owner, Contracting Authority, A/E, or Contractor gives notice to one of the other three, it shall also simultaneously send a copy of that notice to the others.

**12.6.3** A copy of all notices, certificates, requests, or other communications to the Contracting Authority shall be sent to the Project Manager.

**12.6.4** In the event of an emergency involving the Project, including, but not limited to, a fatality, serious injury, fire, collapse, flood, utility, or power loss to occupied facilities, explosion, or environmental damage, the Contractor shall immediately notify the A/E, Contracting Authority, and Owner by the most expedient means available.

**12.6.5** The Contracting Authority, Owner, A/E, or Contractor may, by written notice given hereunder, designate addresses, telephone numbers, email addresses, or facsimile numbers to which notices, certificates, requests, or communications shall be sent.

## 12.7 Taxes

**12.7.1** Only those materials that ultimately become a part of the completed structure or improvement that constitutes the Project shall be exempt from state sales tax and state use tax.

**12.7.2** The purchase, lease, or rental of material, equipment, parts, or expendable items as concrete form lumber, tools, oils, greases, and fuels, which are used in connection with the Work, are subject to the application of state sales tax and state use tax.

## 12.8 Computing Time

**12.8.1** When the Contract Documents refer to a period of time by a number of days, the period shall be computed to exclude the first and include the last day of the period. If the last day of the period falls on a Saturday, Sunday, or a Legal Holiday, that day shall be omitted from the computation and the period shall end on the next succeeding day that is not a Saturday, Sunday, or Legal Holiday.

**12.8.2** Except as excluded under **Section 12.8.1**, the Contract Times and all other periods referred to in the Contract Documents includes Saturdays, Sundays, and all days defined as Legal Holidays in the Contracting Definitions.

**12.8.3** The standard workdays for State projects are Monday through Friday, excluding Legal Holidays.

## 12.9 Time of the Essence

**12.9.1** Time limits stated in the Contract Documents are of the essence of the Contract and all obligations under the Contract. By signing the Agreement, the Contractor acknowledges that the Contract Times are reasonable, taking into consideration the usual weather and other conditions prevailing in the locality of the Project. By signing the Construction Schedule, the Contractor acknowledges that the specified Milestone dates are reasonable, taking into consideration the usual weather and other conditions prevailing in the locality of the Project.

**12.9.1.1** The Contractor acknowledges that the Owner has entered into, or may enter into, agreements for use of all or part of the premises where the Work is to be completed based upon the Contractor achieving Substantial Completion within the associated Contract Time.

**12.9.1.2** The Contractor shall perform the Work in a reasonable, efficient, and economical sequence, and in the order and time as provided in the Construction Progress Schedule.

**12.9.1.3** The Contractor acknowledges that it may be subject to interference, disruption, hindrance, or delay in the progress of the Work from any cause.

## **12.10 Successors and Assigns**

**12.10.1** The Contracting Authority and Contractor each bind themselves, their successors, assigns, and legal representatives, to the other party to this Contract and to the successors, assigns, and legal representatives of the other party with respect to all terms of this Contract.

**12.10.2** The Contracting Authority and Contractor each acknowledge that the Owner is an intended third-party beneficiary of this Contract.

**12.10.3** The Contractor shall not assign or transfer any right, title, or interest in this Contract without the Contracting Authority's prior written consent.

## **12.11 Extent of Contract**

**12.11.1 Entire Contract.** Contract Documents represent the entire and integrated agreement between the Contracting Authority and Contractor and supersede all prior negotiations, representations, or agreements, either written or oral.

**12.11.2 Multiple Counterparts.** This Contract may be executed in any number of counterparts, each of which shall be regarded as an original and all of which shall constitute but one and the same instrument.

**12.11.3 Captions.** The captions and headings in this Contract are for convenience only and in no way define, limit, or describe the scope or intent of any provisions or sections hereof.

**12.11.4 Precedence.** In the event of a conflict or inconsistency between these General Conditions and any other Contract Documents (except Supplementary General Conditions), these General Conditions take precedence. In the event of a conflict or inconsistency between these General Conditions and Supplementary Conditions, the Supplementary Conditions take precedence.

## **12.12 Severability**

**12.12.1** If any term or provision of this Contract or the application thereof to any Person or circumstance, is finally determined to be invalid or unenforceable by a court of competent jurisdiction, the remainder of this Contract or the application of such term or provision to other Persons or circumstances, shall not be affected thereby, and each term and provision of this Contract shall be valid and enforced to the fullest extent permitted by Applicable Law.

## **12.13 Electronic and Facsimile Signatures**

**12.13.1** Any party hereto may deliver a copy of its counterpart signature page to this Contract via electronic signature software, fax, e-mail, or project management software. Each party hereto shall be entitled to rely upon an electronic, scanned, or facsimile signature of any other party delivered in such a manner as if such signature were an original.

## **12.14 No Third-Party Interest**

**12.14.1** Except as expressly provided under **Sections 6.2.2 through 6.2.5** and **Section 12.10.2, (1)** no person or entity, other than the Contracting Authority, Owner, and Contractor, will have any right or interest under the Contract, and **(2)** the Contract does not create a contractual relationship of any kind between any people or entities other than the Contracting Authority, Owner, and Contractor.

## **12.15 Ohio Retirement System**

**12.15.1** All individuals employed by the Contractor that provide personal services to the Contracting Authority or Owner are not public employees for the purposes of ORC Chapter 145, as amended.

**12.15.2** If the Contractor is a PERS retirant, as defined by ORC Section 145.38, the Contractor shall notify the Contracting Authority of such status in writing prior to commencement of Work. The Contracting Authority, Owner, or State is not responsible for changes to the Contractor's retirement benefits resulting from entering into this Contract.

**12.16 No Waiver**

**12.16.1** The failure of the Contracting Authority or Contractor to insist in any one or more instances upon the strict performance of any one or more of the provisions of the Contract or to exercise any rights under the Contract or provided by law will not be construed as a waiver or relinquishment of that provision or right or of the right to subsequently demand strict performance or exercise the right and the rights will continue unchanged and remain in full force and effect.

**12.17 Rights and Remedies**

**12.17.1** The duties, obligations, rights, and remedies under the Contract are in addition to and not a limitation of the duties, obligations, rights, and remedies otherwise imposed by or available under Applicable Law.

**12.18 Survival of Obligations**

**12.18.1** All representations, indemnity obligations, warranties, guarantees, and necessarily continuing obligations under the Contract, will survive final payment, completion and acceptance of the Work, and termination or completion of the Contract.

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**END OF DOCUMENT**

# Document 00 73 00 - Supplementary Conditions (OSU General Contracting)

## State of Ohio Standard Requirements for Public Facility Construction

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### Certifications

These Supplementary Conditions amend and supplement the Contracting Definitions, General Conditions and other provisions of the Contract Documents as indicated below. All provisions not amended remain in full force and effect. Unless otherwise specified, the terms in these Supplementary Conditions defined in the Contracting Definitions or the General Conditions shall have the meanings assigned to them in those documents.

These Supplementary Conditions are authorized by the Ohio Facilities Construction Commission for use on projects constructed by and for The Ohio State University ("University").

### Contracting Authority

The Ohio State University  
Facilities Design and Construction 400 Enarson Classroom Building  
2009 Millikin Road  
Columbus, Ohio 43210  
<https://fdc.osu.edu/>

### Institutional Designee

Kristin Poldemann  
Associate Vice President

## MODIFICATIONS TO CONTRACTING DEFINITIONS

*Replace the definition of **Substantial Completion** with the following:*

**Substantial Completion** The stage in the progress of the Work when the Work (or designated portion of the Work for which the Contracting Authority and Owner have agreed to take Partial Occupancy) is sufficiently complete in accordance with the Contract that the Owner can utilize the Work for its intended use, as determined by the A/E. The issuance of a certificate of occupancy or partial certificate of occupancy (if applicable) is a condition precedent to the achievement of Substantial Completion. For a Wexner Medical Center facility where a final certificate of occupancy is required for licensure by the Ohio Department of Health or other regulatory body, issuance of a final certificate of occupancy is a condition precedent to the achievement of Substantial Completion.

## MODIFICATIONS TO GENERAL CONDITIONS

*Replace Sections 1.7.1 and 1.7.2 with the following:*

**1.7.1** The Contractor shall use the University's project management software, including all required browser extensions, for all compatible services required under this Contract.

**1.7.2** All costs for the Contractor's use of project management software, including the University's project management software, for the Project shall be included in the Contract Sum. If the Contractor is unfamiliar with the proper use of the software, the Contractor shall provide its employees for training without additional compensation.

*Insert Section 1.9.2 as follows:*

**1.9.2** For Wexner Medical Center projects, the Contractor shall comply with applicable OSU Wexner Medical Center policies, including the Identification Badge Policy, which incorporates the Non-discretionary Vaccination Policy/Employee Health Infection Control and Background Check Policies, as identified at <https://wexnermedical.osu.edu/utility/footer/vendor-interaction>. The Contractor is responsible for all costs incurred related to compliance with these policies.

*Revise Section 1.13.2 as follows:*

**1.13.2** The Contractor shall follow the requirements of the University Sustainability Standards available at <https://fod.osu.edu/bds>.

*Insert Section 1.14 as follows:*

#### **1.14 University BIM Standards**

**1.14.1** If the Project is administered using Building Information Modeling, the Contractor shall follow the requirements described in the University BIM Standards available at <https://fod.osu.edu/bds>.

*Replace Section 2.1.4.2 with the following:*

**2.1.4.2** If the Project is administered using the University's project management software, the Contractor shall utilize the web-based forms and reports within the applicable business process. The web-based forms and reports are acceptable to the University in lieu of its paper forms.

*Insert Section 5.2.3.2 as follows:*

**5.2.3.2** The Contractor shall secure and pay for a Stormwater Control Practice Construction Bond on behalf of the University to guarantee the construction of any stormwater control practices required by local authorities having jurisdiction over the Project prior to starting stormwater construction.

*Insert Section 6.3.3.3 as follows:*

**6.3.3.3** Cutting and patching shall be done by craftspersons skilled in the type(s) of work involved. Refer to the specifications for detailed cutting and patching procedures.

*Replace Section 6.3.4.1 with the following:*

**6.3.4.1** The University will not permit any Work to proceed until utility marking of University-owned utilities has been completed. The Contractor shall follow all dig permit and OUPS requirements including pre-marking the approximate excavation area in white at least 72 hours prior to the planned excavation.

*Insert Section 6.3.8 as follows:*

**6.3.8** In accordance with Federal Safety Standards (CFR 49 Parts 191 and 192) as enforced by PUCO, the University and its designee, Ohio State Energy Partners, require all personnel working directly with natural gas lines, including those doing "new construction" work, to provide written and performance verification of DOT Operator Qualifications for each covered task performed on the Columbus Campus. This directive is intended for natural gas distribution systems and is not applicable to natural gas piping in buildings on the downstream side of the buildings' gas regulator. The Contractor shall provide the DOT Operator Qualifications Certification directly to the Project Manager.

*Insert Section 6.10.2.1 as follows:*

**6.10.2.1** The Contractor and its Subcontractors shall respect the rights of private property owners adjacent to the campus by not littering.

*Insert Sections 6.11.8 and subordinate sections as follows:*

#### **6.11.7 Hardware.**

##### **6.11.7.1 Columbus Campus:**

- .1** The Contractor shall be responsible for providing all permanent interchangeable lock cores and keys for the Project. The Contractor or its Subcontractor responsible for hardware ("Hardware Subcontractor") must coordinate with the University Lock and Key Services for the installation of permanent cores. The Contractor or its Hardware Subcontractor shall contact the University Lock and Key Services, 614.292.1415 or [Lock and Key Services | Facilities Operations and Development](#), which will develop the keys and cores for the key system designated by the user or users of that building. The Contractor or its Hardware Subcontractor shall also assist the University Lock and Key Services in developing the appropriate key system. Costs if any shall be borne by the Contractor.
- .2** For projects located at the Wexner Medical Center, the Hardware Subcontractor shall coordinate with the Medical Center's Access Control Manager at 614.293.8500.

**6.11.7.2 Regional Campuses:** If the Contractor is performing work on a regional campus it shall coordinate with the campus facility manager on matters of keys and cores into the key system designated for the campus.

*Insert Section 6.12.2.1 as follows:*

**6.12.2.1 Sexual Harassment.** The University maintains an environment free from sexual harassment. The Contractor and Subcontractors are hereby notified that prompt corrective measures will be taken to stop sexual harassment whenever it occurs in accordance with University policy.

*Insert Section 6.12.2.2 and subordinate sections as follows:*

**6.12.2.2 Prohibition Against Photos, Interaction with Athletes, Coaches, and Staff.** The Contractor shall dismiss from the Project any person employed by the Contractor or a Subcontractor who the University finds, in its sole discretion, to be in violation of the following prohibitions. No person employed by the Contractor or a Subcontractor shall:

- .1 electronically distribute to any social media platform, post, or electronically share photographs or comments related to the Project, including images of any building or facility associated with the Project; or
- .2 make contact with student athletes, coaches or staff to request autographs, photograph opportunities, or similar interaction in connection with the University's athletic program.

*Replace Section 6.13.1.1 with the following:*

**6.13.1.1** The Contractor is responsible for designing and implementing its own safety program, including compliance with OSHA and other state and federal regulations. The Contractor's safety plans, such as fall protection, hazards, communications, competent person, etc., shall meet or exceed the University's safety plan. At the preconstruction or designated meeting, the Project Manager and the Contractor will review the Contractor's safety plans and University's incident reporting requirements.

*Insert Section 6.13.1.2 as follows:*

**6.13.1.2** The University is not responsible for managing the Contractor's safety program on the Project.

*Replace Section 6.13.3 with the following:*

**6.13.1.3** Not less than 10 days prior to starting any Work, the Contractor shall submit a copy of the Contractor's site-specific safety plan and safety manuals, including the completed Site-Specific Safety Plan (SSSP) and Operational Hazard Analysis (OHA), for University review, comment, and acceptance. The University's Site-Specific Safety Plan (SSSP) Template and Operational Hazard Analysis (OHA) Template are available here <https://fod.osu.edu/resources>, under the section titled "Construction Site Safety Requirements." The Contractor shall update its site-specific safety plan and safety manuals, as needed, to include any changes in Subcontractors or changes in the Work.

*Insert Sections 6.13.4.4 and 6.13.4.5 as follows:*

**6.13.4.4** The Contractor shall acquaint itself with and follow University fire alarm procedures and the location of fire warning and extinguishing or control devices.

**6.13.4.5 False Fire Alarms.** As Liquidated Damages, and not as a penalty, the Contractor acknowledges and agrees that the University shall be entitled to retain or recover from the Contractor \$300 or actual costs, whichever is greater, for each false fire alarm that is determined to be a result of negligence by the Contractor. This amount reflects the University's actual costs incurred in dealing with these false alarms, including, but not limited to, the costs of transportation, manpower, and loss of efficiency.

*Insert Sections 6.13.6.3 and 6.13.6.4 as follows:*

**6.13.6.3** In addition to the SDS notebooks required on Site, the Contractor shall provide the A/E with a copy of all SDS. At the completion of the Project, the A/E will forward the SDS to the University.

**6.13.6.4** When a Hazardous Material is included in a Shop Drawing, the Contractor shall submit an SDS with the Shop Drawing. Otherwise, the Contractor shall submit the SDS at least 3 business days prior to the Hazardous Material being brought on Site.

*Replace Section 6.16.6.1 with the following:*

**6.16.6.1** Smoking and the use of tobacco and tobacco products are prohibited in or on all University owned, operated, or leased property, including golf courses, airports, nature centers, regional campuses, the main medical center campus, University Hospital East and all other OSU Medical Center properties. The policy also includes parking lots and garages, state and personal vehicles parked on university property. Tobacco is defined as all tobacco-derived or containing products, including and not limited to, cigarettes (clove, bidis, kreteks), electronic cigarettes, cigars and cigarillos, hookah smoked products, pipes, and oral tobacco (spit and spitless, smokeless, chew, snuff). It also includes any product intended to mimic tobacco products or contain tobacco flavoring. The University's non-smoking policy (Policy #7.20) can be viewed at: <https://hr.osu.edu/wp-content/uploads/policy720.pdf>. The Contractor shall enforce these restrictions on any individual employed by the Contractor or by Subcontractors.

*Insert Section 6.16.7 and subordinate sections as follows:*

**6.16.7 Parking.**

**6.16.7.1 Columbus Campus:**

- .1** All parking on the University's campus is restricted and controlled by CampusParc. Employees of the Contractor and its Subcontractors who will be parking a vehicle on University property must purchase parking permits from CampusParc and shall park cars in areas designated to them either by CampusParc or the Project Manager. Parking on streets or in restricted areas is prohibited. Violations will result in a citation or vehicle impoundment.
- .2** At the beginning of the Work, the Contractor shall work with the Project Manager to determine how many proximity permits are necessary, and how many remote permits will be needed for all employees, including employees of Subcontractors.
- .3** Depending upon availability, proximity parking contractor permits (CVA permits) may be purchased for employees that must be parked on or near the worksite (such as those who are actively working out of their vehicle), or who must come and go frequently. The CVA permit allows parking in any posted "A", "B", or "C" surface parking. CVA keycards will allow access to staff garages.
- .4** All other construction personnel are eligible to purchase a contractor remote parking pass (CVB permit), which is restricted to parking at the Buckeye Lot or West Campus park and ride locations. Shuttle buses to central campus are available.
- .5** Shuttle bus service hours are posted online at <http://ttm.osu.edu>. Private shuttles, arranged by the Contractor, must be coordinated with Transportation & Traffic Management.
- .6** Contractors and Subcontractors actively working on an Ohio State University project are prohibited from parking in a designated patient parking garage in the Wexner Medical Center at any time, even when paying the posted hourly fees.

**6.16.7.2 Regional Campuses:** If the Contractor is performing work on a regional campus it shall coordinate with the campus facility manager on matters of parking permits and designated areas.

*Insert Sections 6.16.8 and 6.16.9 as follows:*

**6.16.8** The Contractor shall not be permitted to use University streets for any purpose not previously approved by Transportation & Traffic Management. This includes, but is not limited to, trucks stopping on streets awaiting access to the Site. Should Site constraints be such that offloading of trucks from University streets is required, the Contractor shall provide a written request to Transportation & Traffic Management 5 days in advance of the date when the unloading is required. The Contractor shall pay for any traffic control that the Director of Transportation & Traffic Management determines is necessary due to the street blockage. The Contractor shall also post signs 3 days in advance of any street blockage longer than 2 hours, warning motorists of the date, time, and duration of the planned blockage.

**6.16.9** The Contractor shall validate with the appropriate University, city, county, or state agency the status of road work impacting traffic flow on, to, and from, campus.

*Insert Sections 6.17.3, 6.17.3.1, 6.17.3.2, and 6.17.4 as follows:*

**6.17.3 Columbus Campus:**

**6.17.3.1** The interruption, disconnection, reconnection, reduction, or curtailment of any existing services shall not be undertaken without minimum prior written notice of 2 weeks and shall be coordinated with Service2Facilities, 614.292.4357. This work may be performed during normal working hours, holidays, and weekends or as directed by the Project Manager, but shall always be scheduled to minimize the effect of these shutdowns with other facilities on Campus.

**6.17.3.2** The Contractor shall, at the beginning of the Contract Times, coordinate with the University's Utilities Division for this work. The Contractor shall determine the number of times and the types and length of shutdown required for connections to that utility. Costs, if any, shall be borne by the Contractor.

**6.17.4 Regional Campuses:** If the Contractor is performing work on a regional campus it shall coordinate with the campus facility manager on matters of utility shutdowns and cost.

Replace section 6.29.1.1 as follows:

**6.29.1.1** the building authority with jurisdiction over the Project issues a partial certificate of occupancy for the portion of the Project the Owner intends to occupy and, for a Wexner Medical Center facility, all government or regulatory licensure or approvals are complete such that the designated portion of the Work may be put to its intended use;

Insert Section 6.30.3 as follows:

**6.30.3 Closeout Standards.** The Contractor shall comply with The Ohio State University Project Closeout Standards found on the Ohio State University Facilities Operations and Development website at <https://fod.osu.edu/resources>.

Replace existing 7.8.2.11 with the following:

**7.8.2.11 Contractor's Fee:** Adjustment of the Contract Sum on account of a change in the Work shall include an allowance for the Contractor's Fee equal to 10 percent of the sum of the costs described under Sections **7.8.2.1** through **7.8.2.10** that are associated with that changed Work. For self-performed Work, the adjustment is limited to the allowance specified in this Section and shall not include the Subcontractor adjustment specified in Section **7.8.2.10**.

Replace existing 7.8.2.12.1 with the following:

- .1 The premium portion only for approved overtime (labor and fringes). The Contractor's Fee and Subcontractor overhead and profit may be applied only to straight time. The straight time portion is included in items in **Sections 7.8.2.2, 7.8.2.3, and 7.8.2.4**.

Replace Section 7.11.2.1 with the following:

**7.11.2.1** The Contractor shall maintain, and require all Subcontractors to maintain, complete and accurate business records in accordance with Generally Accepted Accounting Principles, at its principal place of business. If its principal place of business is not in Columbus, Ohio, the Contractor shall make records available, and shall require its Subcontractors to make records available, at the Site within 48 hours of a request for the records.

Replace Section 8.7.1 with the following:

**8.7.1** If the Contractor fails to achieve a Milestone within the associated Contract Time, it would be difficult, if not impossible, to determine the Owner's resulting damages. Therefore, if the Contractor fails to achieve a Milestone within the associated Contract Time, the Contractor shall (at the Owner's option) pay to or credit the Owner the Liquidated Damages per day sum determined according to the following schedule for each day that the Contractor fails to achieve a Milestone within the associated Contract Time. If the Project involves more than one Phase as explicitly identified in the Agreement, the Contract Sum in the below schedule refers to the total Contract Sum for each of the Phases individually as opposed to the aggregate Contract Sum for all Phases.

| Contract Sum                         | Liquidated Damages per day                 |
|--------------------------------------|--------------------------------------------|
| Less than \$1,000,000                | \$500                                      |
| From \$1,000,000.01 to \$2,000,000   | \$1,000                                    |
| From \$2,000,000.01 to \$5,000,000   | \$2,000                                    |
| From \$5,000,000.01 to \$10,000,000  | \$5,000                                    |
| From \$10,000,000.01 to \$20,000,000 | \$7,500                                    |
| From \$20,000,000.01 to \$50,000,000 | \$10,000                                   |
| More than \$50,000,000               | .0003 times the amount of the Contract Sum |

Insert Section 8.8.4 as follows:

**8.8.4 Interdependence of Waivers:** The waivers of damages by the Owner and the CM in this Section 8.8 are mutually dependent. If any portion of the CM's waiver in Section 8.8.1.2, specifically including, but not limited to, the waiver of unabsorbed home office overhead, is held by a court to be invalid, void, or unenforceable, then the Owner's waiver in Section 8.8.1.1 shall also be deemed void and unenforceable in its entirety. In such an event, both parties shall be entitled to pursue all damages available to them under applicable law as if this Section 8.8 had never been included in the Contract.

*Insert Section 9.3.2.9 as follows:*

**9.3.2.9** Closeout items shall be noted separately on the Schedule of Values. At a minimum this shall include the following items and minimum percentage of the Contract Sum:

- .1 Interim Closeout Items (N/A): Start of project record document submittals and start of specified demonstrations and training.
- .2 Closeout Items at Certificate of Occupancy or Substantial Completion (N/A): Start of punch list work.
- .3 Closeout Items at Deliverable Final Due Date (N/A): Completion of punch list work, completion of project record document submittals, delivery of attic stock, and completion of specified demonstrations and training.

| Closeout Schedule of Values (SOV) Percentage Table |                    |                |                 |               |
|----------------------------------------------------|--------------------|----------------|-----------------|---------------|
| Total Project Cost                                 | \$250,000 – \$3.9M | \$4M – \$19.9M | \$20M - \$99.9M | \$100M & Over |
| Percent of Contract Value                          | 5%                 | 4%             | 3%              | 1-2%          |

*Insert Section 9.5.3 as follows:*

**9.5.3** The University reserves the right to make partial payments to the Contractor for labor in an amount greater than the rate of 96 percent of the amount invoiced through the payment request.

*Insert Section 10.2.9 as follows:*

**10.2.9** Where the Contractor is required to include the Owner as an additional insured, the endorsement shall list The Ohio State University and its Board of Trustees as additional insured.

*Replace Sections 12.2.1 through 12.2.4 with the following:*

**12.2.1** Publicity: Public relations or publicity about the Project shall be led by, solely within the control, and with the consent of, the University.

**12.2.2** Use of Name, Likeness, Marks, Photography, Videography: Contractors, including subcontractors and suppliers providing products or services to the University, are not permitted to use the University's name, likeness and intellectual property (IP), including but not limited identifying marks, logos, trademarks, photos and video for the purposes of advertising, references or client lists without the prior written consent of the University's Office of Trademark and Licensing. This includes use of photography and videography showcasing the University's name or other identifying marks. Any use that could imply perceived University endorsement of the contractor, its products and services is strictly prohibited and will not be approved. Please review the Supplier Advertising Policy for more information.

**12.2.3** Professional Photography: If the University grants written consent for project publicity and the Contractor commissions photography, the Contractor must ensure that its photography agreements include: (1) a release granting the University unrestricted and unlimited rights to use the photographs, and (2) a prohibition on the photographer using the University's name, logos, or identifying marks without prior written consent from the University's Office of Trademark & Licensing, in coordination with the Office Administration and Planning. The University reserves the right to approve any photographer engaged for this purpose.

**12.2.4** Craft Awards and Other Recognition: If the University consents to the submission of the project for any design, construction, or industry award, the submission must include a disclaimer stating: "*This submission does not constitute an explicit or implied endorsement, or university promotion, of the Contractor.*" All submission materials must be reviewed and approved by the University prior to final submission. Materials must pertain only to the specific project.

*Insert Sections 12.2.5 and 12.2.6 as follows:*

**12.2.5** Future Project Proposals: The Contractor may reference its work on the Project in future proposals, provided that such references are factual and do not include University logos, trademarks, or other identifying marks without prior written consent from the University's Office of Trademark & Licensing.

**12.2.6** Compliance: Any violation of this section may result in termination of the Agreement and/or other remedies available to the University.

*Insert Section 12.3.4 as follows:*

**12.3.4** For work performed within the City of Columbus, Applicable Law expressly includes the Contractor's obligation to withhold city income taxes under the provisions of Columbus City Codes Chapter 362.



*Insert Section 12.8.4 as follows:*

**12.8.4** A list of University holidays is available at <https://busfin.osu.edu/buy-schedule-travel/payroll/paydate-schedule>.

**END OF DOCUMENT**

# Document 00 73 43 - Wage Rate Requirements

## State of Ohio Standard Requirements for Public Facility Construction

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### PREVAILING WAGE RATES

#### 1.1 Payment of Prevailing Wage Rates

**1.1.1** The Contractor shall pay the prevailing wage rates of the Project locality, as issued by the Ohio Department of Commerce, Wage and Hour Bureau to laborers and mechanics performing Work on the Project.

**1.1.2** The Contractor shall comply with the provisions, duties, obligations, and is subject to the remedies and penalties of ORC Chapter 4115.

**1.1.3** If the Contractor or its Subcontractors fail to comply with ORC Chapter 4115, the Contracting Authority may withhold payment pursuant to **Section 9.8.2.5** of the **General Conditions**. The Contractor is liable for violations committed by the Contractor or its Subcontractors to the extent provided in ORC Chapter 4115.

**1.1.4** The Contractor shall submit all payroll reports in compliance with the requirements of **Section 1.2** for all employees of the Contractor and of the Contractor's Subcontractors.

**1.1.5** By executing a Contract, the Contractor certifies that it based its Bid upon the prevailing rates of wages as ascertained by the Ohio Department of Commerce, Wage and Hour Bureau for the Project as provided in ORC Sections 4115.03 through 4115.14, which are inserted at the end of this Document.

#### 1.2 Prevailing Wage Rate Revisions

**1.2.1** The Contracting Authority shall, within 7 business days after receipt of a notice of a change in the prevailing wage rates, notify the Contractor of the change. The prevailing wage rates are available at the Ohio Department of Commerce's web site: <http://com.state.oh.us/>.

**1.2.2** The Contractor shall pay any revised wage rates issued during the term of the Contract.

#### 1.3 Payroll Schedule

**1.3.1** Within 10 days of the date of the Notice to Proceed, the Contractor shall provide the Contracting Authority's Prevailing Wage Coordinator a schedule of dates during the term of the Contract on which wages shall be paid to employees for the Project.

#### 1.4 Payroll Reports

**1.4.1** The Contractor shall submit payroll reports with each Contractor Payment Request, which reports shall be certified by the Contractor that the payroll is correct and complete, and that the wage rates shown are not less than those required by the Contract. The Contractor is responsible for submitting all payroll reports of its Subcontractors.

**1.4.1.1** Each payroll report shall indicate the period covered and include a list containing the name, address, and last four digits of the social security number of each employee of the Contractor and its Subcontractors paid for the Work.

**1.4.1.2** Each payroll report shall list the number of hours each employee worked each day on the Project during the reporting period, the total hours each week on the Project, the employee's hourly rate of pay, job classification, hourly rate of fringe benefits, and all deductions from wages and net pay.

**1.4.1.3** Each payroll report shall list each fringe benefit and state if it is paid as cash to the employee or to a named plan.

**1.4.1.4** The Contractor and its Subcontractors shall submit apprenticeship agreements for all apprentices utilized on the Project with the first payroll report from the Contractor or its Subcontractor that includes apprentices.

### END OF DOCUMENT

## **SECTION 011000 SUMMARY**

### **PART 1 GENERAL**

#### **1.01 PROJECT**

- A. Project Name: 25022-OSU\_Marion\_MorrillElevatorUpgrades
- B. Nothing in this Division shall be intended to amend or modify the stipulations fo the General Conditions of the Contract of Construction.
- C. Ohio State Project Number: OSU-250050
- D. A/E's Project Number: 25002
- E. Description: This project includes the Modernization of 1 hydraulic elevators at Morrill Hall on the OSU Marion Campus, with additional upgrades of the existing Fire Alarm system. The scope also includes selective demolition and renovation of portions of the building in support of the Elevator Modernization. This building will be occupied for the duration of the project.
- F. OSU Main Campus Building included in the scope of work:
  - 1. Morrill Hall, OSU Building # 0627, 1465 Mt. Vernon, Marion, OH 43302
- G. Work includes, but is not limited to:
  - 1. Elevator Modernizations of 1 hydraulic elevator.
  - 2. Selective environmental remediation of hazardous materials within the existing structures.
  - 3. Selective demolition of general building construction.
  - 4. Selective demolition of mechanical, and electrical systems.
  - 5. Interior Remodeling of areas shown on the drawings.
  - 6. Modifications to existing Mechanical, and Electrical.
  - 7. Modifications to existing Fire Alarm Systems.

#### **1.02 CONTRACTS**

- A. Provide work under single Prime Contract as follows:
  - 1. Contract 01 (Contractor): General Trades Contractor
- B. Contract Description:
  - 1. General Trades - This package includes the full scope of work for this project.
- C. Work performed by others under a separate contract or by the Owner: The Contractor for this project will be required to coordinate and schedule the following activities in conjunction with the University:
  - 1. Data and Telephone work performed by University or their vendor. Reference requirements of this contract under Division 27, this reference does not negate any of requirement of Div. 27.
- D. Miscellaneous furnishings and equipment, except as shown and specified, will be furnished and installed by the Owner. Contractor advised not to construe this paragraph as releasing any obligation on his part to provide complete systems for all work shown or specified. The Contractor shall schedule and allow the University access to the site to perform this work.

#### **1.03 SECTIONS OF THE WORK**

- A. The Specifications for the work are arranged in various trade Sections as a convenience to more clearly show the extent of work involved. These Sections are not intended to define an complete Subcontract. Contractor shall verify proposals and shall furnish all labor, materials, appliances and services necessary to provide any missing work to coordinate the various sections. The Architect's position is that all the work is performed by the Contractor. Questions concerning work included under any Subcontractor is entirely between the Contractor and his Subcontractor.

#### **1.04 OWNER OCCUPANCY**

- A. Owner intends to occupy adjacent portions of the existing building during the entire construction period.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.

#### **1.05 CONTRACTORS' USE OF SITE AND PREMISES**

- A. Occupancy: The building will be occupied during construction. Protection of existing site and building components, systems and materials to remain is required. Any damage will require the Contractor to pay for repair and or reconstruction to return damaged property to original condition. Lawns and plant materials including trees damaged due to construction activities will be restored materials of like kind. Restored lawns shall be resodded.
- B. Employee Identification: Contractor will obtain identification tags for all Contractor and Subcontractor personnel working on the Project site. Contractor/Subcontractor personnel will be required to use identification tags at all times.
  - 1. Contractor shall submit a list of people working in the building and requiring identification tags. The names submitted must match the name on the Driver's License, State ID, or Federal Identification Card. A Driver's License, State ID, or Federal Identification Card must be presented at the BUCK-I-D office at the time of obtaining the ID.
    - a. If the Contractor has an existing Campus ID, submit the name listed on the card.
  - 2. The cost of obtaining the ID is to be paid for by the Contractor. ID cost is \$5 per person.
- C. Employee Screening: Comply with the Owner's requirements for drug and background screening of Contractor personnel working on the Project site.
  - 1. Maintain a list of approved screened personnel with the Owner's representative.
  - 2. Provide, on the Contractor's letterhead, a memo listing employees by name and stating that they meet the Contractor's background check policy
- D. On Site Storage:
  - 1. On-site storage of materials or equipment not permitted without prior written approval of the University.
  - 2. Relocation of stored materials or equipment required by job progress will be performed at the sole expense of the Contractor that placed, or caused to be placed, such materials or equipment on the job site.
- E. Do not load structures with weight that will endanger structure. If such loading is required to prosecute the work, the Contractor shall employ a professional structural engineer to provide any shoring plans and evaluation of any loads required to prosecute the work. The allowable uniform design and point loads shall not be exceeded as follows:
- F. Noise Restriction: Construction noise and general activity schedule shall be coordinated with the Owner prior to commencing the work. Construction related noise will be generally permitted between 9am to 11pm. See the Material Routing drawing sheets for each building for building-specific allowable work hours.
  - 1. Noisy work (above 80 decibels) must be done before or after normal building operational hours and scheduled with the University in advance. Contractor shall manage construction noise in accordance with all local ordinances and laws.
- G. On-Site Work Hours:
  - 1. General work hours: 6:30am to 7:00pm, Seven days per week (as required).
  - 2. Working hours for "After-hours" work: 7:00pm - 6:30am.
    - a. Scopes of work that will affect the building occupants shall be performed after hours. These must be included in the base bid. Related scopes of work include, but are not limited to: Fire Alarm testing, Elevator Inspections, and other work that will require building systems to be taken off-line that will affect building occupants.

#### **1.06 BUILDING-SPECIFIC UTILITY SHUT-DOWNS: THE FOLLOWING SCOPES OF WORK WILL REQUIRE EITHER A PARTIAL OR FULL BUILDING ELECTRICAL SHUT-DOWN THAT WILL DISRUPT THE OPERATIONS IN THE BUILDINGS. THESE ARE BEING IDENTIFIED IN THIS**

**SECTION TO BRING IT TO THE ATTENTION OF THE CONTRACTOR. THIS LIST IS NOT COMPREHENSIVE OF ALL REQUIRED UTILITY DISRUPTIONS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL SCOPES OF WORK IN THIS CONTRACT.**

**A. Morrill Hall - Partial Electrical**

**END OF SECTION**

**SECTION 012300  
ALTERNATES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Description of Alternates.

**1.02 DEFINITIONS**

- A. An Additive Bid Item is an amount proposed by Bidders and stated on the Bid Form that will be added to the Base Bid amount of the University decides to accept a corresponding change in either scope of Work or in products, materials, equipment, systems or installation methods described in Contract Documents.

**1.03 COORDINATION**

- A. Coordinate related work and modify or adjust adjacent work as required to ensure that Work affected by each accepted Additive Bid Item is complete and fully integrated into the project.

**1.04 DESCRIPTION OF REQUIREMENTS**

- A. Include all Alternates on the Bid Form; failure to comply may be cause for rejection.
- B. Alternates will be reviewed and accepted or rejected at University's option.
- C. Coordinate related work and modify surrounding work to integrate the work of each Alternate.
- D. Submittals
  - 1. Each alternate shall be the total lump sum cost to be added to or deducted from the Base Bid as stated on the Bid Form. All materials and workmanship equal to the base specification. All labor, material and equipment required for the work to be included.
  - 2. No other alternates shall be submitted other than described herein.

**1.05 RELATED REQUIREMENTS**

- A. Document 002113 - Instructions to Bidders: Instructions for preparation of pricing for Alternates.

**1.06 ACCEPTANCE OF ALTERNATES**

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

**1.07 SCHEDULE OF ALTERNATES**

- A. Alternate No. 1:
  - 1. Alternate Item: Add the 3rd floor fire alarm replacement and any associated work as noted on the drawings.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 013000  
ADMINISTRATIVE REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. General administrative requirements.
- B. Preconstruction meeting.
- C. Site mobilization meeting.
- D. Progress meetings.
- E. Construction progress schedule.
- F. Progress photographs.
- G. Coordination drawings.
- H. Number of copies of submittals.
- I. Submittal procedures.

**1.02 RELATED REQUIREMENTS**

- A. Section 013216 - Construction Progress Schedule: Form, content, and administration of schedules.
- B. Section 016000 - Product Requirements: General product requirements.
- C. Section 017800 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PRECONSTRUCTION MEETING**

- A. Attendance Required:
  - 1. University.
  - 2. Architect.
  - 3. Contractor.
- B. Agenda:
  - 1. Execution of University-Contractor Agreement.
  - 2. Submission of executed bonds and insurance certificates.
  - 3. Distribution of Contract Documents.
  - 4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
  - 5. Designation of personnel representing the parties to Contract, \_\_\_\_\_ and A/E.
  - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  - 7. Scheduling.
- C. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

**3.02 SITE MOBILIZATION MEETING**

- A. Attendance Required:
  - 1. Contractor.
  - 2. University.
  - 3. Architect.
  - 4. Contractor's superintendent.
  - 5. Major subcontractors.
- B. Agenda:

1. Use of premises by University and Contractor.
  2. University's requirements.
  3. Construction facilities and controls provided by Owner.
  4. Temporary utilities provided by Owner.
  5. Survey and building layout.
  6. Security and housekeeping procedures.
  7. Schedules.
  8. Application for payment procedures.
  9. Procedures for testing.
  10. Procedures for maintaining record documents.
  11. Requirements for start-up of equipment.
  12. Inspection and acceptance of equipment put into service during construction period.
- C. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

### **3.03 PROGRESS MEETINGS**

- A. Attendance Required:
1. Contractor.
  2. University.
  3. Architect.
  4. Contractor's superintendent.
  5. Major subcontractors.
- B. Agenda:
1. Review minutes of previous meetings.
  2. Review of work progress.
  3. Field observations, problems, and decisions.
  4. Identification of problems that impede, or will impede, planned progress.
  5. Review of submittals schedule and status of submittals.
  6. Maintenance of progress schedule.
  7. Corrective measures to regain projected schedules.
  8. Planned progress during succeeding work period.
  9. Maintenance of quality and work standards.
  10. Effect of proposed changes on progress schedule and coordination.
  11. Other business relating to work.
- C. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

**END OF SECTION**



**SECTION 013100  
PROJECT COORDINATION**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Related Section
  - 1. Project Meetings: Section 01 31 19
  - 2. Construction Schedule: Section 01 32 16
  - 3. Temporary Utilities: Section 01 51 00
  - 4. Construction Facilities: Section 01 52 00

**1.02 REQUIREMENTS OF CONTRACTOR**

- A. Coordinate the work of all Contractors and subcontractors
- B. Prepare a written memorandum on required coordination activities. Include such items as required notices, reports and attendance at meetings. Distribute this memorandum to each entity performing work at the project site. Prepare similar memorandum for separate Contractors where interfacing of their work is required.
- C. Schedule: Prepare Project Construction Schedule which incorporates all Contractors' work into one document.
  - 1. Form of Schedule to comply with the General Conditions and Section 01 32 16.
  - 2. Obtain construction schedules from each subcontractor.
  - 3. Reconcile conflicts. The final schedule should reflect reasonable compromise, where required, and best solution for the overall Project; all within the capabilities of the various Contractors.
  - 4. Obtain approval from each Contractor of the Project Construction Schedule by signature on the Schedule.
  - 5. Following approval, distribute copies of schedule to:
    - a. Job site file.
    - b. University.
    - c. Architect.

**1.03 COORDINATION DRAWINGS**

- A. Prepare coordination drawings where work by separate entities requires fabrication off-site of products and materials which must accurately interface. Coordination drawings shall indicate how work shown by separate shop drawings will interface and shall indicate installation sequence. Comply with all requirements of the "Submittals" section.
- B. Coordination drawings shall be prepared by the Contractor in accordance with the general conditions of this contract.
- C. Coordination drawings shall be prepared in the AutoCAD, version 2013 or higher.

**1.04 LIMITATIONS ON USE OF THE SITE**

- A. General
  - 1. Limitations on site usage as well as specific requirements that impact utilization are indicated on the drawings and by other contract documents. In addition to these limitations and requirements, the Contractor shall administer allocation of available space equitably among the separate Contractors and other entities needing access and space, so as to produce the best overall efficiency in performance of the total work of the project. Contractor shall schedule deliveries so as to minimize space and time requirements for storage of materials and equipment on site

**END OF SECTION**

**SECTION 013119  
PROJECT MEETINGS**

**PART 1: GENERAL**

**1.01 SUMMARY**

- A. Section Includes: Required meetings under this contract including, but not limited to the following:
  - 1. Preconstruction Meeting
  - 2. Progress Meetings
  - 3. Coordination Meetings.
  - 4. Pre-Installation Meetings
- B. Related Requirements
  - 1. Summary of Work: Section 01 11 00.
  - 2. Project Coordination: Section 01 31 00.
  - 3. Shop Drawings, Product Data and Samples: Section 01 33 23.
  - 4. Construction Facilities: Section 01 52 00.
- C. The Contractor and their Design Team will be present at all above-mentioned meetings with a representative acceptable to the University. The designated representative shall have the authority and knowledge to make decisions for the Contractor he/she is representing on matters related to the project.
- D. The Contractor shall schedule and administer coordination meetings.
  - 1. Prepare agendas.
  - 2. Preside at meetings.
  - 3. Record minutes; include significant proceedings and decisions, and distribute copies of minutes to participants.
  - 4. Meeting minutes shall be transmitted and distributed via posting on designated website location and/or email transmission.

**1.02 PRE-CONSTRUCTION MEETING**

- A. The University shall schedule a preconstruction meeting to closely coincide with the Contractors' "Notice to Proceed" provided by the University.
- B. Attendance
  - 1. A/E and his Consultants as pertinent to agenda.
  - 2. All Contractors.
  - 3. Subcontractor as pertinent to agenda.
  - 4. University Representative(s) as pertinent to agenda.
- C. Minimum Agenda
  - 1. University Requirements
  - 2. Construction Schedule
  - 3. Required contractor declarations and state payroll reporting.
  - 4. Critical Work Sequencing
  - 5. Designation of responsible personnel.
  - 6. Procedures for RFI's (Request for Information, ASI's (Architect's Supplemental Instructions), Proposal Requests, CCD's (Field Work Orders), Change Orders.
  - 7. Procedures for Applications for Payment.
  - 8. Distribution of Contract Documents.
  - 9. Submittal Procedures.
  - 10. Weekly Progress Meeting Reports.
  - 11. Procedures for maintaining record documents.
  - 12. Use of Premises including University regulations and site office and storage areas.
  - 13. Major equipment and delivery priorities.
  - 14. Safety Procedures.

15. Security Procedures.
  16. Housekeeping procedures.
  17. Working Hours.
  18. Review of code compliance items and required code authority inspections.
  19. Review of major utility company requirements, potential inspections and service installation and interruption procedures.
- D. Contractor shall record minutes that include significant proceedings and decisions, and distribute copies of minutes to participants. Minutes shall be transmitted and distributed via posting on designated website location and/or email transmission. All participants shall have access to the internet and have an email address.

### **1.03 PROGRESS MEETINGS**

- A. Schedule regular bweekly meetings. Subsequent meetings shall be made on same day and hour of the week for the duration of the construction period.
- B. Anticipated location of meetings to be determined within Pressey Hall.
- C. Attendance
1. A/E and his Consultants as pertinent to agenda.
  2. Contractor.
  3. Subcontractors as pertinent to agenda.
  4. University Representative(s) as pertinent to agenda.
- D. Minimum Agenda
1. Review, approve minutes of previous meeting.
  2. Review work progress since last meeting.
  3. Note field observations, problems, and decisions.
  4. Identify problems which impede planned progress.
  5. Review off-site fabrication problems.
  6. Develop corrective measures and procedures to regain planned schedule.
  7. Revise construction schedule as indicated.
  8. Plan progress during next work period.
  9. Coordinate projected progress with other Prime Contractors.
  10. Review submittal schedules, expedite as required to maintain schedule.
  11. Review maintaining of quality and work standards.
  12. Review University scheduling or use of site issues.
  13. Review Pay Applications, Proposal Requests, Change Orders.
  14. Review RFI Status.
  15. Review as-built drawings.
  16. Review Changes Proposed for:
    - a. Effect on construction schedule.
    - b. Effect on completion date.
  17. Complete other current business.
- E. Contractor shall record minutes that include significant proceedings and decisions, and distribute copies of minutes to participants. Minutes shall be transmitted and distributed via posting on designated website location and/or email transmission. All participants shall have access to the internet and have an email address.

### **1.04 COORDINATION MEETINGS**

- A. Schedule regular weekly meetings. Subsequent meetings shall be made on same day and hour of the week for the duration of the construction period.
- B. Hold Contractor-called meetings as progress of work dictates.
- C. Location of Meetings: To be determined within Parks Hall.
- D. Attendance
1. Contractors.

2. Subcontractors as pertinent to agenda.
  3. Other required attendants as pertinent to the agenda.
- E. Agenda: Primarily to coordinate the work between each Contractor.
- F. Contractor shall record minutes that include significant proceedings and decisions, and distribute copies of minutes to participants and University.

#### **1.05 PRE-INSTALLATION MEETINGS**

- A. Pre-installation Meetings will be conducted before each construction activity that requires coordination with other construction on the project.
- B. The Contractor shall schedule all required Pre-Installation Meetings and advise the A/E and University of the meeting dates.
- C. Attendees: The Contractor, installing foreman, and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded will follow, shall attend the meetings.
- D. The Contractor shall record and distribute minutes to all attendees and concerned parties.
- E. Work shall not proceed until pre-installation issues are fully resolved and successfully concluded.

**END OF SECTION**

## **SECTION 013216 CONSTRUCTION SCHEDULES**

### **GENERAL**

#### **1.01 SUMMARY**

- A. The purpose of the Construction Progress Schedule is to prepare an orderly plan to aid in the timely completion of the Project.
  - 1. For clarity, activities performed by the Contractor are indicated as the responsibility of the Contractor, who retains contractual responsibility for their timely completion.
- B. The approved Construction Schedule will be used to plan and execute the work, to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis for all progress payments.
- C. Contractors must cooperate and coordinate with each other, and the University, to provide all Contract Document scheduling requirements in their respective schedules.
- D. Failure to maintain the Construction Schedule in an approved status may result in the Contracting Authority withholding a monetary penalty against the responsible Contractor until the schedule is approved.
- E. Related Sections:
  - 1. Document 00 72 5 General Conditions
  - 2. Document 00 73 00 Supplementary Conditions

#### **1.02 PROJECT SCHEDULING SEQUENCE REQUIREMENTS**

- A. Upon receipt of a Notice to Proceed, the Contractor will prepare a Construction Schedule for all work included under the scope of each Contract, in accordance with the General Conditions.
- B. The Contractor will schedule and conduct a Schedule Kick-Off Meeting within one week of receipt of the Notice to Proceed. Contractors are required to attend.
  - 1. The Contractor will prepare and furnish to all contractors a Master Activity Coding template, in hard copy and disk, defining the Responsibility Code, Work Area Code, Milestones, Phase Code, etc. for the Construction Schedule, as outlined in this section. Contractors must submit subsequent schedule requirements in accordance with the Master Activity Code template to achieve continuity in merging scheduling input.
    - a. The Contractor will prepare and distribute a schedule framework of proposed construction sequence to all Contractors within 7 days after the Notice to Proceed.
  - 2. The Contractor will prepare and furnish a detailed schedule framework, in hard copy and disk, to Contractors within 30 calendar days after the Notice to Proceed. Contractors are required to attend.
- C. The Contractor will submit the proposed Construction Schedule with signatures indicating approval by all contractors to the University within 30 days of Notice to Proceed.
  - 1. If acceptable, the University and Contracting Authority will accept the schedule.
  - 2. If not acceptable, the schedule will be returned to the Contractor for revision. The revised schedule, with approval signatures for all Contractors, must be resubmitted.

### **PRODUCTS**

#### **2.01 SCHEDULE SOFTWARE**

- A. The computer software utilized by the Contractor to produce the project schedule will be Primavera Products as marketed by Primavera Systems, Inc. or an approved substitution.

### **EXECUTION**

#### **3.01 CRITICAL PATH METHOD**

- A. The Critical Path Method (CPM) of network calculations will be used to generate the schedule. The Contractor shall provide the schedule in either the Precedence Diagram Method (PDM) or the Arrow Diagram Method (ADM).

### 3.02 LEVEL OF DETAIL REQUIRED

- A. With the exception of the preliminary schedule submission, the Construction Schedule shall include an appropriate level of detail. Failure of the Contractor to develop or update the schedule or provide resource information will result in the disapproval of the schedule.
- B. Activity Durations:
  - 1. Submit the following data to support the schedule calendar as it relates to durations. Failure of the Contractor to include this data will delay the review of the submittal until the A/E receives the missing data.
    - a. The proposed number of working days per week.
    - b. The holidays to be observed during the life of the contract (by day, month and year).
    - c. The planned number of shifts per day.
    - d. The number of hours per shift.
    - e. Break up the work into activities of a duration no longer than 10 work days each, except as to non-construction activities (i.e., procurement of materials, delivery of equipment, etc.) and any other activities for which the University may approve a longer duration.
- C. Procurement Activities:
  - 1. Prepare the schedule in chronological order of submittals. Show specification section of the submittal, name of contractor and generic description of work covered. Include activities to cover the complete procurement process to include but not limited to: submittal, review, approval, resubmittal, procurement, fabrication, delivery, permits, and similar pre-construction work.
- D. Manpower:
  - 1. Activities shall have an estimate of the average number of workers per day that are expected to be used during the execution of the activity.
  - 2. Identification of manpower, material, or equipment restrictions, as well as any activity requiring unusual shift work, such as two shifts per day, six day work week, specified overtime, or work at times other than regular days or hours shall clearly be identified in the Project Schedule.
  - 3. Critical or near Critical Paths resulting from the use of manpower or equipment restraints shall be kept to a minimum. Near Critical Paths are defined as paths having 10 workdays or less of total float.
- E. Cost:
  - 1. All activities shall be cost loaded in a logical manner tying to each Contractor's Schedule of Values.
- F. Responsibility:
  - 1. All activities shall be identified in the Construction Schedule by the party responsible to perform the work. Responsibility includes, but is not limited to, the Contracting Firm, the Subcontracting Firm, Contractor Workforce, or Agency performing a given task. Activities shall not belong to more than one responsible party. The responsible party for each activity shall be identified by the Responsibility Code.
- G. Work Areas:
  - 1. Arrange the schedule to show each major area of construction for each major category or unit of work.
  - 2. All activities shall be identified in the Construction Schedule by the work area in which the activity occurs. Activities shall not be allowed to cover more than one work area. The work area of each activity shall be identified by the Work Area Code.
- H. Modification or Claim Number:
  - 1. Any activity that is added or changed by a change order or used to justify any claimed time, shall be identified by change order code that changed the activity. Activities may not belong to more than one change order.
- I. Milestones:

1. Milestone dates are defined in calendar days following the date set forth in the Notice to Proceed and are required to be met by all Contractors. Time is of the essence for the completion of Milestones and for the Contract Completion date. Refer to Specification Section 01 11 00 Summary of Work for Milestone dates.

### **3.03 SCHEDULED PROJECT COMPLETION**

- A. Project Start Date:
  1. The Construction Schedule may start no earlier than the date that the Notice to Proceed (NTP) was issued. The Contractor shall include as the first activity in the Construction Schedule an activity called "Notice to Proceed." The "Notice to Proceed" activity shall have: an "ES (early start) constraint, a constraint date equal to the date that the NTP was issued, and a zero day duration.
- B. Constraint of Last Activity:
  1. Completion of the last activity in the schedule shall be constrained by the contract completion date. Calculation on project updates shall be such that if the early finish of the last activity falls after the contract completion date, then the float calculation shall reflect a negative float on the Critical Path. The Contractor shall include as the last activity in the Project Schedule an activity called "Contract Complete". The "Contract Complete" activity shall have a: "LF" (late finish) constraint, a constraint date equal to the completion date equal to the date identified in the NTP for the project, and a zero day duration.

### **3.04 INTERIM COMPLETION DATES (MILESTONES)**

- A. Contractually specified interim completion dates (Milestone dates) shall also be constrained to show negative float if early finish date of the last activity in that phase falls after the interim completion date.

### **3.05 HAMMOCK ACTIVITIES FOR CONTRACTS**

- A. The Contractor shall include a hammock type activity for each Contractor. The Contractor activity shall be logically tied to the earliest and latest activities in the Contractor's Scope of Work. Hammock activities shall be identified within "HA" at the beginning of the Activity ID.

### **3.06 DEFAULT PROGRESS DATA DISALLOWED**

- A. Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in the CPM Scheduling Software Systems. Actual Start and Finish dates and Remaining Durations on the CPM Schedule shall match those dates provided from Contractor Daily Reports for every in progress or completed activity and insure that the data contained on the Daily Reports is the sole basis for schedule updating. Failure to comply may result in the disapproval of schedule.

### **3.07 OUT OF SEQUENCE PROGRESS**

- A. Activities that have posted progress without predecessors being completed (Out of Sequence Progress) must be allowed only by the case by case approval of the University. The A/E may direct that changes in schedule logic be made to correct any or all Out of Sequence Work.

### **3.08 NEGATIVE LAG(S)**

- A. Lag durations contained in the schedule shall not have a negative value.

### **3.09 DEFINITION OF, AND CONDITIONS RELATING TO FLOAT**

- A. Float is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any activity in the schedule. Total float is defined as the amount of time any given activity or path of activities may be delayed before it will affect the project completion time.
- B. Float is not time for the exclusive use or benefit of the Contractor. Float belongs to the project and shall be used in the best interest of completing the project on time.
- C. Extensions of time for performance required under the Standard Requirements pertaining to equitable time adjustment will be granted only to the extent that the equitable time adjustment

exceeds total float in the activity or path of activities affected at the time approval was issued for the change.

- D. Use of float suppression techniques such as preferential sequences, special lead/lag logic restraints, extended activity times, or imposed dates, other than as required by the Contract, shall be cause for rejection of the Construction Schedule and any revisions or updates.

### **3.10 PRELIMINARY (30 DAY) CONSTRUCTION SCHEDULE SUBMISSION**

- A. The preliminary Construction Schedule, defining the Contractor's planned operations for the first 30 calendar days shall be submitted for approval within 15 calendar days after Notice to Proceed is issued. The approved preliminary schedule shall be used for payment purposes and the basis for measuring Contractor progress not to exceed 90 days after Notice to Proceed is issued.
- B. Schedule Review and Comments
  - 1. Comments made on the Construction Schedule during review shall not relieve the Contractors from compliance with the requirements of the Contract Documents.
  - 2. Following the Contractor's receipt of the A/E's review comments, the Contractors shall correct the schedule to identify missing activities and relationships relevant to the Scope of Work. No time extensions will be granted to complete activities not initially included in the Contractor's Construction Schedule.
  - 3. To the extent that there are any conflicts between the approved Construction Schedule and the requirements of the Contract Documents, the Contract Documents shall govern.
- C. Resubmittal of Project Schedule Following Disapproval
  - 1. Should the A/E disapprove the Contractors submission of the Construction Schedule, the Contractor shall comply with the A/E's direction and shall resubmit the Construction Schedule and all associated submittals within seven calendar days.

### **3.11 CONSTRUCTION SCHEDULE SUBMISSION REQUIREMENTS**

- A. The Final Construction Schedule shall be submitted for approval within 60 calendar days after Notice to Proceed is issued. It shall provide a reasonable sequence of activities which represent work through the entire project and a reasonable level of detail.
- B. The Construction Schedule shall show the sequence and interdependence of activities required for complete performance of the work, beginning with Contractor's receipt of the Notice to Proceed and concluding with the date of Final Completion of the Contract. The Project Schedule shall show all activities in workdays, with allowance for holidays and the effects of normal weather conditions on outside work.
- C. The Construction Schedule shall comply with all limits imposed by the Scope of Work, with all contractually specified intermediate milestones and completion dates, and with all constraints, restraints, or sequences included in the Contract.
- D. The Construction Schedule network (graphic presentations) and computer tabulations, the Resource Loading curve and the Contractor's signatures shall be submitted to the A/E for approval in six copies. Additionally, the Contractor shall submit two copies of the Primavera Products data on compact disk, containing the resource loaded Construction Schedule.
- E. The following computer generated reports in hard copy shall be required as part of the Preliminary Construction and Final Construction Schedule submittals:
  - 1. Activity ID Report
  - 2. Total Float/Early Start Report
  - 3. Logic Report
  - 4. Resource Report
  - 5. Coding Dictionary
- F. The schedule network (graphic presentation) shall include:
  - 1. Activity ID
  - 2. Activity Description
  - 3. Original Durations



4. Remaining Durations
  5. Early Start and Finish Dates
  6. Baseline Start and Finish Dates
  7. Total Float
  8. Percent Complete
- G. The schedule shall be sorted by Early Start and Total Float and shall show both the Early and Target Schedule.
- H. The University and A/E shall approve or disapprove, in writing, the Contractor's submission of the Construction Schedule and the associated submittals within 14 calendar days after the receipt of all required information. If the Construction Schedule is disapproved, the University shall provide comments in writing to the Contractor stating the reasons why the submission was disapproved.

### **3.12 PERIODIC SCHEDULE UPDATES**

- A. The following computer generated reports in hard copy and on compact discs shall be required as a part of the monthly update thereof as a condition precedent to the receipt of progress payments under the Contract; completed, presented and discussed at the last progress meeting of the month.
- B. The Contractor's monthly narrative report is to include:
1. Activities started in the month (with actual start dates).
  2. Activities completed during the month (with actual start and completion dates).
  3. Activities in progress (with estimated remaining durations).
  4. Activities scheduled to start in the next month (with estimated start dates).
  5. A list of approved logic changes.
  6. A list of proposed logic changes, new activities, and deleted activities.
  7. Recommendations for adjusting the Construction Schedule to meet milestone completion and Contract completion dates (include why the schedule needs adjusting, i.e., change order, weather, contractor resources, etc.).
  8. Attach copies of the Contractors' weekly schedule reports.
- C. The Contractors graphic presentation of the schedule is to include:
1. Activity ID.
  2. Activity Description.
  3. Original Durations.
  4. Remaining Durations.
  5. Early Start and Finish Dates.
  6. Baseline Start and Finish Dates.
  7. Total Float.
  8. Percent Complete.
  9. The schedule shall be sorted by Early Start and Total Float and should show both the early schedule and the target schedule.
- D. One compact disc data disk for the update shall be provided.
- E. Computer generated reports are to include:
1. Activity ID Report.
  2. Total Float/Early Start Report.
  3. Logic Report.
  4. In Progress or Planned to Start Report.
  5. In Progress or Planned to Finish Report.
  6. Resource Report.
- F. Four Week Look Ahead Schedule Submission
1. The Contractor shall provide a four week Look Ahead Schedule for review at the first Weekly Progress Meeting of each month. The Look Ahead Schedule will be based on the most recent monthly update and will show only those activities that are scheduled to begin

or are in progress during the week before and for three weeks after. The four week Look Ahead Schedule reports will contain the following information for each activity and will be required from the Contractor throughout the duration of the project unless directed otherwise by the A/E.

- a. Activity I.D.
- b. Activity Description
- c. Original Duration
- d. Remaining Duration
- e. Early Start Date
- f. Early Finish Date
- g. Percent Complete
- h. Total Float
- i. Bar Graph Presentation

G. Standard Activity Coding Dictionary

1. The Contractor shall submit, with the Construction Schedule, a coding scheme that shall be used throughout the project for all activity codes contained in the schedule. The coding scheme submitted shall list the values for each activity code category and translate those values into project specific designations. For example, A Responsibility Code Value, "ELE", may be identified as "Electrical Subcontractor". Activity code values shall represent the same information throughout the duration of the contract. Once approved with the Preliminary (first 90 calendar day) Project Schedule Submission, changes to the activity coding scheme shall be approved by the A/E.

### 3.13 DATA DISKS

- A. One compact disc containing the preliminary, target and update Construction Schedules shall be provided.
- B. File Medium:
  1. Only the following industry Compact disc (CD) diskettes formatted using at minimum Windows XP based operating system, are acceptable in order of preference:
- C. Disk Label:
  1. The Contractor shall affix a permanent exterior label to each disk submitted. The label shall indicate the type of schedule (preliminary, target, update or change), full contract number, project name, project location, data date, name and telephone number of person responsible for the schedule, and file name.
- D. File Name:
  1. The Contractor shall insure that each file submitted has a name related to the schedule data date, project name, or contract number. The Contractor shall develop a naming convention that will insure that the names of all the files submitted are unique. The Contractor shall submit the file naming convention to the A/E.

### 3.14 APPROVED CHANGES VERIFICATION

- A. Only Construction Schedule changes (Change Order) that have been previously approved by the A/E shall be included in the schedule submission. The narrative report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.
- B. The Contractor shall prosecute the work in accordance with the approved Construction Schedule. Out of sequence construction, defined as a change from the Construction Schedule in the Contractor's actual operation requires notification to the A/E.
- C. Upon the approval of a change order or the issuance of a unilateral change order by the Department the agreed upon change order activities, activity durations, logic and impacts shall be reflected in the next schedule submittal by the Contractor.
- D. No change to the approved activities, original activity durations, logic, interdependencies, milestones, planned sequence of operations, or resource loading of the Construction Schedule

shall be made without notification to the A/E. If the Contractor desires to make a change to the approved Construction Schedule, the Contractor shall notify the A/E in writing, stating the reasons for the change as well as the specifics, such as the proposed changes in activities, original activity durations, logic, interdependencies, milestones, planned sequence of operations, or resource loading of the baseline Construction Schedule. The A/E shall respond within 14 calendar days after the receipt of the Contractor's request.

- E. If the A/E considers the Construction Schedule change requested by the Contractor to be a major change, it may require the Contractor to revise and submit for approval, without additional cost to the University, all of the affected portions of the network diagrams, and any schedule reports, or construction equipment reports deemed necessary to show the probable effect on the entire project. The proposed network revision and required reports shall be submitted to the A/E within seven calendar days after the A/E notifies the Contractor that the requested revision is a major change. Only upon the approval of the requested change by the A/E may it be reflected in the next Construction Schedule update submitted by the Contractor.
- F. A change will be considered of a major nature if the time estimated for an activity or sequence of activities is varied from the original plan to the degree that there is reasonable doubt that the Contract Completion date or milestones will be met, or if the change impacts the work of other Contractors at the job site. Changes to activities having adequate float may be considered as minor changes, except that an accumulation of minor changes may be considered a major change when such changes affect the Contract Completion date or milestones.

### **3.15 SCHEDULE REPORTS**

- A. The format of each activity for the schedule reports listed below shall contain:
  - 1. Activity ID Number(s).
  - 2. Activity Description.
  - 3. Original Duration.
  - 4. Remaining Duration.
  - 5. Early Start Date.
  - 6. Early Finish Date.
  - 7. Baseline Start Date.
  - 8. Baseline Finish Date.
  - 9. Total Float.
  - 10. Actual Start and Actual Finish dates shall be printed for those activities in progress or completed.
- B. Activity ID Report: A list of all activities sorted according to Activity ID number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.
- C. Logic Report: A list of preceding and succeeding activities for every activity in ascending order by activity number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.
- D. Total Float Report: A list of all activities sorted in ascending order of total float. Activities which have the same amount of total float shall be listed in ascending order of Early Start Dates.

### **3.16 NETWORK DIAGRAM (GRAPHIC PRESENTATION)**

- A. The network diagram is required on the preliminary, baseline and monthly schedule submissions. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The A/E will use, but is not limited to, the following conditions to review compliance with this paragraph:
  - 1. Continuous Flow: Diagrams shall show a continuous flow from left to right. The Activity ID, description, original duration, remaining duration, early start and finish dates, target start and finish dates, total float and percent completed shall be shown on the diagram.
  - 2. Project Milestone Dates: Dates shall be shown on the diagram from start of any project, any contract required interim completion dates, and contract completion dates.
  - 3. Critical Path(s): The Critical Path(s) shall be clearly shown.

4. Banding: Activities shall be grouped to assist in the clear understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

**END OF SECTION**

**SECTION 013323  
SHOP DRAWINGS, PRODUCT DATA AND SAMPLES**

**PART 1: GENERAL**

**1.01 GENERAL**

- A. Submit all shop drawings, product data and samples required by Specifications Section. Refer to General Conditions for additional requirements.
- B. The Contractor shall prepare and submit to the Architect a schedule listing anticipated dates for submissions and the submittals (product data, shop drawings, samples, etc.) required for each item or system, for the Architect's review.
- C. Submittals to be complete for each assembly or system. Partial or incomplete submittals will not be reviewed. Submittals relating to interior or exterior color schemes to be submitted together.
- D. Contractor's submittals and shop drawings requiring the stamp of an Engineer and/or submittal to the governing building authority shall be provided in electronic Adobe PDF format and hard copy format and forwarded to the A/E for submittal to the building authority.
- E. Contractors are advised to retain sufficient copies of shop drawings as required for final submittals, maintenance manuals, etc. See Section 01 78 39 - Project Record Documents.
- F. Contractor's Stamp:
  - 1. The Contractor's mark or stamp of approval shall indicate in its working his compliance with the requirements of this Section and the General Conditions.
  - 2. The Contractor's handwritten signature is required in addition to his stamp of approval.
  - 3. By approving the shop drawings, product data, samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements, and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and Contract Documents.
- G. Routing: Submittals and distribution to be routed as follows.
  - 1. Submittals for Review:
    - a. Manufacturer or Subcontractor to Contractor.
    - b. Contractor to A/E.
    - c. A/E to Consultants as applicable.
  - 2. Distribution after review:
    - a. Consultants to A/E.
    - b. A/E to Contractor.
    - c. Contractor to Subcontractor or Manufacturer.

**1.02 RELATED REQUIREMENTS**

- A. Article 14 of General Conditions

**1.03 SHOP DRAWINGS**

- A. Original drawings, prepared by Contractor, Subcontractor, supplier or distributor, which illustrates some portion of the work, showing fabrication, layout, setting or erection details prepared by a qualified detailer.
- B. Identify details by reference to sheet and detail numbers shown on Contract Drawings.
- C. Reproductions for submittals shall be on reproducible drawing sheets.

**1.04 PRODUCT DATA**

- A. Manufacturer's standard schematic drawings:
  - 1. Modify drawings to delete information which is not applicable to the project.
  - 2. Supplemental standard information to provide additional information applicable to the project.

- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
  - 1. Clearly mark each copy to identify pertinent materials, products or models.
  - 2. Show dimensions and clearances required.
  - 3. Show wiring diagrams and controls.

#### **1.05 SAMPLES**

- A. Physical samples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.
- B. Office samples shall be of sufficient size and quantity to clearly illustrate:
  - 1. Functional characteristics, product or materials with integrally-related parts and attachment devices.
  - 2. Full range or color samples.
  - 3. After review, samples will be retained by A/E.

#### **1.06 SAMPLE WARRANTIES**

- A. Submit for approval sample copies of all specific warranties required in excess of one-year duration.
- B. Submit sample warranties with related shop drawing submittal. Shop drawing review will not start without warranty submittal nor will they be released for fabrication or installation until sample warranty is approved.

#### **1.07 CONTRACTOR RESPONSIBILITIES**

- A. Review shop drawings, product data and samples prior to submission. Stamp
  - 1. Submissions as required under SUBMISSION REQUIREMENTS below.
- B. Verify field measurements, field construction criteria and catalog numbers and similar data.
- C. Coordinate each submittal with requirements of Work and of Contract Documents.
- D. Deviations/Errors/Omission:
  - 1. Contractor's responsibility for errors and omission on submittals is not relieved by A/E's review of submittals.
  - 2. Contractor's responsibility for deviations in submittals from requirements is not relieved by review of submittals, unless A/E gives written acceptance of specific deviations.
  - 3. Notify A/E in writing, at time of submission, of deviations in submittals from requirements of Contract Documents.
- E. Begin no work which requires submittals until return of submittals with A/E's stamp and initials or signature indicating review.
- F. After A/E's review, make and distribute copies.

#### **1.08 SUBMISSION REQUIREMENTS**

- A. Schedule submissions to be received by the A/E at least 21 days prior to the dates reviewed submittals will be needed by the Contractor for standard items requiring brief review and at least 35 days for complex items requiring extensive review, review by A/E's Consultants or possible resubmissions.
- B. Shop Drawings: Submit all shop drawings in electronic Adobe Acrobat PDF format. The Contractor shall be responsible for reproducing the required number of copies for distribution permit and O&M manuals and reproductions shall include the original color markings of each reviewer to be retained. The following will retain one of each color marked print:
  - 1. A/E.
  - 2. A/E's Consultants.
  - 3. Contractor.
- C. Product Data: Submit all product data in electronic Adobe Acrobat PDF format. Contractor shall retain number of copies of product datum which Contractor requires for distribution plus 2 copies which will be retained as follows:

1. A/E: 1 each.
2. A/E's Consultant: 1 each.
- D. Samples: Submit (prepaid by Contractor if shipped) number of requested samples which Contractor requires for distribution plus 1 sample which will be retained as follows:
  1. A/E: 1 each.
- E. Samples Warranties: See SAMPLE WARRANTIES above.
- F. Accompany submittals with transmittal containing the following information:
  1. Date.
  2. Project title and number.
  3. Contractor's name and address.
  4. The name and number of each shop drawing, product data and sample submitted.
  5. Notification for deviations from Contractor Documents.
- G. Submittals shall include the following:
  1. Date and revision dates.
  2. Project title and number.
  3. The names of the A/E, Contractor, Subcontractor, Supplier, Manufacturer and separate detailer when pertinent.
  4. Identification of product or material.
  5. Relation to adjacent structure or materials.
  6. Field dimensions, clearly identified as such.
  7. Specification Section number.
  8. Applicable standards, such as ASTM number or Federal Specification.
  9. A blank space for the Architect's stamp.
  10. Conspicuous identification of deviation from Contract Documents.
  11. Contractor's stamp, with handwritten signature, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.

#### **1.09 RESUBMISSION REQUIREMENTS**

- A. Shop Drawings:
  1. Review initial drawings as required and resubmit as specified for initial submittals.
  2. Indicate on drawings any changes which have been made other than those requested by A/E.
- B. Project Date and Samples: Submit new datum and samples as required for initial submittal.

#### **1.10 DISTRIBUTION OF SUBMITTALS AFTER REVIEW**

- A. Make and distribute copies of shop drawings and product data which carry A/E's stamp to the following:
  1. Contractor's file.
  2. Job Site File.
  3. Record Documents file.
  4. Other prime Contractors and Subcontractors.
  5. Suppliers and fabricators.
- B. Distribute samples as directed.

#### **1.11 ARCHITECT'S DUTIES**

- A. Review submittals with reasonable promptness.
- B. Review for:
  1. Design concept of project.
  2. Information given in Contract Documents.
  3. Matters of finish, color and other aesthetic matters left to the A/E's decision by the Contract Documents.
- C. Review of separate item does not constitute review of an assembly in which item functions.

- D. Affix stamp and initials or signature certifying review of submittal.
- E. Return submittals in electronic Adobe Acrobat PDF format to Contractor for printing and distribution.

#### **1.12 ARCHITECT'S STAMP**

- A. Each submittal will be returned to the Contractor stamped or marked by the A/E as follows:
  - 1. "NO EXCEPTIONS NOTED": The Contractor is advised that fabrication, manufacture and/or construction is to proceed providing the work is in compliance with the Contract Documents.
  - 2. "MAKE CORRECTIONS NOTED": The Contractor is advised that fabrication, manufacture and/or construction is to proceed providing the work is in compliance with the A/E's markings and the Contract Documents.
  - 3. "NOT APPROVED; RESUBMIT": The Contractor is advised that no work shall be fabricated, manufactured or constructed and that the Contractor shall make a new submittal to the A/E which conforms to the A/E's markings and the Contract Documents. Any submission marked "NOT APPROVED" will not be permitted on the site.
  - 4. "REVIEWED": Used where A/E's consultant has previously reviewed submittal. The Contractor is advised that fabrication, manufacture and/or construction may or may not proceed, as indicated by the consultant's stamp and providing the work is in compliance with the Contract Documents. The "REVIEWED" stamp indicates the A/E has reviewed the submittal for non-technical design concept and aesthetic considerations; incorporate markings into the Work.
- B. Stamp notations which permit fabrication, manufacture and/or construction to proceed, with or without markings, shall not relieve the fabricator, manufacturer, or Contractor from any requirements of the Contract Documents or laws which may govern such work.
- C. Submittals may or may not, at the A/E's discretion, receive stamp or other notation for the following:
  - 1. Submittals not requested.
  - 2. Calculations.

**END OF SECTION**



**SECTION 013529**  
**HEALTH, SAFETY, AND ENVIRONMENT**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. References: In addition to publications referenced in the Construction Contract Clauses, following Code of Federal Regulations (CFR) publications designate and define hazardous materials and conditions, and establish procedures for handling these materials and conditions. Omission of any publication in this section does not remove any obligation or legal requirement on the part of the contractor to comply with all legal requirements for the location of the work.
  - 1. 29 CFR, Part 1910: Occupational Safety and Health Administration (OSHA) General Industry and Health Standards
  - 2. 29 CFR, Part 1926: OSHA Construction Industry Standards.
  - 3. 40 CFR, Part 61: National Emission Standards for Hazardous Air Pollutants.
  - 4. 40 CFR, Part 261: Environmental Protection Agency (EPA) Characteristics of Hazardous Waste.
  - 5. 40 CFR, Part 761: EPA Polychlorinated Biphenyls (PCBs), Manufacturing, Processing, Distribution in Commerce and Use Prohibitions
  - 6. 40 CFR, Part 763: EPA Asbestos.
  - 7. Federal Standards 313A: Material Safety Data Sheets, Preparation and the Submission of.
  - 8. NIH DCAB publication "Standards for Temporary Construction," current version.
  - 9. EHS website: The Ohio State University, Office of Environmental Health and Safety; <http://www.ehs.ohio-state.edu/>. Various resources are available on this website (e.g. click on 'Occupational Health Safety and Education'; then click on 'Publications Documents and Forms').
- B. Related Sections: This specification section is related to any and all specification sections with explicit or implicit reference to cutting and patching. Specific submittal requirements of these related specification sections are not included in this section. Related sections include but are not limited to the following specification sections:
  - 1. Section 01 11 00 - Summary of Work
  - 2. Section 01 31 00 - "BIM Coordination"
  - 3. Section 01 31 19 - "Project Meetings"
  - 4. Section 01 51 00 - "Temporary Utilities"
  - 5. Section 01 52 00 - "Construction Facilities"
  - 6. Section 02 41 00 - "Demolition"
- C. Acquisition of Publications: Referenced CFR publications may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

**1.03 SUBMITTALS**

- A. Contractor's Safety and Health Program: The contractor shall submit a written copy of the Company Safety and Health Program as well as the site specific safety and health plan for the project to the University Representative within 14 calendar days of the Notice to Proceed or before work commences on the project site, whichever is earlier.
- B. Accident Reports: The Contractor must submit to the University Representative a written report within three calendar days of any accident, fire, emergency, theft or incident in which any personal or property damage took place, regardless of any other notifications performed. Include a copy of each accident report that is submitted by the Contractor or Subcontractors to their insurance carriers, within seven calendar days after the date of the accident.

- C. Material Safety Data Sheets (MSDS): The contractor shall provide the Material Safety Data Sheets (MSDS's) for all products containing hazardous chemicals to the University Representative within 14 calendar days of the Notice to Proceed or before work commences on the site. The MSDS's shall be maintained at the project site for workers, University personnel and government officials. MSDS's for new products shall similarly be submitted to the University Representative and be retained at the project site until completion of the project.

#### **1.04 PRECONSTRUCTION SAFETY MEETING**

- A. Prior to commencing construction, representatives of the Contractor, including the general superintendent and one or more safety representatives, shall meet with the University Representative for the purpose of reviewing Contract safety and health requirements.
  - 1. The Contractor's Safety and Health Program and Site Specific Safety and Health Plan shall be reviewed, and implementation of safety and health provisions pertinent to the Work shall be discussed.
  - 2. The Contractor shall be prepared to discuss, in detail, the Contractor's Site Specific Safety and Health Plan including measures intended to control any unsafe or unhealthy conditions associated with the work to be performed under the contract.
  - 3. This meeting may be held in conjunction with the preconstruction conference, if so directed by the University Representative. The conduct of this meeting is not contingent upon a general preconstruction meeting.
  - 4. The level of detail for the safety meeting is dependent upon the nature of the work and the potential inherent hazards.
  - 5. Safety meeting shall discuss lockout/tagout procedures. Procedures will be approved by the appropriate University Staff. The "Hazardous Energy (Lock-out.Tagout) Standard" is found at: <http://www.ehs.ohio-state.edu/index.asp?PAGE=ohse.Pub> Scroll down to "Health and Safety Guides."

#### **1.05 COMPLIANCE WITH REGULATIONS**

- A. The work, including contact with or handling of hazardous materials, disturbance or dismantling of surfaces containing hazardous materials, and disposal of hazardous materials, shall comply with the applicable requirements of 29 CFR Parts 1910 and 1926, and 40 CFR Parts 61, 261, 761 and 763.
- B. Work involving disturbance or dismantling of asbestos or asbestos containing materials, demolition of structures containing asbestos and removal of asbestos, shall comply with 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763.
- C. Work shall additionally comply with all applicable state and local safety and health regulations.
- D. In case of a conflict between applicable regulations, the more stringent requirements shall apply.
- E. Contractor Responsibility: The Contractor shall assume full responsibility and liability for compliance with all applicable codes, standards and regulations pertaining to the health and safety of personnel during execution of the Work, and shall hold the University harmless for any action on the Contractor's part, or that of the Contractor's employees or subcontractors, that result in illness, injury or death.
  - 1. The Contractor shall have written safety and health programs in compliance with 29 CFR Parts 1910 and 1926.
  - 2. Inspections, Tests, and Reports: The required inspections, tests and reports made by the Contractor, subcontractors, specially trained technicians, equipment manufacturers, and others as required, shall be at the Contractor's expense.

#### **1.06 USE OF POWER ACTUATED FASTENER TOOLS**

- A. Use of explosives shall be prohibited.
- B. Explosive actuated fastening tools (ex. nail guns, etc.) shall not be used or brought to the project site without the permission of the University Representative, including a safety plan for the use of this equipment.

### **1.07 ELECTRICAL**

- A. Electrical arc welding equipment shall not be connected to the building power supply.

### **1.08 MATERIAL DELIVERIES**

- A. Deliveries shall be coordinated with the OSU Project Manager and only when the Contractor's representative is available to receive them.
  - 1. Deliver material in approved containers and with properly licensed vehicles and operators.
  - 2. Open delivery vehicles are not permitted. Deliver materials in fully closed vehicles or tarp-covered vehicles.
  - 3. All dump trucks shall be fully covered while in transport to and from the unloading site. All loads shall be securely fastened until unloading.
  - 4. Engines shall not be left running while vehicles are loading, unloading, waiting or parked.
  - 5. Do not block roads, walks, building entrances/exits, fire hydrants and standpipes, exterior tanks or building gas connections.
  - 6. Exercise caution regarding all pedestrians and when backing vehicles.

### **1.09 HAZARDOUS MATERIAL**

- A. The Contractor shall bring to the attention of the Architect/Engineer (A/E) and the University Representative, any material encountered during execution of the Work that the Contractor suspects is hazardous. The University Representative shall have the Office of Environmental Health and Safety perform tests to determine if the material is hazardous.
- B. If the tested material is found to be hazardous, and/or if additional protective measures are required, a change to the Contract price may be provided, subject to the applicable provisions of the Contract.

### **1.10 ADDITIONAL SAFETY REQUIREMENTS**

- A. No work shall be performed in any area occupied by the public or OSU employees unless approved by the University.
  - 1. Accident Treatment and Records: The Contractor shall post emergency first aid information.
  - 2. No person, regardless of position or authority, shall operate any switch, valve, or equipment that has an official lockout/tag out tag attached to it, nor shall such tag be removed except as provided in this section.
  - 3. When work is to be performed on electrical circuits, the work shall be performed only by qualified personnel following the required safety procedures.
  - 4. Identification markings on building light and power distribution circuit breakers shall not be relied on for establishing safe work conditions.
  - 5. Before clearance will be given on any equipment other than electrical (generally referred to as mechanical apparatus), the apparatus, valves, or systems shall be secured in a passive condition with the appropriate vents, pins, and locks.
  - 6. Pressurized or vacuum systems shall be vented to relieve differential pressure completely.
  - 7. Vent valves shall be lockout/tag out tagged open during the course of the work.
  - 8. Where dangerous gas or fluid systems are involved, or in areas where the environment may be oxygen deficient, systems or areas shall be purged, ventilated, or otherwise made safe prior to entry.

### **1.11 PERSONNEL PROTECTIVE EQUIPMENT**

- A. Special facilities, devices, equipment and similar items used by the Contractor in execution of the work shall comply with 29 CFR, Part 1910, Subpart 1 and other applicable regulations.

## **PART 2 - PRODUCTS**

### **2.01 SAFETY AND HEALTH PROGRAMS**

- A. The Contractor shall submit copies of the written site specific project safety and health plan and emergency action procedures, as applicable to the work scope, as required as a result of the

safety meeting, or as required by OSHA 29 CFR, Part 1926 including but not necessarily limited to the procedures and programs that support the requirements of the following:

1. Designation of Safety Competent Person
2. Occupational Noise Exposure
3. Fall Protection
4. Personnel Protective Equipment
5. Control of Hazardous Energy
6. Hazardous Materials Waste Management Plan (draft if final plan has not been accepted)
7. Electrical Safety Related Work Practices
8. Lead
9. Asbestos
10. Refrigerants
11. Respirator Protection
12. Confined spaces
13. Emergency evacuation and reporting
14. Hot Work

## **2.02 CONTRACTORS SAFETY AND HEALTH PLAN**

- A. In addition to specific safety and health programs applicable to the project, Contractor shall submit to the university a copy of the firms' general Safety and Health Plan listing emergency procedures and contact persons with home addresses and telephone numbers.

## **2.03 PERMITS**

- A. If hazardous materials are disposed of off-site, submit copies of shipping manifests and permits from applicable federal, state or local authorities and disposal facilities, and submit certificates that the material has been disposed of in accordance with regulations.

## **2.04 LOCKOUT/TAGOUT EQUIPMENT**

- A. Appropriate lockout/tagout equipment will be provided by the contractor. When required contractor will provide device to allow multiple locks.

# **PART 3 - EXECUTION**

## **3.01 EMERGENCY SUSPENSION OF WORK**

- A. When the Contractor is notified by the Architect/Engineer or the University Representative, of noncompliance with the safety or health provisions of the Contract, the Contractor shall immediately, unless otherwise instructed, correct the unsafe or unhealthy condition.
  1. If the Contractor fails to comply promptly, all or part of the work will be stopped by notice from the Architect / Engineer.
  2. When, in the opinion of and by notice given by the Architect / Engineer and or the University Representative, satisfactory corrective action has been taken by the Contractor, work shall resume.
  3. The Contractor shall not be allowed any extension of time or compensation for damages in connection with a work stoppage for an unsafe or unhealthy condition.

## **3.02 PROTECTION OF PERSONNEL**

- A. The Contractor shall take all necessary precautions to prevent injury to the public, occupants, or damage to property of others. The public and occupants includes all persons not employed by the Contractor or a subcontractor.
- B. Wherever practical, the work area shall be fenced, barricaded or otherwise blocked off from the public or occupants to prevent unauthorized entry into the work area.
  1. Provide traffic barricades and traffic control signage where construction activities occur in vehicular areas.
  2. Corridors, aisles, stairways, doors and exit ways shall not be obstructed or used in a manner to encroach upon routes of ingress or egress utilized by the public or occupants, or to present an unsafe or unhealthy condition to the public or occupants.

3. Store, position and use equipment, tools, materials, scraps and trash in a manner that does not present a hazard to the public or occupants by accidental shifting, ignition or other hazardous activity.
  4. Store and transport refuse and debris in a manner to prevent unsafe and unhealthy conditions for the public and occupants. Cover refuse containers, and remove refuse on a frequent regular basis acceptable to the University Representative. Use tarpaulins or other means to prevent loose transported materials from dropping from trucks.
- C. Alternate Precautions: When the nature of the work prevents isolation of the work area and the public or building occupants may be in or pass through, under or over the work area, alternate precautions such as the posting of signs, the use of signal persons, the erection of barricades or similar protection around particularly hazardous operations shall be used as appropriate.
- D. Public Thoroughfare: When work is to be performed over a public thoroughfare such as a sidewalk, roadway or other site access way, the thoroughfare shall be closed, if possible, or other precautions taken such as the installation of screens or barricades. When the exposure to heavy falling objects exists, as during the erection of building walls or during demolition, special protection of the type detailed in 29 CFR, Parts 1910 and 1926 shall be provided.

### **3.03 ENVIRONMENTAL PROTECTION**

- A. General Requirements:
1. Dispose of solid, liquid and gaseous contaminants in accordance with local codes, laws, ordinances and regulations.
  2. The Office of Environmental Health and Safety (EH and S) is available to advise on or assist in the collection and disposal of all hazardous waste, excluding asbestos.
  3. Comply with applicable federal, state and local noise control laws, ordinances and regulations, including but not limited to 29 CFR, Part 1910.95 and 29 CFR, Part 1926.52.
- B. Specific Requirements:
1. On any project where fluorescent light bulbs and ballasts are removed, unless the fluorescent light bulbs and ballasts are going to be re-used, these items need to be carefully removed and stored for proper disposal as "Universal Waste" as required by the EPA. This would include all other types of light bulbs such as incandescent, sodium, mercury, etc., as well as contained liquid mercury components retrieved from thermostats and thermometers. These materials cannot be disposed as demolition waste. Contact the Hazardous Waste Supervisor for the Office of Environmental Health and Safety (EH and S) for specific instructions regarding proper storage, to make arrangements to obtain containers, as well as pickup and disposal arrangements. There is no charge for these services; seven days advanced notice is required to schedule with EHS (separate notice for container delivery and also for pickup).
  2. If any transformers are to be disposed the presence or absence of PCBs shall be verified, by testing if necessary.
- C. Dispose of solid, liquid and gaseous contaminants in accordance with local codes, laws, ordinances and regulations.
1. During removal or renovation of any system containing chemicals, gases or refrigerants, the appropriate equipment shall be used to capture these substances and prevent their release to the atmosphere. This equipment must be certified as required and be used by properly trained and certified technicians as required by applicable federal, state and local laws and regulations. Proper recordkeeping procedures shall be followed.
- D. CONTAINERS OF VOLATILE SEALERS, PAINTS, SOLVENTS, ROOFING COATINGS AND OTHER MATERIALS SHOULD BE COVERED WHEN NOT IN USE TO PREVENT THE RELEASE OF VOLATILE ORGANIC COMPOUNDS INTO THE ATMOSPHERE. THIS REQUIREMENT ALSO APPLIES TO THE DISPOSAL OF SUCH PRODUCTS.

### **END OF SECTION**

**SECTION 014000  
QUALITY REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Submittals.
- B. References and standards.
- C. Testing and inspection agencies and services.
- D. Control of installation.
- E. Tolerances.
- F. Manufacturers' field services.
- G. Defect Assessment.

**1.02 RELATED REQUIREMENTS**

- A. Document 007200 - General Conditions: Inspections and approvals required by public authorities.
- B. Section 012100 - Allowances: Allowance for payment of testing services.
- C. Section 016000 - Product Requirements: Requirements for material and product quality.

**1.03 REFERENCE STANDARDS**

- A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2023).
- B. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation; 2026.
- C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2025.
- D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2023.
- E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2021.
- F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2026.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. The Independent testing and inspection agencies will prepare logs, test reports, and certificates applicable to specific test and inspections and deliver copies, in such time as not to delay progress of the work or final payment therefore, to the following parties as indicated:
  - 1. Architect:
    - a. Address: Wellogy Design LLC, 6767 Longshore St., Suite 540, Dublin, OH 43017, Atten Jim Kinney, AIA 614.785.0505, 216
    - b. Required Format: .pdf
  - 2. Contractor: 1 copy
- C. Test Reports: After each test/inspection, promptly submit two copies of report to Architect and to Contractor.
  - 1. Include:
    - a. Date issued.
    - b. Project title and number.
    - c. Name of inspector.
    - d. Date and time of sampling or inspection.
    - e. Identification of product and specifications section.
    - f. Location in the Project.

- g. Type of test/inspection.
  - h. Date of test/inspection.
  - i. Results of test/inspection.
  - j. Compliance with Contract Documents.
  - k. When requested by Architect, provide interpretation of results.
- 2. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.
- D. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
  - 1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
  - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.
- E. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- F. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
  - 1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.
- G. Erection Drawings: Submit drawings for Architect's benefit as contract administrator or for University.
  - 1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.
  - 2. Data indicating inappropriate or unacceptable Work may be subject to action by Architect or University.

#### **1.05 REFERENCES AND STANDARDS**

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in any reference document.

#### **1.06 TESTING AND COST RESPONSIBILITIES**

- A. Contractor:
  - 1. Testing: All testing required by the Contract shall be paid for by the Contractor unless otherwise noted.

2. Special Inspection Testing: All required Special Inspection Testing required by Chapter 17 OBC (Ohio Building Code) shall be arranged and paid by the Architect. The following Special Inspection Testing is anticipated for the Project:
  - a. Fabricators (1704.2 OBC)
  - b. Steel Construction (1704.3 OBC)
  - c. Concrete Construction (1704.4 OBC)
  - d. Masonry Construction (1704.5 OBC)
  - e. Sprayed Fire-Resistant Materials (1704.10 OBC)
  - f. Special Cases - (Aluminum Curtainwall System) (1704.13)
  - g. Smoke Control System (1704.14 OBC)
3. Non-compliance: When initial test services indicate noncompliance with the Contract Documents, any subsequent retesting required due to noncompliance shall be performed by the same personnel and paid for by the Contractor.
4. Schedule portions of the work requiring inspection and testing so that the time of the agency on the project is as continuous and brief as possible.
5. Regulatory Requirements: Inspections and tests required by codes and ordinances, or by plan approved authorities, and made by a legally constituted authority shall be the responsibility of and paid for by the Contractor, unless otherwise provided by the Contract Documents.

#### **1.07 TESTING/INSPECTION AGENCIES**

- A. Contractor-Provided Agencies: Qualified, independent agencies approved by Architect.

### **PART 2 EXECUTION**

#### **2.01 CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

#### **2.02 TOLERANCES**

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

#### **2.03 TESTING AND INSPECTION**

- A. Testing Agency Duties:
  1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
  2. Perform specified sampling and testing of products in accordance with specified standards.
  3. Ascertain compliance of materials and mixes with requirements of Contract Documents.



4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
  5. Perform additional tests and inspections required by Architect.
  6. Submit reports of all tests/inspections specified.
- B. Limits on Testing/Inspection Agency Authority:
1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
  2. Agency may not approve or accept any portion of the Work.
  3. Agency may not assume any duties of Contractor.
  4. Agency has no authority to stop the Work.
- C. Contractor Responsibilities:
1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
  2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
  3. Provide incidental labor and facilities:
    - a. To provide access to Work to be tested/inspected.
    - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
    - c. To facilitate tests/inspections.
    - d. To provide storage and curing of test samples.
  4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
  5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
  6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
- D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.
- E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

#### **2.04 MANUFACTURERS' FIELD SERVICES**

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance equipment, and \_\_\_\_\_ as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

#### **2.05 DEFECT ASSESSMENT**

- A. Replace Work or portions of the Work not complying with specified requirements.

#### **END OF SECTION**

**SECTION 014500  
QUALITY CONTROL**

**PART 1: GENERAL**

**1.01 SUMMARY**

- A. Section Includes:
  - 1. Inspections and tests required to establish compliance with the Contract Documents.
  - 2. Testing agency or agencies.
  - 3. Contractor's responsibilities.
- B. Related Sections:
  - 1. Other testing and inspection requirements. See individual Sections.

**1.02 TESTING AND COST RESPONSIBILITIES**

- A. Contractor:
  - 1. Testing: All testing required by the Contract shall be paid for by the Contractor unless otherwise noted.
  - 2. Special Inspection Testing: All required Special Inspection Testing required by Chapter 17 OBC (Ohio Building Code) shall be arranged and paid by the A/E. The following Special Inspection Testing is anticipated for this Project:
    - a. Steel Construction (1704.3 OBC)
    - b. Masonry Construction (1704.5 OBC)
  - 3. Structural Unistrut Testing - All testing required for certification of the structural system will be completed by the University's vendor, this is commonly referred to as the "Shake Test".
  - 4. Non-compliance: When initial test services indicate noncompliance with the Contract Documents, any subsequent retesting required due to noncompliance shall be performed by the same personnel and paid for by the Contractor.
  - 5. Schedule portions of the work requiring inspection and testing so that the time of the agency on the project is as continuous and brief as possible.
  - 6. Regulatory Requirements: Inspections and tests required by codes and ordinances, or by plan approval authorities, and made by a legally constituted authority shall be the responsibility of and paid for by the Contractor, unless otherwise provided by the Contract Documents.

**1.03 TESTING/INSPECTION AGENCIES**

- A. Contractor-Provided Agencies: Qualified, independent agencies approved by A/E.

**1.04 SUBMITTALS**

- A. The independent testing and inspection agencies will prepare logs, test reports, and certificates applicable to specific test and inspections and deliver copies, in such time as not to delay progress of the work or final payment therefore, to the following parties as indicated:
  - 1. A/E:
    - a. Address: Wellogy Design, LLC., 6767 Longshore Street, Dublin, OH 43017, Phone (614) 785-0505, Attention Jim Kinney, AIA. email: jkinney@wellogydesign.com
    - b. Required Quantity: 1 copy (PDF)
  - 2. Contractor: 1 copy (PDF)

**PART 2: RESPONSIBILITY**

**2.01 CONTRACTOR'S RESPONSIBILITY**

- A. Acknowledgement of the awareness of special requirements contained in the special inspections referenced above.
- B. Access: Provide free access to various parts of the work and assist testing and inspection personnel in the performance of their duties at no additional cost to the University.
- C. Data: Submit records, drawings, certificates, and similar data as may be required by the testing and inspection personnel to assure compliance with the Contract Documents.

- D. Notice: Notify A/E and testing and inspection agencies not less than 24 hours prior to each time required for such services.
- E. Defective work: Correct rejected work and bear all costs of such correction, including the cost of the A/E's and Engineer's additional services thereby made necessary.

## **2.02 TESTING/INSPECTION SERVICES**

- A. Laboratory shall test and/or obtain certificates for tests of materials and methods of construction as described hereinafter:
  - 1. Reports: Furnish laboratory test reports of materials and construction as required; include description of method of test, identification of sample and portion of the work tested, description of location in the work of the sample, time and date of test of sample, weather and climatic conditions, and evaluation of results of tests, including recommendations for action.
- B. Inspection services: The inspection agency will have full authority to see that the work is performed in strict accordance with requirements of the Contract Documents and the directions of the A/E. The Inspector shall cooperate with the Contractor so as to cause no delay in the progress of the work, but shall be directly responsible to the A/E for his actions.
  - 1. Reports: Furnish " Inspection at Site" reports for each visit to site.

### **END OF SECTION**

**SECTION 015100  
TEMPORARY UTILITIES**

**PART 1 GENERAL**

**1.01 GENERAL**

- A. The requirements of GENERAL under Part I of Section 015200 - Construction Facilities, apply to this Section.
- B. Coordinate with all sections required for this Contract.

**1.02 REFERENCE STANDARDS**

- A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.

**PART 2: TEMPORARY UTILITIES**

**2.01 GENERAL**

- A. The existing building has water and electricity services currently available to the Contractor for the prosecution of the work.
  - 1. Contractor(s) shall pay for installation and maintenance of services required for water, fuel for heat, and electric power
  - 2. The Contractor shall install, and maintain gas and water supply lines and make changes in lines as required for the prosecution of the work.
  - 3. The Contractor shall maintain existing permanent heating and ventilating systems and make changes as required for the prosecution of the work.
  - 4. The Contractor shall install, operate, and maintain electrical installations and make changes as required for the prosecution of the work. [
  - 5. The University will pay for consumption of water.
  - 6. The University will pay for consumption of electric.
- B. Duration of Services: Provide continuous utility services, including operation of permanent and temporary equipment and services, until the date of final acceptance of the project.
- C. Permanent Existing Systems: Contractor shall use and maintain existing systems until new systems are available in accordance with the requirements of this section.
- D. The Contractor must coordinate with the University for any work which will cause disruption to the existing utility systems to areas outside of the construction area of the facility.

**2.02 TEMPORARY SANITARY FACILITIES**

- A. The Contractor shall provide temporary toilets for each sex present on job for all Contractors. Comply with governing regulations and health codes for types, numbers, location, and maintenance.
  - 1. Furnish soap and paper supplies.
  - 2. Maintain same in antiseptic conditions at all times. Clean toilets at least once a week or more often if required.

**2.03 TEMPORARY LIGHTING AND POWER**

- A. Contractor shall:
  - 1. Provide temporary light and power distribution for construction purposes for all trades including the cost of running temporary service from the utility supply.
    - a. Temporary power to be sufficient to operated all :light tools: and equipment (electric arc welders excluded) and permanent building equipment including HVAC system and existing security equipment. Temporary power shall be distributed on each floor of the building at maximum intervals of 150 feet during construction. Any costs of work required for changes or revisions ot the temporary lighting associated with progress of the Work shall be completed by a qualified electrical Contractor.
    - b. Additional temporary power required by other trades to be furnished up to the power available.

- B. Cost of Installation and Operation:
  - 1. All installation and maintenance costs by the Contractor.
- C. This service is to consist of distribution systems, transformers, fuses, panelboards, grounding, branch circuits, switches, GFCI receptacle outlets, and all other labor and materials necessary to provide a compel operating system.
- D. Temporary wiring is to be laid out, balanced, and sized so as to produce a voltage drop of no more than 5 percent at the extreme end of the line, when operating a full load.
- E. Provide labor and material for the modifications and maintenance of temporary light and power as may be required during the period of construction. Provided at least the following:
  - 1. Revisions or supplement the existing temporary general lighting.
  - 2. General all-purpose temporary power requirements.
  - 3. Make connections for temporary heat. Check temporary heat requirements.
  - 4. Temporary lighting for temporary sidewalks and protected enclosures.
- F. Electrical work shall conform to requirements of the National Electrical Code and all federal, state, and local requirements. The Contractor shall obtain and pay for applications, permits, and inspection pertaining to this work.
- G. The electrical requirements for all temporary heating and ventilating systems shall be connected directly to the project temporary power system until the primary service is installed.
- H. Temporary work shall be installed in such a manner as not to interfere with the permanent construction. If such interference does occur, it shall be the responsibility of the Contractor to make such changes as may be required to overcome the interference.
- I. The Contractor shall provide and be responsible for temporary lighting throughout the entire building, Lighting levels shall be uniform across the entire floor and all enclosed areas, so as to provide a safe working environment.
- J. Lighting Timer: The Contractor shall install a timer device for the temporary lighting to control the lighting usage. The Contractor shall make sure the lights are turned off during non-working hours.

#### **2.04 TEMPORARY HEATING**

- A. Existing air handling units and temporary unit heaters shall be used to provide temporary heat and ventilation.
  - 1. Permanent enclosure: The existing structure is to be considered "permanently enclosed" and shall be maintained as such.
  - 2. Cost: Natural gas and electric power available at the site that is consumed shall be paid for by the University up to the limits mentioned above until the completions of the project. All other temporary fuel sources shall be provided and paid for by the Contractor.
  - 3. The Contractor shall maintain existing HVAC system and shall bear including costs for repairs for the duration of the contract.
  - 4. Permanent Equipment: The Contractor is responsible for having the permanent HVAC system operational and maintaining the interior environment including dehumidification.
- B. Work Restrictions:
  - 1. Any dumpsters located on the exterior of the facilities by the contract will be required to be removed from the site of OSU student move-in and move-out. Coordinate exact dates with the University.
  - 2. Exercise measures to conserve energy.
- C. Contractor's Responsibilities:
  - 1. Maintain as to temperatures and ventilation required for work in various parts of the building to maintain a safe working environment and as follows:
    - a. See "Temperature Requirements" and "Ventilation".
    - b. Stored Materials: As recommended by manufacturer and or specified.

- c. Installed Materials: As recommended by manufacturer for the length of time following installation.
- 2. Installation, operation, and maintenance of temporary heating and ventilating devices to be performed by tradesmen proficient in the skills required and meet requirements of applicable regulatory agencies.
- 3. Maintain that portion of any floor thereof which has been constructed, or partly constructed, at a temperature and humidity that will insure against damage due to warping, buckling, excessive shrinkage, etc., and adequate ventilation until the permanent HVAC System is operating. Contractor will be responsible for damage to work under other contracts due to smoke or other damage caused by improper temporary heating.
- D. Temperature Requirements:
  - 1. Provide temperatures required in various parts of the buildings as specified herein below:
  - 2. Provide the range of temperatures required for temporary heat, so the temperature as recommended by the manufacturer of the material concerned is maintained while such materials as mentioned above are shored in the building or being installed, and for the length of time recommended following installation. In those portions of the building where work is in progress or completed, it must be protected from freezing if subject to damage therefrom.
- E. Ventilation: The Contractor shall provide ventilation for the building and to prevent build up of harmful dusts and fumes and to remove excess moisture.
- F. Existing Systems:
  - 1. Existing air handling units shall be used for temporary heating and ventilation. Maintenance shall include the following:
    - a. Proper operation and maintenance of the HVAC equipment.
    - b. Maintenance of filters in all equipment to prevent accumulation of dust and dirt in coils, housings, and ductwork.
    - c. Prior to Final Inspection: Replacement of all filters with new filters.
  - 2. Replace filters in all equipment to prevent accumulation of dust and dirt in coils, housings, and ductwork.
- G. Prior to Final Inspection:
  - 1. Replace filters.
  - 2. Refer to HVAC Specifications for further requirements.

## **2.05 PERSONNEL/MATERIAL HOISTING SERVICE**

- A. Temporary Personnel. Material Hoisting Service:
  - 1. The Contractor is responsible for all their hoisting and handling of material. Crane placement or helicopter placement for hoisting requirements and scheduling shall be coordinated by the Contractor with the OSU Project Manager. Crane usage and movement shall be coordinated with the Contractor. The project will have limited area for crane usage.
- B. The existing buildings contain passenger and service elevators that will be modernized under this contract. The use of these elevators for hoisting materials will not be permitted during the duration of this contract.
  - 1. If during the course of construction, the temporary hoisting becomes inoperable for any reason, the Contractor shall provide other means of material transport and/or worker transport at no cost to the University. No delay claims shall result from the inoperability of the existing vertical transportation.

### **END OF SECTION**

**SECTION 015200  
CONSTRUCTION FACILITIES**

**PART 1: GENERAL**

**1.01 GENERAL**

- A. Install temporary facilities and utilities in conformance with state and local codes and requirements.
- B. The Architect shall secure and pay for required plan approvals and permit. Contractor to submit and apply for elevator permit. Contractor will be required to pay for all inspections, including any additional inspections over and above the number allotted by Division of Industrial Compliance. In addition, all permits and inspections required for temporary facilities and utilities. (Also reference General Conditions Article 5 Building and Trade Permits and Licenses).
- C. Any Contractor either requiring temporary service before it can be provided as specified or whose temporary service requirements differ from the service specified shall provide such service as suits his needs, at his own expense, and in a manner satisfactory to the A/E.
- D. Maintain, and keep in good operating condition, temporary facilities and utilities. Provide maintenance necessary to perform this work in accordance with the requirements. Maintenance time shall include normal working hours for all trades and start up and shut down overtime as required.
- E. Contractor providing temporary facilities or services shall remove same either when no longer required, when their function is replaced by authorized use of permanent facilities, or when directed by A/E, all as approved by the A/E, except as otherwise noted.
- F. Disclaimer: Specific administrative and procedural minimum actions are specified in this section, as extensions of provisions in the General Conditions, and other contract documents. These requirements have been included for special purposes as indicated. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication by A/E, Engineer or University that such temporary activity is not required for successful completion of the work and compliance with requirements of contract documents. Provisions of this section are applicable to, but not by way of limitation, utility services, construction facilities, security/protection provisions and support facilities.

**PART 2: TEMPORARY CONTROLS**

**2.01 ACCESS AND PARKING**

- A. Access: Workmen, construction traffic and equipment, delivery of materials, and removal of excavated materials, trash and debris shall utilize entrances and roads as directed by the Contractor in conjunction with approvals from the University.
- B. Parking on site shall not be permitted due to area limitations and restricted access. Contractor shall arrange and pay for parking offsite. Reference General Conditions Supplementary Conditions for OSU Traffic and Parking requirements.
- C. Site Logistics Plan: Contractor shall be aware of the limitations for storage (only within construction area), material handling, delivery areas, laydown areas (none outside scope of work area), trash chutes (none permitted), dumpster locations (none permitted), access and temporary roads.

**2.02 TRAFFIC**

- A. Responsibility: The Contractor whose work requires interruption of traffic is to provide temporary traffic controls as required for completion of the Work and in accordance with Contractor's site logistics management plan. All work associated with interruption of traffic must be coordinated with OSU Traffic and Parking.

- B. Maintenance: Each Contractor shall maintain streets and roads utilized for construction traffic clear, clean and free from dirt and debris. Clean daily if required. Failure to clean will result in the University having it done at Contractor's expense.

### **2.03 SECURITY AND SAFETY**

- A. The Contractor shall be responsible for the security of the project site. Contractors shall coordinate access and security provisions with the Contractor.
- B. No equipment or materials is to be left outside the construction barriers.
- C. Temporary Exit ways: Contractor shall provide temporary exit and walkways where required by, and in accordance with, OSHA, Building Code Authority, and City Ordinance.
- D. Temporary Portable Wireless Security System: The Contractor shall provide and maintain a temporary portable, wireless site and building security system throughout the duration of construction.
- E. Safety requirements shall be in accordance with the General Conditions.
- F. Strict attention and full adherence shall be given to all applicable safety and security requirements.
- G. Fire extinguishers during construction: The Contractor shall provide and maintain fire extinguishers in quantity and amounts as required by the governing fire safety authorities. The fire extinguishers shall remain in working order after completion of the project for future renovation phase contracts.

### **2.04 TEMPORARY STORAGE**

- A. On site storage to be limited, approved by the University.
- B. Outdoor storage of material is prohibited. Indoor storage shall be confined to spaces within work areas; corridors and other public spaces shall not be used for storage. Storage of materials will be coordinated with the University.

## **PART 3: TEMPORARY FACILITIES**

### **3.01 SHORING AND BRACING**

- A. Provide shoring and bracing required for safety and proper execution of the work. Remove these items when the work is completed.

### **3.02 USE OF PREMISES AND DELIVERIES**

- A. General: The Contractor shall have the use of the premises for construction operations. The Contractor's use of the premises is limited only by the University's Right to Perform Construction Operations with its own forces or to employ separate Contractors on portions of the Project.
- B. Schedule all deliveries to the job site before 6:00 A.M. Contractor shall also sequence deliveries to minimize space and time requirements for storage of materials and equipment on site. All material is to be stored where directed by the Construction Manager.
- C. The use of powder or power type explosive fasteners is prohibited.
- D. The Contractor or his authorized agent shall be present at the field office, or elsewhere on the site, at all times while the Work is in progress by their own forces or their subcontractors.
- E. The Contractor and its Subcontractors shall be subject to such rules and regulations for the conduct of the Work as the University Construction Manager may establish and shall fully cooperate with and participate in the implementation of the Interim Life Safety Measures (ILSM) established for the project found in this Section and Section 01 35 29 - Health, Safety, and Environment. All employees shall be properly and completely clothed while working. Bare torsos, legs and feet will not be allowed. Possession or consumption of alcoholic beverages, tobacco products or drugs, or other noxious behavior on the Project Site is strictly prohibited. Violators shall be promptly removed from the site.
- F. All Contractors shall limit their use of the premises for Work and for storage, to allow for:



1. Work by other contractors.
  2. University occupancy.
  3. Public use and safety.
  4. Free use of corridors at all times.
- G. The University and the Construction Manager expect Contractors and their Subcontractors to exercise common sense and good judgement, and to conduct themselves in a manner which would be a credit to the University. Without limiting other applicable provisions of the Contract Documents, Contractor shall not engage in the following;
1. Smoking is prohibited. Violators will not be tolerated and will be escorted from the premises immediately.
  2. Conduct that interferes with Work or work of others.
  3. Unauthorized use of confidential information.
  4. Discourtesy toward University staff, visitors and the general public (including abusive, vulgar or other language).
  5. Soliciting.
  6. Disregard of safety, sanitation, or security laws, rules and regulations.
  7. Conduct detrimental to the University's operations and good reputation.
  8. Stealing or gambling.
  9. Possession and/or use of narcotics or intoxicants.
  10. Threats or abuse of others.
  11. Disorderly conduct or fighting.
  12. Playing of music.
  13. Falsification of information.
  14. Unauthorized travel of Contractor's employees outside the designated project Work areas.
  15. Discriminating behavior.
  16. Sexual or ethnic harassment.
- H. Willful disregard of the above will be grounds for requiring the offending person(s) to be removed from the Project, and may subject the Contractor to termination under the Agreement.

### **3.03 DUST CONTROL, BARRIERS AND ENCLOSURES**

- A. Dust Control: Each Contractor to provide suitable dust control and collection for interior dust generating work.
- B. Equipment: Collection device with bag filter and particle separator.
- C. Vent air from area to prevent dust from entering the adjacent finished and or occupied areas of the building.
- D. Tape media type filters over active return air grilles. Replace when dirty; remove at completion of project.
- E. All ductwork which contains fire/smoke detectors to be kept dust free so as not to falsely activate fire alarm system.

### **3.04 TEMPORARY FIELD OFFICES**

- A. Construction Field Office: There is no space onsite for temporary field offices. The contractor shall setup their field office, at their discretionary requirement, within the area of work.
  1. All contractors shall be solely responsible for the cost of all telecommunications required to prosecute the work. University owned telecommunications equipment or services are not to be used by the contractors.

### **3.05 UTILITIES**

- A. Provide temporary utilities as specified under Section 01 51 00 - Temporary Utilities.

### **3.06 TRAFFIC MAINTENANCE**

- A. Contractor whose work requires interruption of traffic to provide suitable temporary signage and lane markings in accordance with the City of Columbus, Ohio Manual of Uniform Traffic Control

Devices for Streets and Highways and any other required codes or procedures. All work associated with interruption of traffic must be coordinated with osuTraffic and Parking.

**END OF SECTION**

**SECTION 016000  
PRODUCT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. General product requirements.
- B. Re-use of existing products.
- C. Transportation, handling, storage and protection.
- D. Product option requirements.
- E. Substitution limitations.
- F. Maintenance materials, including extra materials, spare parts, tools, and software.

**1.02 RELATED REQUIREMENTS**

- A. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions: Requirements for VOC-restricted product categories.
- B. Section 017419 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.

**1.03 REFERENCE STANDARDS**

- A. 16 CFR 260.13 - Guides for the Use of Environmental Marketing Claims; Federal Trade Commission; Recycled Content; Current Edition.

**1.04 SUBMITTALS**

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
  - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

**PART 2 PRODUCTS**

**2.01 EXISTING PRODUCTS**

- A. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

**2.02 NEW PRODUCTS**

- A. Provide new products unless specifically required or permitted by Contract Documents.
- B. Where other criteria are met, Contractor shall give preference to products that:
  - 1. If used on interior, have lower emissions, as defined in Section 016116.
  - 2. If wet-applied, have lower VOC content, as defined in Section 016116.
  - 3. Are extracted, harvested, and/or manufactured closer to the location of the project.
  - 4. Are made of recycled materials.
  - 5. If made of wood, are made of sustainably harvested wood, wood chips, or wood fiber.
  - 6. Have a published Environmental Product Declaration (EPD).

**2.03 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

#### **2.04 MAINTENANCE MATERIALS**

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

### **PART 3 EXECUTION**

#### **3.01 TRANSPORTATION AND HANDLING**

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

#### **3.02 STORAGE AND PROTECTION**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 017419.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

**SECTION 016116  
VOLATILE ORGANIC COMPOUND (VOC) CONTENT RESTRICTIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Requirements for Indoor-Emissions-Restricted products.
- B. Requirements for VOC-Content-Restricted products.
- C. Requirement for installer certification that they did not use any non-compliant products.
- D. VOC restrictions for product categories listed below under "DEFINITIONS."
- E. All products of each category that are installed in the project must comply; University's project goals do not allow for partial compliance.

**1.02 RELATED REQUIREMENTS**

- A. Section 013000 - Administrative Requirements: Submittal procedures.

**1.03 DEFINITIONS**

- A. Indoor-Emissions-Restricted Products: All products in the following product categories, whether specified or not:
- B. VOC-Content-Restricted Products: All products in the following product categories, whether specified or not:
  - 1. Interior paints and coatings applied on site.
  - 2. Interior adhesives and sealants applied on site, including flooring adhesives.
- C. VOC-Restricted Products: All products of each of the following categories when installed or applied on-site in the building interior:
  - 1. Adhesives, sealants, and sealer coatings.
  - 2. Paints and coatings.
  - 3. Insulation.
  - 4. Gypsum Board.
  - 5. Acoustical ceilings and panels.
- D. Interior of Building: Anywhere inside the exterior weather barrier.
- E. Adhesives: All gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.
- F. Sealants: All gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers.

**1.04 REFERENCE STANDARDS**

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings; 2005 (Reapproved 2018).
- C. CARB (SCM) - Suggested Control Measure for Architectural Coatings; California Air Resources Board; 2020.
- D. CRI (GLP) - Green Label Plus Testing Program - Certified Products; Current Edition.
- E. GreenSeal GS-36 - Standard for Adhesives for Commercial Use; 2013.
- F. SCAQMD 1113 - Architectural Coatings; 1977, with Amendment (2016).
- G. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).
- H. SCS (CPD) - SCS Certified Products; Current Edition.

**1.05 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.

- B. Product Data: For each VOC-restricted product used in the project, submit evidence of compliance.
- C. Installer Certifications Regarding Prohibited Content: Require each installer of any type of product (not just the products for which VOC restrictions are specified) to certify that either 1) no adhesives, joint sealants, paints, coatings, or composite wood or agrifiber products have been used in the installation of installer's products, or 2) that such products used comply with these requirements.

#### **1.06 QUALITY ASSURANCE**

- A. VOC Content Test Method: 40 CFR 59, Subpart D (EPA Method 24), or ASTM D3960, unless otherwise indicated.
  - 1. Evidence of Compliance: Acceptable types of evidence are:
    - a. Report of laboratory testing performed in accordance with requirements.
- B. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS**

- A. VOC-Content-Restricted Products: VOC content not greater than required by the following:
  - 1. Adhesives, Including Flooring Adhesives: SCAQMD 1168 Rule.
  - 2. Aerosol Adhesives: GreenSeal GS-36.
  - 3. Joint Sealants: SCAQMD 1168 Rule.
  - 4. Paints and Coatings: Each color; most stringent of the following:
    - a. 40 CFR 59, Subpart D.
    - b. SCAQMD 1113 Rule.
    - c. CARB (SCM).

### **PART 3 EXECUTION**

#### **3.01 FIELD QUALITY CONTROL**

- A. Owner reserves the right to reject non-compliant products, whether installed or not, and require their removal and replacement with compliant products at no extra cost to Owner.
- B. Additional costs to restore indoor air quality due to installation of non-compliant products will be borne by Contractor.

**END OF SECTION**

**SECTION 017000  
EXECUTION AND CLOSEOUT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Examination, preparation, and general installation procedures.
- B. Cutting and patching.
- C. Surveying for laying out the work.
- D. Cleaning and protection.
- E. Starting of systems and equipment.
- F. Closeout procedures, including Contractor's Correction Punch List, Pre-closeout meeting, Substantial Completion procedures, and Contract Completion procedures except payment procedures.
- G. General requirements for maintenance service.

**1.02 RELATED REQUIREMENTS**

- A. Section 011000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
- B. Section 013000 - Administrative Requirements: Submittals procedures, Electronic document submittal service.
- C. Section 014000 - Quality Requirements: Testing and inspection procedures.
- D. Section 015100 - Temporary Utilities: Temporary heating, cooling, and ventilating facilities.
- E. Section 017419 - Construction Waste Management and Disposal: Additional procedures for trash/waste removal, recycling, salvage, and reuse.
- F. Section 017800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.
- G. Section 017900 - Demonstration and Training: Demonstration of products and systems to be commissioned and where indicated in specific specification sections
- H. Section 078400 - Firestopping.

**1.03 REFERENCE STANDARDS**

- A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

**1.04 PROJECT CONDITIONS**

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

**1.05 COORDINATION**

- A. See Section 011000 for occupancy-related requirements.
- B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- C. Notify affected utility companies and comply with their requirements.
- D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- E. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and

conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

- F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- G. Coordinate completion and clean-up of work of separate sections.
- H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

#### **1.06 PRE-CLOSEOUT MEETING**

- A. Pre-Closeout Meeting: The A/E in consultation with the OSU Project Manager/ Construction Manager shall schedule and conduct a pre-closeout meeting at 70 percent contract completion based on the project schedule or cost, whichever occurs first.
  - 1. Purpose: Review details and timing of closeout activities to assure a smooth transition to Contract Completion.
  - 2. Attendees: A/E, OSU Project Managers/ Construction Managers and OSU Closeout Coordinator, GC/ CM/ DB and its major subcontractors, and Commissioning Agent if the project scope includes building commissioning.
- B. Agenda: Review details and timing of closeout activities.
  - 1. Review OSU Closeout Standards for online closeout document submittal requirements and establish schedule for uploading required documentation.

#### **1.07 MAINTENANCE MATERIAL SUBMITTALS**

- A. Maintenance Material Items: Attic stock requirements and maintenance items specified in other Sections.

#### **1.08 SUBSTANTIAL COMPLETION PROCEDURES**

- A. Substantial Completion: Refer to General Conditions, Article 6.27. Major activities include the following.
- B. Contractor's Punch List: Prepare and submit a list of items to be completed and corrected, indicating the value of each item on the list and reasons why the Work is incomplete.
- C. Substantial Completion Inspection: Contact A/E after compiling Contractor's Punch List to arrange for Substantial Completion Inspection. Refer to General Conditions Article 6.28.
- D. When the A/E determines the Work to be Substantially Complete, A/E will prepare Certificate of Substantial Completion along with the A/E's Punch List, including items discovered during inspection added to the Contractor's Punch List.

#### **1.09 CONTRACT COMPLETION PROCEDURES**

- A. Prerequisites to Contract Completion: Before requesting final inspection for determining Contract Completion, complete the following:
  - 1. Submit a final Application for Payment according to General Conditions Article 9.9.
  - 2. A/E's Punch List: Submit certified copy of A/E's Punch List of items to be completed or corrected, endorsed and dated by A/E. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  - 3. Demonstration and Training: Complete demonstration and training required by specifications and submit required documentation.
  - 4. O&M Materials and Warranties: Submit warranties, operating and maintenance manuals and materials.
  - 5. Record Documents: Submit Record Documents according to General Conditions Article 6.25.2 and OSU Closeout Standards.
  - 6. Record Project Documents and other deliverables identified in the Contract Completion Checklist.



- B. Final Inspection: Following completion of all items on the A/E's Punch List and prerequisites above, submit written request for Final Inspection to the A/E.
- C. Certificate of Contract Completion: When closeout requirements are completed to the satisfaction of A/E and OSU Project Managers/ Construction Managers, A/E will prepare a Certificate of Contract Completion.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 016000 - Product Requirements.
- D. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health of property or that might damage finished surfaces.
  - 1. Refer to respective specification on material cleaning process.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

### **3.03 LAYING OUT THE WORK**

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Architect of any discrepancies discovered.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

- F. Utilize recognized engineering survey practices.
- G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
  - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations; and \_\_\_\_\_.
  - 2. Grid or axis for structures.
  - 3. Building foundation, column locations, ground floor elevations, and \_\_\_\_\_.
- H. Periodically verify layouts by same means.
- I. Maintain a complete and accurate log of control and survey work as it progresses.

### **3.04 GENERAL INSTALLATION REQUIREMENTS**

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

### **3.05 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
  - 1. Complete the work.
  - 2. Fit products together to integrate with other work.
  - 3. Provide openings for penetration of mechanical, electrical, and other services.
  - 4. Match work that has been cut to adjacent work.
  - 5. Repair areas adjacent to cuts to required condition.
  - 6. Repair new work damaged by subsequent work.
  - 7. Remove samples of installed work for testing when requested.
  - 8. Remove and replace defective and non-complying work.
- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 078400, to full thickness of the penetrated element.
- I. Patching:
  - 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  - 2. Match color, texture, and appearance.
  - 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

### **3.06 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

### **3.07 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

### **3.08 SYSTEM STARTUP**

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.
- C. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- D. Verify that wiring and support components for equipment are complete and tested.
- E. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.
- F. Submit a written report that equipment or system has been properly installed and is functioning correctly.

### **3.09 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

### **3.10 FINAL CLEANING**

- A. Execute final cleaning prior to final project assessment.
  - 1. Clean areas to be occupied by Owner prior to final completion before Owner occupancy.
- B. Use cleaning materials that are nonhazardous.
- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean filters of operating equipment.
- F. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, drainage systems, and \_\_\_\_\_.

- G. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.
- H. Clean Owner-occupied areas of work.
- I. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

### **3.11 REPAIR OF THE WORK**

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

### **3.12 CLOSEOUT PROCEDURES**

- A. Make submittals that are required by governing or other authorities.
- B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
- C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
- D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
- E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.
- F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
- G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.
- H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

### **3.13 MAINTENANCE**

- A. Provide service and maintenance of components indicated in specification sections.
- B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.
- C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

### **END OF SECTION**

**SECTION 017400  
CLEANING AND WASTE MANAGEMENT**

**PART 1 - GENERAL**

**1.01 STANDARDS**

- A. Maintain project in accordance with the following safety and insurance standards:
  - 1. Applicable Federal and State Requirements.
  - 2. National Fire Protection Association.

**1.02 HAZARDS CONTROL**

- A. Comply with the following requirements:
  - 1. Store volatile wastes in covered metal containers, and remove from premises daily.
  - 2. Prevent accumulation of wastes that create hazardous conditions.
  - 3. Provide adequate ventilation during use of volatile or noxious substances.

**1.03 STANDARDS**

- A. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws at the time of contract award.
- B. Do not burn or bury rubbish and waste materials on project site.
- C. Do not dispose of volatile wastes such as mineral spirits, oil or paint thinner in storm or sanitary sewer.
- D. Do not dispose of waste into streams or waterways.

**1.04 MATERIALS**

- A. Select and use cleaning materials and equipment with care to avoid scratching, marring, defacing, staining or discoloring surfaces cleaned.
- B. Use only cleaning materials recommended by manufacturer of surfaces to be cleaned.
- C. Use cleaning materials only on surfaces recommended by the cleaning material manufacturer.

**1.05 CLEANING REMOVAL OF WASTE DURING CONSTRUCTION**

- A. Contractor shall provide, maintain and empty suitable dumpster(s) on site for collection of all waste materials, debris and rubbish on a daily basis. In addition, the Contractor shall be responsible for trash chutes from each floor to these dumpsters. These dumpsters shall be promptly emptied by the Contractor, when full. All trade Contractors shall be responsible for providing suitable containers within the building on each floor minimum and emptying into the Lead Contractor Dumpster(s). All Contractors shall coordinate number of containers required for their work and location with the Contractor.
- B. The Contractor shall remove all waste materials and rubbish attributable to the Work to an appropriate disposal location provided by the Lead Contractor at, or near, the Site.
- C. The Contractor shall perform weekly broom cleaning of hard flooring surfaces in the area of work.
- D. The Contractor shall remove, once each working day or as appropriate for the all waste materials or rubbish from the disposal location at, or near, the Site.
- E. The Contractor shall provide a Dirt Catcher Sticky Mat at all doors and other entrances into the area of work; the mat sheet shall be changed when dirty but no less than once per day.
- F. The Contractor shall remove, as appropriate for the Project or as the A/E directs, any waste materials or rubbish from areas adjacent to the Project.
  - 1. If the Contractor fails to clean the site as mentioned above, the University will clean the area and the cost of cleaning the area will be deducted from the contract of the Contractor.

- G. Street Cleaning: The Contractor shall be responsible for retaining a licensed street cleaning Contractor to maintain and keep all streets adjacent to the project clean throughout the duration of construction on a weekly basis or as required.
- H. Cleaning of Completed Work: Prior to requesting punchlist, the Contractor shall leave its completed work in a clean, neat condition. The Contractor must receive written confirmation of cleaning from the Contractor prior to acceptance of Work.

#### **1.06 FINAL CLEANING**

- A. At the completion of work, Contractor shall remove all surplus material, false work, temporary structures, including foundations thereof, plants of any description and debris of every nature resulting from their operations and put the site in a neat and orderly condition.
- B. The Contractor shall perform a final cleaning of the building and grounds including all areas, rooms, equipment, furniture, and furnishings..
- C. The following are examples of, but not limitations on, cleaning levels required:
  - 1. Wipe all vertical and horizontal surfaces free of dust and debris.
  - 2. Wash windows inside and out, remove all labels and stickers.
  - 3. Broom sweep or dust mop, and wet mop all hard surface flooring.
  - 4. Vacuum sweep all carpeted areas.
  - 5. Clean and disinfect all restrooms.
  - 6. Clean project site of litter and foreign substances.
- D. Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from the site and dispose of lawfully.

**END OF SECTION**

**SECTION 017700  
CLOSEOUT REQUIREMENTS**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Pre-closeout meeting.
  - 2. Substantial Completion procedures.
  - 3. Contract Completion procedures.

**1.02 PRE-CLOSEOUT MEETING**

- A. Pre-Closeout Meeting: The A/E in consultation with the OSU Project Manager/ Construction Manager shall schedule and conduct a pre-closeout meeting at 70 percent contract completion based on the project schedule or cost, whichever occurs first.
  - 1. Purpose: Review details and timing of closeout activities to assure a smooth transition to Contract Completion.
  - 2. Attendees: A/E, OSU Project Managers/Construction Managers and OSU Closeout Coordinator, GC/CM/DB and its major subcontractors, and Commissioning Agent if the project scope includes building commissioning.
- B. Agenda: Review details and timing of closeout activities.
  - 1. Review OSU Closeout Standards for online closeout document submittal requirements and establish schedule for uploading required documentation.

**1.03 CLOSEOUT SUBMITTALS**

- A. Refer to OSU Closeout Standards for submittal requirements for closeout deliverables. The OSU Closeout Standards can be downloaded from the Facilities Operations and Development's vendor resource web page under Post Construction/ Close out.

**1.04 MAINTENANCE MATERIAL SUBMITTALS**

- A. Maintenance Material Items: Attic stock requirements and maintenance items specified in other Sections.

**1.05 SUBSTANTIAL COMPLETION PROCEDURES**

- A. Substantial Completion: Refer to General Conditions (General Contracting Project) Article 6.27. Major activities include the following.
- B. Contractor's Punch List: Prepare and submit a list of items to be completed and corrected, indicating the value of each item on the list and reasons why the Work is incomplete.
- C. Substantial Completion Inspection: Contact A/E after compiling Contractor's Punch List to arrange for Substantial Completion Inspection. Refer to General Conditions, (General Contracting Project) Article 6.28.
- D. When the A/E determines the Work to be Substantially Complete, A/E will prepare Certificate of Substantial Completion along with A/E's Punch List, including items discovered during inspection added to the Contractor's Punch List.

**1.06 CONTRACT COMPLETION PROCEDURES**

- A. Contract Completion: Refer to General Conditions (General Contracting Project) Article 6.30 "Contract Closeout".
- B. Prerequisites to Contract Completion: Before requesting final inspection for determining Contract Completion, complete the following:
  - 1. Submit a final Application for Payment according to General Conditions (General Contracting Project) Article 9.9.

2. A/E's Punch List: Submit certified copy of A/E's Punch List of items to be completed or corrected, endorsed and dated by A/E. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Demonstration and Training: Complete demonstration and training required by specifications and submit required documentation.
  4. O&M Materials and Warranties: Submit warranties, operating and maintenance manuals and materials.
  5. Record Documents: Submit Record Documents according to General Conditions (General Contracting Project) Article 6.25.2.
  6. Record Project Documents and other deliverables identified in the Contract Completion Checklist.
- C. Final Inspection: Following completion of all items on the A/E's Punch List and prerequisites above, submit written request for Final Inspection to the A/E.
- D. Certificate of Contract Completion: When closeout requirements are completed to the satisfaction of A/E and OSU Project Managers/Construction Managers, A/E will prepare a Certificate of Contract Completion.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
- B. Refer to respective specification on material cleaning process.

## **PART 3 - EXECUTION**

### **3.01 FINAL CLEANING**

- A. General: Perform final cleaning prior to occupancy. Refer to General Conditions (General Contracting Project) Article 6.28.
- B. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- C. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

### **3.02 REPAIR OF THE WORK**

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

## **END OF SECTION**



## **SECTION 017836 WARRANTIES**

### **PART 1: GENERAL**

#### **1.01 GENERAL**

- A. Submit warranties for all specific warranties in excess of one-year duration required by Specifications Sections. Refer to General Conditions for additional requirements.
  - 1. Sample Warranties: warranty submittals to accompany the related shop drawing submittal. Shop drawing review will not start without warranty submittal, nor will they be released for fabrication or installation until sample warranty is approved. See Section 01 33 23 for shop drawing submittals.
  - 2. Executed Warranties: Submit fully executed warranties as specified under Section 01 77 00, Closeout Procedures.
- B. Warranties submitted for approval need not be fully executed with signatures. Signed warranties are required upon completion of the work and subject to restrictions of payment if not received in the required manner of time.
- C. Noncompliance with the requirements of this section will place the Contractor in default and will entitle the University to all rights contained in the Project Manual.
- D. The Contractor is responsible for obtaining all executed warranties from suppliers, manufacturers and subcontractors.
- E. Where warranties from subcontractors, suppliers, or manufacturers are limited to materials only, the Contractor shall furnish warranties to provide labor required to remove the defective work and install the replacement materials.
- F. Any agreement of manufacturer not complying with terms of warranty is not binding on University. The University shall be entitled to rights of warranties contained in the Project Manual, implied warranties, and all expressed warranties included in manufacturer's advertising.

#### **1.02 SAMPLE WARRANTIES**

- A. Copies of proposed form prepared by manufacturer or, where applicable, by Contractor which sets forth the terms of warranty for the work. Sample or proposed warranty forms to be fully representative of final executed warranty.
- B. All parties associated with the work must be made known and approved by the prime warrantor to preclude claims of unapproved or non-licensed installers, distributors, or Contractors. Submittal, as prepared by the prime warrantor, shall identify the following:
  - 1. Manufacturer.
  - 2. Contractor.
  - 3. Subcontractor, if any.
  - 4. Installer.
  - 5. University.
  - 6. Job name and address.

#### **1.03 SUBMISSION REQUIREMENTS**

- A. Sample warranties:
  - 1. Schedule submissions of sample warranties to accompany the related shop drawings submission.
  - 2. Warranties: Submit number of copies of warranties which Contractor requires for distribution plus three (3) copies which will be retained by A/E.
  - 3. Submit in accordance with requirements of Section 01 33 23, Shop Drawings, Product Data and Samples.
  - 4. Submittals to be sampled by Manufacturer, Contractor, Subcontractor and Installers as applicable.

#### **1.04 RESUBMISSION REQUIREMENTS**

- A. Review initial warranty as required and resubmit as specified for initial submittals.
  - 1. Indicate on warranty any changes which have been made other than those requested by A/E.

#### **1.05 DISTRIBUTION OF SUBMITTALS AFTER REVIEW**

- A. Make and distribute copies of warranties which carry A/E's stamp to the following:
  - 1. Contractor's file.
  - 2. Job site file.
  - 3. Subcontractor or installer.
  - 4. Manufacturer.

#### **1.06 ARCHITECT'S REVIEW**

- A. Submittals will be reviewed and treated as a shop drawing. Proceed with fabrication or work only after warranty submittals are approved by A/E.
- B. Review of warranty submittal does not constitute review of product assembly or warranted item.
- C. Affix stamp and initials or signature certifying to review of submittal.
- D. Return submittals to Contractor for distribution.

#### **1.07 WARRANTY STATUS VERIFICATION**

- A. Prior to Final Completion and Acceptance, the Contractor is to furnish verification from all applicable manufacturers that the warranty(s) issued are in full effect and disclaimers regarding payment have been satisfied.
- B. Verification to be on manufacturer's letterhead, signed by an officer with binding contractual authority, and notarized.

**END OF SECTION**

## **SECTION 024100 DEMOLITION**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES**

- A. A. Selective demolition of building elements for alteration purposes.

#### **1.02 DESCRIPTION OF WORK**

- A. Scope: Includes the furnishings of all labor, materials, equipment, etc., necessary to perform Demolition and Removal Work in accordance with Specifications and Drawings. Without limiting the extent of the work, Demolition and Removal shall include but not be limited to the following:
  - 1. Remove existing architectural and MEP building elements as indicated on the drawings in support of the elevator modernization.
  - 2. Demolition of doors and frames as indicated on the drawings.
  - 3. Demolition of elevator components as specified in DIV 14.
  - 4. Removal of hazardous materials. Refer to section 02 82 00 - Hazardous Materials Abatement.

#### **1.03 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications Section, apply to work specified in this Section.

#### **1.04 RELATED REQUIREMENTS**

- A. Section 011000 - Summary: Limitations on Contractor's use of site and premises.
- B. Section 011100: Summary of Work.
- C. Section 016000: Product Requirements: Handling and storage of items removed for salvage and relocation.
- D. Section 015000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- E. Section 017000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.
- F. Section 017419 - Construction Waste Management and Disposal: Limitations on disposal of removed materials; requirements for recycling.

#### **1.05 REFERENCE STANDARDS**

- A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2022, with Errata (2021).

#### **1.06 SUBMITTALS**

- A. See Section 01300 - Administrative Requirements and 013323 - Shop Drawings, Product Data and Samples, for submittal procedures.
- B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

#### **1.07 CONTRACTOR'S RESPONSIBILITY**

- A. Familiarity with Existing Conditions
  - 1. Prior to commencement of the work, the Contractor shall have inspected the job sites, and become familiar with existing conditions, and cognizant of the nature of equipment facilities necessary to perform the Work.

2. Commencement of demolition and removal work will be construed as indicating the Contractor has met the above requirements. Subsequent claims, arising from difficulties which could have been foreseen, will not be recognized.
- B. Damage
1. Particular attention shall be given to shoring and bracing requirements in order to prevent any damage to existing construction. The Contractor will be held responsible and shall make good at his own expense any damage resulting from his operations or the inadequacy

## **PART 2 EXECUTION**

### **2.01 GENERAL PROCEDURES AND PROJECT CONDITIONS**

- A. GENERAL REQUIREMENTS
1. All alteration work shall be performed as indicated on the drawings and in the Specifications.
  2. The Contractor shall do all required demolition and removal of existing work, including shoring, bracing and temporary protection of existing work as required and approved by the Architect, and shall remove such temporary protection and supports when no longer required.
  3. The Contractor is referred to the Drawings and details for the notes and instructions regarding removal, replacement, patching, finishing etc.
  4. Asbestos
    - a. If any material suspected of bearing asbestos is encountered, stop work in this area and immediately notify the University's representative. Do not continue work in this area until a determination has been made.
- B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
1. Obtain required permits.
  2. Use of explosives is not permitted.
  3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
  4. Provide, erect, and maintain temporary barriers and security devices.
  5. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
  6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
  7. Do not close or obstruct roadways or sidewalks without permits from authority having jurisdiction.
  8. Conduct operations to minimize obstruction of public and private entrances and exits. Do not obstruct required exits at any time. Protect persons using entrances and exits from removal operations.
  9. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon, or limit access to their property.
- C. Protect existing structures and other elements to remain in place and not removed.
1. Provide bracing and shoring.
  2. Prevent movement or settlement of adjacent structures.
  3. Stop work immediately if adjacent structures appear to be in danger.

### **2.02 MANNER OF OPERATION**

- A. Demolition and removal work shall be performed in a careful and orderly manner, with the least possible disturbance to the occupants and functions of the neighboring buildings.
- B. Accumulation of Debris

1. No accumulation of debris resulting from demolition operations shall be allowed on the floors of the existing Building. Such debris shall be promptly removed and disposed of away from the premises.
- C. Access and Traffic
  1. All work shall be performed so as to avoid hazards to pedestrian traffic, personnel, visitors and workmen, and vehicular traffic.
- D. Pollution Controls
  1. Water sprinklering, temporary enclosures, and other suitable methods to limit dust and dirt rising shall be used. The Contractor shall take precaution against, and be responsible for any water damage to adjacent areas resulting from the operation.
- E. Shoring
  1. Provide temporary shoring, studs and bracing and all necessary precautions to prevent settlement, movement or collapse of the existing construction. Remove temporary shoring, struts and bracing when the opinion of the Architect, they are no longer necessary.
- F. Alterations
  1. In alterations where new and old work join, the adjacent surfaces shall be cut, removed, patched, repaired and/or refinished as required and to the complete satisfaction of the Architect.
- G. Salvageable Material
  1. All salvageable materials resulting from the work demolished and removed under this Contract shall become the property of the Contractor and shall be removed from the premises, unless otherwise indicated.
- H. Cutting and Cleaning
  1. Demolition and alteration work shall include the cutting away &/or cleaning of existing surfaces as required to provide clearance &/or adhesion for new work.
- I. Protect existing structures and other elements that are not to be removed.
  1. Provide bracing and shoring
  2. Prevent movement or settlement of adjacent structures
  3. Stop work immediately if adjacent structures appear to be in danger.
- J. If hazardous materials are discovered during removal operations, stop work and notify Architect and University; hazardous materials include regulated asbestos containing materials, lead, PCBs, and mercury.

## **2.03 EXISTING UTILITIES**

- A. Coordinate work with utility companies. Notify utilities before starting work, comply with their requirements, and obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 2 weeks prior written notification to Owner.
- E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without prior written notification to University.
- F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
- G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

## **2.04 SELECTIVE DEMOLITION FOR ALTERATIONS**

- A. Existing construction and utilities indicated on drawings are based on field observations and existing record documents.
  - 1. Verify construction and utility arrangements are as indicated.
  - 2. Report discrepancies to Architect before disturbing existing installation.
  - 3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.
- B. Separate areas in which demolition is being conducted from areas that remain occupied.
  - 1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 015000 in locations indicated on drawings.
- C. Maintain weatherproof exterior building enclosure, except for interruptions required for replacement or modifications; prevent water and humidity damage.
- D. Protect existing work to remain.
  - 1. Prevent movement of structure. Provide shoring and bracing as required.
  - 2. Perform cutting to accomplish removal work neatly and as specified for cutting new work.
  - 3. Repair adjacent construction and finishes damaged during removal work.
  - 4. Patch to match new work.
  - 5. Coordinate with Subcontractors for materials to be removed by them for their reuse, and for materials to remain.
  - 6. Provide protection for existing floors, walls, ceilings, and doors for the duration of the project.

## **2.05 DEBRIS AND WASTE REMOVAL**

- A. Removal of Debris and Temporary Construction
  - 1. Remove all waste materials, debris, and rubbish in accordance with Section 017400, leaving the premises clean, neat, and orderly, to the satisfaction of the Architect.
- B. Removal of Tools and Equipment
  - 1. Upon completion of demolition work, remove all tools and apparatus from the premises.
- C. Burning of Debris
  - 1. Burning of removed materials will not be permitted on site.
- D. Remove from site all materials not to be reused on site; comply with section 017400 - Cleaning and Waste Management.
- E. Leave site in clean condition, ready for subsequent work.
- F. Clean up spillage and wind-blown debris from public and private lands.

**END OF SECTION**

**SECTION 02 82 20**  
**HAZARDOUS MATERIALS ABATEMENT**

**PART 1 GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section includes the following:
1. Removal and disposal of hazardous materials and related work.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
1. Division 00 Section "Existing Asbestos Information" for use of the premises and phasing requirements.
  2. Division 01 "Summary of Work" for use of the premises and phasing requirements.
  3. Division 01 Section "Temporary Facilities and Controls" for temporary utilities, temporary construction and support facilities, temporary security and protection facilities, and environmental protection measures for selective demolition operations.

**1.3 GENERAL REQUIREMENTS**

- A. The project consists of asbestos abatement and hazardous materials removal and disposal at The Ohio State University Marion Campus- Morrill Hall located at 1465 Mount Vernon Avenue, Marion, Ohio 43302 for the OSU-250050 Elevator Upgrades Project.
- B. The University's Environmental Consultant for the project is Lawhon & Associates, Inc. (L&A). L&A is responsible for the asbestos NESHAPs survey, abatement design and on-site monitoring during hazardous materials abatement activities, and preparation of closeout documents. The Environmental Consultant's main office is located at 1441 King Avenue, Columbus, Ohio 43212. Mr. Josh Rankin is the Project Designer (PD 551975 exp. 9/5/26) for this abatement project. Mr. Matt Kobs is the Project Manager for this project, and can be contacted at (614) 481-8600 ext. 125 (office), or at [mkobs@lawhon-assoc.com](mailto:mkobs@lawhon-assoc.com). All communication, including notifications, shall go through the A/E.
- C. The A/E for this project is Wellogy Design. The office for the A/E is located at 6767 Longshore Street, Suite 540, Dublin, Ohio 43017. The A/E representative is Tyler Brozovich, and can be contacted at (614) 785-0505 or [tbrozovich@wellogydesign.com](mailto:tbrozovich@wellogydesign.com). All communications for this project must go through the A/E.
- D. The Ohio State University Environmental Health and Safety Office (OSU EHS) is located at 1314 Kinnear Road, Columbus, Ohio 43212. Mr. Fred Buescher is the Hazardous Materials Coordinator, and can be reached at [Buescher.4@osu.edu](mailto:Buescher.4@osu.edu). Mr. Mike Lee is the Asbestos Coordinator and can be contacted at (614) 688-3963, or at [Lee.8409@osu.edu](mailto:Lee.8409@osu.edu).
- E. The Hazardous Materials Abatement Contractor shall notify OSU EHS at least five (5) days prior to commencement of abatement activities. Contact OSU EHS Asbestos Coordinator (Mike Lee) for a link to the contractor specific notification form, an any questions regarding the online notification form.

**Failure to notify EHS will result in stoppage of work and project delays. Reference Paragraph 1.6 (B)(5-7) of this section for additional Hazardous Materials Abatement Contractor requirements and qualifications.**

\*Hazardous Materials Abatement Contractor must also notify EHS immediately upon arrival of any regulatory enforcement officer, including, but not limited to OEPA, EPA, or OSHA personnel. Copies of inspection reports must be immediately submitted to the Environmental Consultant.

- F. The Hazardous Materials Contractor shall notify the L&A project manager, via e-mail, ten (10) days prior to the commencement of abatement activities.
- G. EHS Wastes: OSU EHS will assist with the disposal of “household hazardous wastes” from building. These include: Bulbs (Fluorescent, LED, HID, etc.), Ballasts, Batteries, Mercury containing devices, Paints, Cleaning chemicals, Lab Packs, Chemical drain traps and Acid neutralization systems. Some items, such as acid neutralization systems, will need further evaluation from EHS to determine disposal procedures. Supplies to package these items can be provided by EHS. Call EHS at 614.292.1284 or email Rafael Garcia ([Garcia.935@osu.edu](mailto:Garcia.935@osu.edu)) to request supplies or pick up or with any questions about the waste.
- H. OSU Surplus Wastes: OSU’s Surplus department handles the disposal of a variety of building items. This includes: Exit signs, Emergency lights, Fire alarm strobes, Smoke detectors, Fire extinguishers, Refrigerant items (water fountains, refrigerators, etc.) and General electronics (TVs, computers, etc.). Contact OSU Surplus at [Surplus@osu.edu](mailto:Surplus@osu.edu) or Erik Vargo 614.688.3545 to request a pick up of these items.

#### 1.4 GLOSSARY OF TERMS

|                  |                                                                                            |
|------------------|--------------------------------------------------------------------------------------------|
| AHERA            | Asbestos Hazard Emergency Response Act                                                     |
| AIHA             | American Industrial Hygiene Association                                                    |
| ACM              | Asbestos Containing Material                                                               |
| AFD              | Air Filtration Device                                                                      |
| CAHES            | Certified Asbestos Hazard Evaluation Specialist                                            |
| CFR              | Code of Federal Regulations                                                                |
| COMPETENT PERSON | Person Designated by the Hazardous Material Abatement Contractor as the Responsible Person |
| DOT              | Department of Transportation                                                               |
| EPA              | Environmental Protection Agency                                                            |
| F/CC             | Fibers per Cubic Centimeter                                                                |
| GFCI             | Ground Fault Circuit Interrupters                                                          |
| HEPA             | High Efficiency Particulate Air                                                            |
| HMAC             | Hazardous Materials Abatement Contractor                                                   |
| HVAC             | Heating, Ventilating, and Air Conditioning                                                 |
| L&A              | Lawhon & Associates, Inc.                                                                  |
| LBP              | Lead Based Paint                                                                           |
| MAG              | Magnesia                                                                                   |
| MSHA             | Mine Safety and Health Administration                                                      |
| NECA             | National Electrical Contractors Association                                                |
| NEMA             | National Electrical Manufacturers Association                                              |
| NESHAPs          | National Emission Standard for Hazardous Air Pollutants                                    |
| NIH              | National Institutes of Health                                                              |
| NIOSH            | National Institute for Occupational Safety and Health                                      |
| NVLAP            | National Voluntary Laboratory Accreditation Program                                        |
| ODH              | Ohio Department of Health                                                                  |



|         |                                                       |
|---------|-------------------------------------------------------|
| ODOT    | Ohio Department of Transportation                     |
| OEPA    | Ohio Environmental Protection Agency                  |
| OSHA    | Occupational Safety and Health Administration         |
| ORM     | OSHA Reference Method                                 |
| OSU EHS | Ohio State University Environmental Health and Safety |
| PAPR    | Powered Air Purifying Respirator                      |
| PAT     | Proficiency Analytical Testing                        |
| PEL     | Permissible Exposure Limit                            |
| PCB     | Polychlorinated Bi-phenyls                            |
| PCM     | Phase Contrast Microscopy                             |
| PPM     | Parts Per Million                                     |
| RACM    | Regulated Asbestos Containing Material                |
| SAF     | Spray Applied Fireproofing                            |
| SDS     | Safety Data Sheet                                     |
| SF      | Square Foot(Feet)                                     |
| TEM     | Transmission Electron Microscopy                      |
| TSI     | Thermal System Insulation                             |
| UL      | Underwriters Laboratories                             |
| USEPA   | United States Environmental Protection Agency         |

### 1.5 DESCRIPTION OF THE WORK

- A. General. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 00 and 01 Specification Sections, apply to this Section.
- B. Removal and Disposal. The Hazardous Materials Abatement Contractor (HMAC) shall remove and dispose of the approximate listed materials associated with the project. The following tables summarize the various hazardous materials and total estimated quantities for each material required for abatement by the HMAC. The HMAC must verify materials, condition and quantities prior to bid and submit any exceptions in writing prior to submission of bid. The items/ quantities listed below shall be utilized for the OEPA and OSU EHS notifications, as required. **Contractor shall conduct a field verification of material condition prior to submitting notifications. Category I and Category II materials which are damaged or rendered friable prior to or during abatement process shall be notified as RACM.**

#### 1. Table 1 – Base Bid: Morrill Hall – Elevator X025E (Reference Drawing HM011):

| ACM                                | Locations | Quantity (1)                         |
|------------------------------------|-----------|--------------------------------------|
| Elevator Cab- Exterior Tar Coating | X025E     | 30 square feet of spot abatement (2) |
| Elevator Cab Doors                 | X025E     | 2 doors (40tsf)                      |
| Assumed ACM Fire Door              | 136A      | 1 door (20sf)                        |

#### **TABLE 1 SPECIFIC NOTES:**

- (1) Quantities are only approximations and should be field verified prior to bid.
- (2) Abatement is limited to what is necessary to perform new work; existing elevator cab shell is to remain. Any disturbance to ACM elevator cab tar coating shall be conducted by HMAC prior to new work. General Contractor to provide exact extents/locations of required abatement to HMAC, including but not limited to drilling, attachments, detachments, patching, repairs, etc.

#### C. General Notes

Refer to drawing sheets for General Notes which apply to the scope of work.

D. Fluorescent Light Tubes/ Mercury Bulbs/ Light Ballasts

Fluorescent light fixtures were observed throughout the work area. Should these materials be scheduled for impact by upcoming renovation work, they shall be removed, and staged for pickup in university provided disposal containers, prior to impact from renovation activities. Reference 1.3.G of this section for information on University provided containers, and to make arrangements for pickup / dropoff.

E. Lead Based Paint

All renovation work activities disturbing painted surfaces must comply with the OSHA Lead in Construction Standard 1926.62. All contractors must adhere to the OSHA requirements including, but not limited to respiratory protection and air monitoring until a negative exposure assessment is submitted and approved.

F. Elevator Hydraulic Oils (Assumed PCB's)

The elevator at Morrill Hall is a hydraulic elevator with an oil reserve tank. Hydraulic oils may contain PCBs. The demolition contractor should inspect for any oil associated with elevator components at time of construction and test accordingly. The oil should be disposed of or recycled in accordance with regulations based on the PCB sampling data.

G. NESHAPs Survey Report

The hazardous materials assessment report conducted for this project meets the requirements of EPA NESHAPS in relation to this project. This report is located in Section 00 31 26. This report was prepared for this project only and should not be utilized for spaces outside of the assessment area. The quantities and materials in the attached survey report may not match the quantities specified for removal. The contractor shall bid on the materials and quantities identified in this specification section and the abatement drawings, if provided and also after field confirmation by the contractor; not the materials and quantities listed in the attached assessment report. A copy of the report must be maintained on-site by the contractor at all times.

## 1.6 QUALITY ASSURANCE

A. General. Perform all asbestos removal work in compliance with applicable requirements of governing agencies having jurisdiction and as specified herein.

B. Codes and Regulations. This section sets forth governmental regulations and industry standards and are included and incorporated herein by reference and made a part of the specification. This section also sets forth those notices and permits which are known to the University and Environmental Consultant and which either must be applied for and received, or which must be given to governmental agencies before start of Work.

1. General Applicability of Codes, Regulations and Standards. Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable codes, regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.

a. References: In addition to publications referenced in the Construction Contract Clauses, following CFR publications designate and define hazardous materials and conditions, and establish procedures for handling these materials and conditions. Omission of any publication in this section does not remove any obligation or legal

requirement on the part of the contractor to comply with all legal requirements for the location of the work.

1. 29 CFR, Part 1910: OSHA General Industry and Health Standards.
2. 29 CFR, Part 1926: OSHA Construction Industry Standards.
3. 40 CFR, Part 61: National Emission Standards for Hazardous Air Pollutants.
4. 40 CFR, Part 261: EPA Characteristics of Hazardous Waste.
5. 40 CFR, Part 761: EPA PCBs, Manufacturing, Processing, Distribution in Commerce and Use Prohibitions.
6. 40 CFR, Part 763: EPA Asbestos.
7. Federal Standards 313A: MSDS, Preparation and the Submission of.
8. NIH DCAB publication "Standards for Temporary Construction," March 1988.
- b. Related Sections: This specification section is related to any and all specification sections with explicit or implicit reference to cutting and patching. Specific submittal requirements of these related specification sections are not included in this section.
- c. Hazardous Materials: Some Hazardous and Toxic materials and substances are included in 29 CFR part 1910, subparts H and Z, and in 29 CFR Part 1926 and others additionally defined in Federal Standard 313A. Commonly encountered hazardous materials include but are not limited to asbestos, PCBs, explosives and radioactive material.
  1. Asbestos may be found in spray-on fireproofing, insulation, boiler lagging, pipe coverings and other materials.
  2. PCBs may be contained in ballasts, transformers, capacitors, voltage regulators, oil switches, mechanical insulation and other materials.
- d. Acquisition of Publications: Referenced CFR publications may be purchased from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.
2. Contractor Responsibility. The HMAc shall assume full responsibility and liability for the compliance with all applicable Federal, state and local regulations pertaining to work practices, hauling, disposal and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. HMAc is also responsible for notifying the proper authorities (fire departments, police departments, etc.) of the proposed work at least 10 days prior to commencing work under this Contract. The HMAc is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State and local regulations. The HMAc shall hold the University, and the Environmental Consultant harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself, his employees or his HMAcs.
3. Federal Requirements which govern asbestos hazard abatement work include, but are not limited to, the following:
  - a. U.S. Department of Labor, OSHA including, but not limited to:  
Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules; 29 CFR 1910.1001 and 29 CFR 1926.58  
Respiratory Protection; 29 CFR 1910.134  
Construction Industry; 29 CFR 1926  
Access to Employee Exposure and Medical Records; 29 CFR 1910.2  
Hazard Communication; 29 CFR 1910.1200

Specifications for Accident Prevention Signs and Tags; 29 CFR 1910.145

- b. USEPA including, but not limited to:
  - National Emission Standard for Hazardous Air Pollutants; 40 CFR 61 Subpart A
  - National Emission Standard for Hazardous Air Pollutants: Amendments to Asbestos Standard; 40 CFR 61 Subpart M
  - National Requirements: Reportable Quantity Adjustments; 40 CFR 763.117 and 40 CFR 763 Subpart E
- 4. State Requirements which govern asbestos abatement work include, but are not limited to, the following:
  - a. Chapter 3745 of the Ohio Administrative Code.
- 5. Compliance with Current OSU Building Design Standards
  - a. The HMAC shall ensure that a competent person remain outside of the work area during abatement activities. A minimum of one person meeting the qualifications of supervisor shall be present at all times on-site during abatement work or activities and be able to communicate effectively with the workers and all governing authorities.
  - b. Except in the case of emergency, anyone entering an asbestos abatement work area, which is an OSHA-defined "regulated area," shall have received a minimum of 2-hour asbestos awareness training consistent with the EPA requirements.
  - c. HMAC shall ensure that a 3-stage decontamination (clean room, shower, dirty room) chamber system is established directly adjacent to all full containments or when abatement more than 25 linear or more than 10 square feet of friable regulated asbestos containing material. Three-stage decontamination chamber shall be equipped with air lock chambers, working hot and cold water, and a 5 micron filter system.
  - d. HMAC shall ensure that the OSHA required asbestos danger signage in the English language is posted at all entrances at the work area. Areas of abatement work must be clearly demarcated. In all structures, whether partly occupied or not during asbestos removal, maintain clearly identified routes of egress.
  - e. HMAC shall ensure that GFCIs are directly connected to all electrical sources in use outside of the work areas.
  - f. HMAC shall ensure that street clothes are not worn beneath protective clothing when abatement more than 25 linear feet or more than 10 square feet of friable regulated asbestos containing material. In the event that street clothes are worn beneath protective clothing, the HMAC shall render these clothes as asbestos containing and manage accordingly.
  - g. HMAC shall ventilate all air-filtration devices (AFD) to exterior of the building. The preferred procedure is to direct the exhaust out a window. If this is not feasible due to project conditions, submit alternative procedure to University Project Manager for approval. Exhaust from AFDs shall not be directed into airspace above a dropped ceiling or into existing laboratory hood ventilation.
  - h. HMAC shall collect daily OSHA personal PCM air samples and post analytical results on a daily basis. The laboratory the HMAC uses to analyze samples must participate in the AIHA PAT program for fiber counting and analyze air sample via the NIOSH 7400 method. In addition, the microscopist shall have completed the NIOSH 583 Equivalent course training. Records shall be maintained to show air quality levels prior to, during and after asbestos abatement work on projects. These records shall show sample results of environmental and personal air data results.

- i. HMAc shall ensure that all critical barriers are sealed with 6-mil polyethylene within the work area(s), all HVAC and electrical systems are de-energized within the work area, and all HVAC vents are sealed with two layers of 6-mil polyethylene.
  - j. HMAc shall ensure that all full containments contain a minimum negative pressure of 0.02 inches of water column.
  - k. HMAc shall ensure that all asbestos containing materials are adequately wetted with amended water during removal and disposal.
  - l. HMAc shall ensure that all asbestos waste disposal bags are labeled with the OSHA asbestos danger and generator labels.
  - m. HMAc Supervisor shall conduct a final visual inspection and ensure all visible suspect and confirmed asbestos debris has been successfully removed and disposed of properly upon completion of the project.
  - n. HMAc shall dispose of ACM waste in an Ohio approved landfill and obtain a copy of the signed disposal receipt as required by the EPA.
  - o. HMAc shall include the following as part of closeout documents: Completed Ohio State "Asbestos Abatement Closeout Checklist Form", Ohio State Asbestos Abatement Project Field Report, daily logs, sign-in sheets, contractor license, BWC certificate, liability insurance certificate, supervisor and worker submittals [training certificate, Ohio EPA certification, medical (no social security information or HIPAA protected information), fit test], safety data sheets, personal air sample data, notifications (OEPA, OSU EHS), third-party consultant final air clearance report(s), waste manifests and signed landfill disposal receipts and original signed waste manifest.
6. Compliance with Regulations
- a. The work, including contact with or handling of hazardous materials, disturbance or dismantling of surfaces containing hazardous materials, and disposal of hazardous materials, shall comply with the applicable requirements of: 29 CFR Parts 1910 and 1926; and 40 CFR Parts 61, 261, 761 and 763.
  - b. Work involving disturbance or dismantling of asbestos or asbestos containing materials, demolition of structures containing asbestos and removal of asbestos, shall comply with 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763.
  - c. Work shall additionally comply with all applicable state and local safety and health regulations.
  - d. In case of a conflict between applicable regulations and OSU Building Design Standards, the more stringent requirements shall apply.
  - e. Contractor Responsibility: The HMAc shall assume full responsibility and liability for compliance with all applicable codes, standards and regulations pertaining to the health and safety of personnel during execution of the Work and shall hold the University harmless for any action on the Contractor's part, or that of the HMAc's employees or subcontractors, that result in illness injury or death.
    - 1. The Contractor shall have written safety and health programs in compliance with 29 CFR Parts 1910 and 1926.
    - 2. Inspections, Tests, and Reports: The required inspections, tests and reports made by the contractor, subcontractor, specially trained technicians, equipment manufacturer, and others as required, shall be at the HMAc's expense.
7. University Requirements for the Hazardous Materials Abatement Contractor:
- a. The HMAc must have a minimum of two (2) years experience in asbestos abatement projects and hazardous materials abatement projects.

- b. The HMAC must not have any Public Health Emergency Violations issued by the Ohio Department of Health (ODH) within the past two (2) years; as well as no previous unresolved or pending Public Health Emergencies.
- c. The HMAC must have experience performing work in an University atmosphere and must provide substantial documentation, if requested, of summarizing these projects including the project location, duration, scope of work, and client contact information.
- d. In the event of an accident or injury associated with the project, the HMAC needs to provide a written accident/ injury report within 24 hours of the incident to the OSU EHS office, and the Architect/ Engineer.
- e. In the event any state or federal officials visit the project, the HMAC and/or Architect/ Engineer needs to notify the OSU EHS office immediately upon their arrival.
- f. The HMAC must provide the following **mandatory documents** prior to the post-bid review meeting:
  1. References from previous projects:
    - a. Projects are to be of similar size and scope.
    - b. Three to five references specific to the Superintendent scheduled for this project.
    - c. Each reference to include contact information and phone number for the University, Architect, Construction Manager, and Subcontractors.
    - d. Provide documentation of the project location, duration, scope of work, and client contact information.
    - e. Verification of years experience in asbestos abatement projects and hazardous materials abatement projects.
  2. Current financial statement
  3. Resume of proposed staff for the project – Superintendent
  4. Current abatement projects. Include contract value and completion dates.
  5. Summary and background of any prevailing wage complaints and/or pending prevailing wage complaints over the past three years (if applicable).
  6. Summary and background of any EEO violations and/or pending EEO violations over the past five years (if applicable).
  7. Summary and background of any EPA violations over the past 7 years; as well as a statement as to how the violations were resolved (if applicable).
  8. Summary and background of any ODH violations over the past 7 years; as well as a statement as to how the violations were resolved (if applicable).
  9. Summary and background of any OSHA violations over the past 7 years; as well as a statement as to how the violations were resolved (if applicable).
  10. A detailed estimate for the bid.
  11. Current Bureau of Worker's Compensation Certificate with Drug Free Workplace Endorsement.
  12. Copy of license to conduct asbestos abatement activities.

C. Certifications

1. HMAC shall be licensed by OEPA to perform asbestos abatement activities as is required by Chapter 3745 of the Ohio Administrative Code.
2. HMAC's Supervisor shall be certified by OEPA as an Asbestos Hazard Abatement Specialist.

3. Each of the HMAC's employees, including full-time employees, temporary employees and contract labor, shall be certified by OEPA as either an Asbestos Hazard Abatement Worker or as an Asbestos Hazard Abatement Specialist.
4. All HMAC's employees performing any work on scaffolds shall have general OSHA Scaffold training.
5. All HMAC's employees handling potential mercury, PCB or other hazardous chemicals shall be HAZWOPER certified.

#### 1.7 SUBMITTALS

- A. General. Submit the following in accordance with Conditions of Contract and Division 1 specification sections.
- B. Submittals.
  4. Accident Reports: The Contractor must submit to the University Representative a written report within three calendar days of any accident, fire, emergency, theft or incident in which any personal or property damage took place, regardless of any other notifications performed. Include a copy of each accident report that is submitted by the Contractor or Subcontractors to their insurance carriers, within seven calendar days after the date of the accident.
- C. Pre-Abatement Submittals. All documents are to be submitted for review before the start of work at the site.
  1. Provide copies of notifications to the following:
    - a. Police and Fire Department
    - b. OEPA Notification, if applicable
    - c. OSU EHS Notification
  2. OEPA Asbestos Abatement Project Agreement per OAC 3745.
  3. Copy of license to conduct asbestos abatement activities.
  4. Copy of current liability insurance certificate.
  5. Copy of current Bureau of Workers Compensation (BWC) certificate.
  6. Name, current certification(s), physician's written opinion and fit test record of supervisor. Physician's written opinion must be signed by an MD, DO, or DPM.
  7. Name, current certification(s), physician's written opinion and fit test record of workers. Physician's written opinion must be signed by an MD, DO, or DPM.
  8. Detailed Asbestos Abatement Plan (AAP) which describes procedures to be used to comply with the requirements of these specifications. The AAP shall have detailed written operating procedures describing control and removal techniques to be used as required by Chapter 3745-22 of the Ohio Administrative Code. The AAP must be reviewed by OSU EHS and/or the Environmental Consultant prior to commencing the work. OSU EHS and/or Environmental Consultant reserves the right to reject HMAc's AAP.
  9. Drawings which detail decontamination unit, waste container, water utility, traffic patterns, emergency exits, etc.
  10. Emergency contact list.
  11. Contractor's Site Specific Safety and Health Program: The HMAc shall submit a written copy of the Company Safety and Health Program as well as the site specific safety and health plan for the project to the University Representative within 14 calendar days of the Notice to proceed or before work commences on the project site, whichever is earlier. This plan shall include emergency evacuation procedures, respirator protection program, procedures to prevent unauthorized entry into regulated work areas, and measures for

accident prevention. This shall also include a negative exposure assessment for Class I work if half-face respirators are to be utilized for such work.

12. Safety Data Sheets (SDS): The contractor shall provide the SDS's for all products containing hazardous chemicals to the University Representative within 14 calendar days of the Notice to Proceed or before work commences on the site. The SDS's shall be maintained at the project site for workers, University personnel and government officials. SDS's for new products shall similarly be submitted to the University Representative and be retained at the project site until completion of the project.
  13. A copy of the written notification to any rental agencies stating the intended use of rental equipment for an asbestos abatement project, or a statement that no rental equipment will be used on this asbestos abatement project.
  14. If it is not feasible to exhaust AFDs to the exterior of the building, HMAc must request a variance from EHS for an alternative exhaust method. HMAc must include written approval from EHS for alternative AFD exhaust methods as part of the pre-abatement submittals.
  15. Asbestos Disposal Form. The HMAc shall complete and submit an Asbestos Disposal Form for each disposal facility of asbestos-containing or contaminated material.
- D. Close-Out Documentation. The following documents are to be submitted to the A/E at the completion of the work on site. Close-out documents shall be submitted within 30 calendar days of the completion of the work.
1. Provide completed landfill receipts and any waste hauler manifests.
  2. Provide log of all air samples and results.
  3. Provide work area sign-in sheets.
  4. Provide daily project logs.
  5. Provide copies of all supervisor's and worker's required certification documents to perform asbestos abatement for any personnel not submitted in the pre-abatement submittal package.
  6. Provide copies of all OEPA and EPA inspection reports (if applicable).
  7. Provide copies of all OEPA notification revisions (if applicable).
  8. Provide copies of accident reports (if applicable).
  9. Provide additional SDS not submitted as part of the Pre-Abatement Submittals (if applicable).

## 1.8 PRECONSTRUCTION SAFETY MEETING

- A. Prior to commencing construction, representatives of the Contractor, including the general superintendent and one or more safety representatives shall meet with the University Representative for the purpose of reviewing Contract safety and health requirements.
1. The Contractor's Safety and Health Program and Site Specific Safety and Health Plan shall be reviewed and implementation of safety and health provisions pertinent to the Work shall be discussed.
  2. The Contractor shall be prepared to discuss, in detail, the Contractor's Site Specific Safety and Health Plan including measures intended to control any unsafe or unhealthy conditions associated with the work to be performed under the contract.
  3. This meeting may be held in conjunction with the pre-construction conference, if so directed by the University Representative. The conduct of this meeting is not contingent upon a general pre-construction meeting.

The level of detail for the safety meeting is dependent upon the nature of the work and potential for inherent hazards.



## 1.9 JOB CONDITIONS

- A. The HMAC shall notify the OSU EHS Office at least one week before mobilizing or setting up to perform the work.
- B. Documents to be Posted and Maintained on Job Site.
  - 1. To be posted on site:
    - a. Copy of EPA notification(s)
    - b. Proof of worker training
    - c. Emergency contact list
    - d. U.S. Department of Labor Job Safety & Health Protection Notice, per 29 CFR 1903.2(a)(1)
    - e. Copy of contractor's license for abatement
    - f. Equal opportunity notice
    - g. Worker's Compensation Certificate
    - h. Daily clean-up program
    - i. Fire and Police notifications
  - 2. To be maintained on site:
    - a. All employee certifications and health records
    - b. A copy of all pre-construction submittals
    - c. Specifications, drawing and other contract documents
    - d. Methods of abatement
    - e. Daily Job Inspection Reports
    - f. Personnel Air Sampling Results (24 hour per day posting)
    - g. All pre and interim environmental air sampling results
    - h. AFD maintenance log(s)
    - i. Negative Exposure Assessment (applicable to work being performed)
    - j. OEPA Project Agreement
    - k. Asbestos NESHAPs Survey Report
- C. Temporary Facilities
  - 1. Materials and Equipment
    - a. Scaffolding - Provide all scaffolding, ladders and/or staging, etc. as necessary to accomplish the Work of this Contract. Erection of scaffolding must conform with OSHA and industry safety standards for scaffold operation.
    - b. Water Service - HMAc will provide decontamination facilities. HMAc shall provide hot and cold water for decontamination showers from University's water supply. All water hoses must be suspended in a manner not to create a trip hazard.
    - c. Electrical - Electrical service may be obtained at the building. Comply with all applicable NEMA, NECA and UL standards and regulations for materials and layout of temporary electrical service. HMAc shall provide hardwired ground fault circuit interrupters with a minimum 100 amp rating for each work area or floor of a work area. All electrical power used for this project shall be provided via these units.
    - d. First Aid - Comply with governing regulations and recognized recommendations within the construction industry. HMAc shall be responsible for providing first aid supplies for employees.

- e. Fire Extinguishers - Provide Type "A" fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical or grease-oil-flammable liquid fires. In other locations, provide type "ABC" dry chemical extinguishers. One fire extinguisher, sealed in polyethylene, of the "ABC" type shall be placed within the work area for each 2,000 square feet of floor space in a location which would be easily accessible during an emergency.
  - f. Decontamination Facilities - HMAc is to provide these facilities as required and approved.
  - g. Heat - HMAc shall maintain a temperature in the work area of not less than 50°F and a temperature of not less than 70°F in non-work areas in the building.
  - h. Supply Storage - HMAc will be permitted to store supplies inside of the facility at a location to be determined prior to the project.
  - i. Storage of asbestos-containing waste, properly labeled and bagged waste must be stored in a lockable and secure storage container out of the work area.
- D. Damage. Promptly repair damage caused to adjacent facilities by demolition work.

#### 1.10 DELIVERY, STORAGE AND HANDLING

##### A. Material Deliveries

1. Whenever practicable, deliveries shall be made during regular working hours and only when the Contractor's representative is available to receive them. Deliver material in approved containers and with properly licensed vehicles and operators. Open delivery vehicles not permitted. Deliver materials in fully closed vehicles or tarp-covered vehicles. All dump trucks shall be fully covered while in transport to and from the unloading site. All loads shall be securely fastened until unloading. Engines shall not be left running while vehicles are loading, unloading, waiting or parked. Do not block roads, walks, building entrances/exits, fire hydrants and standpipes, exterior tanks or building gas connections.

#### 1.11 SPECIAL WARRANTY

Not used.

### PART 2 PRODUCTS

#### 2.1 PRODUCTS

- A. Safety and Health Programs: The Contractor shall submit copies of the written site specific project safety and health plan and emergency action procedures, as applicable to the work scope, as required as a result of the safety meeting, or as required by OSHA 29 CFR, Part 1926 including but not necessarily limited to the procedures and programs that support the requirements of the following:
1. Designation of Safety Competent Person
  2. Occupational Noise Exposure
  3. Fall Protection
  4. Personnel Protective Equipment
  5. Control of Hazardous Energy
  6. Hazardous Materials Waste Management Plan (draft if final plan has not been accepted)
  7. Electrical Safety Related Work Practices
  8. Lead
  9. Asbestos
  10. Respirator Protection

11. Confined Spaces
  12. Emergency Evacuation and Reporting
  13. Hot Work
- B. Contractor's Safety and Health Plan: In Addition to specific safety and health programs applicable to this project, HMAc shall submit to the university a copy of the firms' general Safety and Health Plan listing emergency Procedures and contact persons with home addresses and telephone numbers.
- C. Permits: If Hazardous materials are disposed of off-site, submit copies of shipping manifests and permits from applicable federal, state, or local authorities and disposal facilities, and submit certificates that the material has been disposed of in accordance with regulations.

## PART 3 EXECUTION

### 3.1 WORK PRACTICES

- A. Use of Explosives and Explosive Actuated Fastening Tools
1. Use of explosives shall be prohibited.
  2. Power actuated fastener tools are often used on construction sites due to the unique manner in which objects can be accurately and positively secured to a substrate. Also, these tools tend to allow for work to proceed more rapidly and efficiently with desirable results. However, these tools also present potential problems to the work area relative to damaged base material and fasteners. Also, the fastener tools present health and safety hazards to untrained users of fastener equipment, unprotected workers in the immediate work area, as well as building occupants that might be present. Based upon these circumstances, there is a need for safe work practice requirements to be followed whenever such equipment is used. It should be noted that fasteners can be powered or driven primarily by powder charges, gas, or pneumatic means.
  3. Power actuated fastener tools (ex. nail guns, etc.) including pneumatic, powder actuated and gas actuated tools shall not be used or brought to the project site without the permission of the University Representative. Any permission request will include documentation of appropriate training, on-site demonstration, and written standard operating procedures and safety plan for the use of this equipment in the particular application requested.
  4. The contractor must comply with the following in order for the University to grant permission to use the power actuated fastener equipment. The contractor will be fully responsible to every effort to appropriate protect the safety of people and equipment when utilizing this tool. These include, but are not limited to, the following:
    - a. The contractor shall inspect the substrate and the fastening material to determine if this proposed fastening method is appropriate. This determination should include a description of the type of material to be fastened and the method of fastening. The base material should be inspected to determine whether it is too hard, soft, or brittle that it may cause spalling, cause the fastener to shatter or not hold, or cause the fastener to free flight.
    - b. The contractor shall develop a written description of the work to be performed for the specific University project for which permission has been requested. The contractor shall develop written instructions or procedures on the use of the fastener tool. The standard operating procedures should include the type of surfaces (i.e., metal studs to floor, hangers to the deck, etc.) to be fastened to minimize damage to the building and injury to the user, other employees, and the public and safety precautions. These documents need to be submitted for approval to the University prior to being accepted for use.

NOTE: Concrete or other surfaces that are damaged shall not be fastened. When fastening into concrete, never fasten closer than two inches from the edge since this

may reduce fastener strength or damage to this material.

- c. Trained, competent, and credentialed individuals shall be the only persons allowed to utilize such fastener tools.
  - d. Individuals will be expected to demonstrate their competency with the University approved fastener equipment prior to being authorized usage on the specific project. This demonstration should be performed in the presence of the University Project Manager and/or a representative from the Office of Environmental Health and Safety.
  - e. A "Competent Person" shall be present to ensure that the fastener tool is being used properly and workers not involved with the fastener task are clear of the immediate work area. This would include non-construction workers or building occupants above and below where the fastener tool is being used.
  - f. Fastener tool operators shall report immediately any problems associated with the device or fastener work to the "Competent Person" or immediate supervisor and not proceed until the problem has been resolved and authorization given to proceed.
  - g. Only the University approved fastener tool shall be used for the specific requested fastening application
  - h. The contractor shall specify information about the fastener tool(s) to be used on the job. This should include the name of the manufacturer and model number. No other fastener tool can be used without the permission of the University.
  - i. The fastener tool shall be operated at the lowest power or charge setting, as well as using the shortest fasteners to ensure a sufficient fastening, as well as to minimize personal injury and/or property damage.
  - j. The fastener equipment should be inspected for proper operation before use to ensure the proper discharge and a solid fastener attachment.
  - k. The fastener equipment should be unloaded before inspecting, servicing, cleaning or storing.
  - l. The fastener equipment and charging equipment shall be stored in a tamper resistant container that can be locked when not in use.
  - m. The fastener equipment shall be used in accordance with the owner's manual and manufacturer's directions.
  - n. The appropriate personal protective equipment (i.e., safety glasses, hard hats, hearing protection, etc.) shall be worn by the operator of the fastener equipment.
- B. Work Underground or in Confined Spaces
- 1. Work shall comply with appropriate MSHA (Mine Safety and Health Administration) and OSHA regulations; including but not limited to, 29 CFR 1910.146.
  - 2. The Contractor shall remove water and debris and properly vent manholes/ confined spaces before commencement and during execution of work in manholes/ confined spaces.
  - 3. The Contractor shall have a competent person on site during the project as per the OSHA construction standard.
- C. Electrical
- 1. Electrical arc welding equipment shall not be connected to the building power supply.
- D. Hazardous Materials
- 1. The contractor shall bring to the attention of the Architect/Engineer and the Environmental Consultant any material encountered during execution of the Work that the contractor suspects is hazardous. The Environmental Consultant shall have the Office of Environmental Health and Safety perform test to determine if the material is hazardous.

2. If the tested material is found to be hazardous, and/or if additional protective measures are required, a change to the Contract price may be provided subject to the applicable provisions of the Contract.

E. Additional Safety Requirements

1. No work shall be performed in any area occupied by the public or University employees unless approved by the University.
  - a. Accident Treatment and Records: The HMAC shall post emergency first aid information.
  - b. No person, regardless of position or authority, shall operate any switch, valve, or equipment that has an official lockout/tag out tag attached to it, nor shall such tag be removed except as provided in this section.
  - c. When work is to be performed on electrical circuits, the work shall be performed only by qualified personnel following the required safety procedures.
  - d. Identification markings on building light and power distribution circuit breakers shall not be relied on for establishing safe work conditions.
  - e. Before clearance will be given on any equipment other than electrical (generally referred to as mechanical apparatus), the apparatus, valves, or systems shall be secured in a passive condition with the appropriate vents, pins, and locks.
  - f. Pressurized or vacuum systems shall be vented to relieve differential pressure completely.
  - g. Vent valves shall be lockout/tag out tagged open during the course of the work.
  - h. Where dangerous gas or fluid systems are involved, or in areas where the environment may be oxygen deficient, systems or areas shall be purged, ventilated, or otherwise made safe prior to entry.

F. Personnel Protective Equipment

1. Special facilities, devices, equipment, and similar items used by the contractor in execution of the work shall comply with 29 CFR, Part 1910, Subpart 1 and other applicable regulations.

G. Respirator Protection

1. At a minimum, a Powered Air-Purifying Respirator (PAPR) respirator shall be used for the following activities:
  - a. During the removal and disposal of friable regulated asbestos containing materials, unless a negative exposure assessment is maintained on-site indicating that the PEL is not exceeded.
  - b. If at any time the OSHA PEL is exceeded.
  - c. After phase PCM clearance, the contractor will be allowed to use a half-face respirator for final clean-up and tear down activities.
2. At a minimum, a half-face respirator shall be used for the following activities:
  - a. Construction of containments.
  - b. Pre-cleaning and removal of non-friable asbestos.
  - c. Bagging of asbestos waste and loading out.
  - d. Deconstruction of containments.

H. Use of Water

1. HMAC shall provide hot and cold water for showers from a fixed head adjustable at the shower. Also, ample soap, shampoo, disinfectant, and towels for use by employees as needed must be available.

2. The clean room, airlock and shower shall be disinfected daily and no accumulations of used towels, suits, street clothes and supplies shall be allowed in any decontamination unit.
3. No water shall be allowed to accumulate within the shower. All shower water must be promptly filtered through a filtration unit capable of removing particles 3.0 microns or larger. HMAC must document filter pore size and University's Environmental Consultant reserves the right to acquire effluent samples for analysis. In the event that analysis indicates contamination of effluent (any asbestos particles observed longer than 5.0 microns by TEM) the HMAC shall bear the costs of all testing and shall immediately correct any problems and document that the corrections have been effective.
4. In the event that a leak occurs which releases water from the work area into any clean area all work shall immediately stop until the leak is repaired and all liquid cleaned up. Cleaning shall include mopping, wet-wiping, and HEPA vacuuming as necessary to ensure collection of all asbestos fibers. Water leaking from an active NPE shall be treated as asbestos contaminated. If water leakage causes damage to building materials, contractor is responsible for damages and shall consult OSU EHS and PM on further direction regarding appropriate disposals and replacement.
5. All water hoses must be suspended and secured in a manner not to create a trip hazard.
6. Protection of Sensitive Flooring Materials as required. Whenever abatement activities occur in areas where carpeting, floor tile or wood flooring are present and are to remain, special precautionary measures will be taken to protect those surfaces. These measures include but may not be limited to:
  - a. The addition of an extra layer of 6-mil (full weight) polyethylene to the enclosure system. This will result in 4 layers total on the floors in these areas.
  - b. The addition of a layer of Kraft paper between the 2nd and 3rd layers of polyethylene to act as an indicator of damaged polyethylene, which results in water leakage.
  - c. Any other measures deemed necessary by the University to ensure the protection of sensitive flooring materials. In the event a water leak is detected, all work will immediately stop and corrective measures will be taken before any other activities are allowed to proceed. The HMAC is ultimately responsible for the protection of all building materials and surfaces.

### 3.2 EMERGENCY SUSPENSION OF WORK

- A. When the HMAC is notified by the Architect/Engineer or the University Representative, of non-compliance with the safety or health provisions of the Contract, the Contractor shall immediately, unless otherwise instructed, correct the unsafe or unhealthy condition.
  1. If the HMAC fails to comply promptly, all or part of the work will be stopped by notice from the Architect/Engineer.
  2. When, in the opinion of and by notice given by the associate and or the University Representative, satisfactory corrective action has been taken by the HMAC, work shall resume.
  3. The HMAC shall not be allowed any extension of time or compensation for damages in connection with a work stoppage for an unsafe or unhealthy condition.
  4. In the event of multiple violations observed by the EC, OSU EHS shall be contacted and OSU EHS reserves the right to issue a stoppage notice.

### 3.3 PROTECTION OF PERSONNEL

- A. The HMAC shall take all necessary precautions to prevent injury to the public, occupants, or damage to property of others. The public and occupants include all persons not employed by the contractor or subcontractor.

- B. Wherever practical, the work area shall be fenced, barricaded, or otherwise blocked off from the public or occupants to prevent unauthorized entry into the work area.
  - 1. Provide traffic barricades and traffic control signage where construction activities occur in vehicular areas.
  - 2. Corridors, aisles, stairways, doors and exit ways shall not be obstructed or used in a manner to encroach upon routes of ingress or egress utilized by the public or occupants, or to present an unsafe or unhealthy condition to the public or occupants.
  - 3. Store, position and use equipment, tools materials, scraps and trash in a manner that does not present a hazard to the public or occupants by accidental shifting, ignition, or other hazardous activity.
  - 4. Store and transport refuse and debris in a manner to prevent unsafe and unhealthy conditions for the public and occupants. Cover refuse containers and remove refuse on a frequent regular basis acceptable to the University Representative. Use tarps or other means to prevent loose transported materials from dropping from trucks.
- C. Alternate Precautions: When the nature of the work prevents isolation of the work area and the public or building occupants may be in pass through, under or over the work area, alternate precautions such as the posting of signs, the use of signal persons, the erection of barricades or similar protection around particularly hazardous operations shall be used as appropriate.
- D. Public Thoroughfare: When work is to be performed over a public thoroughfare such as a sidewalk, roadway or other site access way, the thoroughfare shall be closed, if possible, or other precautions taken such as the installation of screens or barricades. When the exposure to heavy falling objects exists, as during the erection of building walls or during demolition, special protection of the type detailed in 29CFR, Parts 1910 and 1926 shall be provided.

### 3.4 MONITORING

- A. Air Monitoring Required by OSHA Regulations
  - 1. The HMAC must perform air monitoring in the work area to comply with OSHA regulations for their employees. Results shall be posted no later than 24 hours after sample collection.
  - 2. If at any time during the project, the PCM personal air sample results exceed the OSHA PEL of 0.1 fibers per cubic centimeter, then the HMAC shall cease all abatement activities. The HMAC shall then review work procedures and evaluate alternative abatement methods which could reduce fiber concentration and implement additional engineering controls prior to continuing asbestos abatement.
  - 3. The HMAC shall keep a log of all monitoring activities he performs. A complete log of all air samples and results will be submitted at the completion of the Project. It is the HMAC's responsibility to furnish and maintain all air monitoring equipment. The HMAC shall bear all costs in connection with air sampling and reporting under this section.
  - 4. The University's Environmental Consultant may procure personal air samples of HMAC's employees to measure worker exposure levels. HMAC will cooperate with such monitoring activities.
  - 5. The laboratory used for analyzing personal air samples must be AIHA Pat Round Proficient and analyzed by an analyst with NIOSH 582 or equivalent training.
- B. Air Monitoring of the Work Area
  - 1. The HMAC shall provide full containment enclosures with appropriate air circulation for asbestos removal operations. HMAC shall monitor and maintain a minimum negative air pressure of 0.02 inches of water while enclosure is operative. HMAC shall continuously monitor differential pressure in the containment using a digital manometer. The University and Environmental Consultant reserve the right to approve or deny use of non-digital manometers. Each containment enclosure shall be equipped with a convenient transparent observation port no smaller than one square foot.

2. The Environmental Consultant may perform air monitoring outside of and adjacent to the work areas. If these measurements indicate containment in excess of 0.01 f/cc outside the work area from asbestos hazard abatement work, the HMAC shall immediately cease operation until the presence of contamination is verified and the cause of contamination is identified and corrected, if necessary, to the satisfaction of the University. This correction may involve establishing a more stringent enclosure. The HMAC shall resume asbestos operations only after he receives written authorization from the University.
  3. The HMAC shall facilitate and cooperate fully with air monitoring and shall take no action intended to distort or falsify measurements of fiber concentrations and shall not take any action to obstruct air monitoring activities.
  4. All sampling and analytical work shall conform with ORM, NIOSH Method 7400 (A Rules) or by AHERA specified clearance procedures.
- C. Air Monitoring
1. The University's Environmental Consultant will be certified to collect asbestos air samples and perform clearance inspections and may be responsible for conducting the clearance inspection and the final clearance air testing to determine if the abatement work has been satisfactorily completed to the expectations of the University.
- D. Air Sampling
1. At the completion of each segment, or as otherwise specified, the University's Environmental Consultant may procure air samples within the work area(s) for clearance by PCM analysis or TEM analysis. If the analysis indicates that the concentration of asbestos fibers in these samples exceeds clearance levels (0.01 f/cc by PCM or 70 structures per square mm by TEM), the HMAC shall continue to air and surface clean the work area until air monitoring indicates asbestos concentrations have fallen below the appropriate limit. In the event a final clearance test fails, the HMAC will bear the costs associated with further testing and consulting until the area passes clearance testing.
- E. Personnel and Facility Protection
1. Protection Instruction. The HMAC shall provide decontamination and work procedures to be followed by the workers.
  2. Protective Clothing. The HMAC shall comply with OSHA regulations for protective clothing. The HMAC shall always have sufficient supplies of protective clothing and supplies needed for the proper entrance/exit from the work area.
  3. Hygiene Facilities and Practices. The HMAC shall comply with OSHA regulations concerning hygiene facilities and practices. Daily inspection and disinfecting of decontamination facilities shall be provided by the HMAC.
  4. Emergency Precautions. Prepare a contingency plan for emergencies including fire, accident, power failure, negative pressure system failure, supplied air system failure, or any other event that may require modification or abridgment of decontamination or work area isolation procedures. Include a plan of specific procedures for decontamination or work area isolation. Note that nothing in this plan should impede safe exiting or providing of adequate medical attention in the event of an emergency.
  5. Facility Security. The HMAC shall comply with OSHA and EPA regulations concerning signage and labeling. All entrances to the work areas shall be clearly labeled to prevent accidental entrance to a regulated area. Labeling shall include signs, stickers and flagging as appropriate to prevent unauthorized entry to the work site.
- F. Disposal
1. Disposal containers shall be suitable to receive and retain any asbestos-containing or contaminated materials until disposal at an approved site. The containers shall be labeled in accordance with OSHA, EPA and DOT regulations. Containers must be airtight and



watertight. Shipping manifests should be submitted to University as well as disposal documentation.

G. Execution. The sequence of execution for each work area shall be as follows:

1. Prepare work area.
2. Remove asbestos-containing materials.
3. Remove and dispose of the contaminated waste generated by work area preparation and removal activities.
4. Decontaminate work area and clean site.

### 3.5 ASBESTOS ABATEMENT PROCEDURES

A. The general sequence for performing asbestos abatement activities will be as follows:

1. Work area isolation (Full Containment)
2. General Abatement Sequence and Removal Procedures
3. Disposal of ACM
4. Cleaning of work area (decontamination)
5. Work area clearance

B. Only full-weight polyethylene shall be used to construct work area enclosures. Polyethylene used to cover critical barriers and floors shall be 6-mil and polyethylene used to cover wall surfaces shall be 4-mil. In addition, reinforced polyethylene shall be used in areas of high traffic and areas where the use of scaffolds or other equipment may be reasonably assumed to cause damage to sensitive flooring materials.

C. Class I work and/or work which involved mechanical operations (grinding, sanding, blasting, etc.) or which renders ACM friable shall include polyethylene ceilings in addition to wall and floor coverings.

D. Fiberglass and other porous materials remaining in the work area during abatement (full containment or regulated area) shall be covered with 6-mil poly or be removed and disposed of.

D. Electrical extension cords and air filtration ducting shall be suspended wherever feasible.

E. Air filtration units are to be placed strategically to promote the most effective circulation of air within the work area. Air filtration ducting shall be inspected daily for leaks. Air filtration devices must be exhausted to the exterior of the building. If this is not possible, the contractor must receive a variance in writing from OSU EHS.

F. Where ACM is selectively removed (such as selective removal of ACM drywall systems or hard plaster), the newly exposed edges shall be encapsulated with an EPA approved encapsulant, brush applied. Re-wettable cloth wrap shall also be installed to seal newly exposed edges of ACM remaining in the work area.

G. Respiratory protection is required for all activities involving asbestos. Respiratory protection is to be initiated during the start of work area isolation.

H. An approved decontamination unit, containment, and securable waste storage must be in place for removal of items or fixtures that are adjacent to asbestos. No exterior decontamination units will be permitted unless the University and Environmental Consultant gives permission.

I. The following paragraphs describe the sequence of activities; however, practices may not be limited to those herein described.

J. Work Area Isolation (Full Containment)

1. All electrical and HVAC systems are to be de-energized at the proper breaker and locked out by the HMAC. All electrical power to be used for this project must pass through a temporary, GFCI system, installed by a licensed electrician. This includes all power needed for equipment and machinery inside and outside of all contained areas. No existing electrical service is to be used on this project (this includes existing lighting).

2. Seal all critical barriers with 1 layer of 6-mil (full weight) polyethylene. This will include all non-asbestos thermal, doors, windows, HVAC penetrations (grills, etc.) skylights, etc. Smoke alarms and security devices shall be left exposed and functioning unless they are to be removed and replaced.
3. Install HEPA equipped air-filtering devices. The devices shall be placed as to minimize stagnant air within the work area. The number of units shall be such that there is a minimum of (1) 2000 fm unit for each 20,000 cubic feet of workspace. Units larger than 2,000 cfm will count as (1) 2,000 cfm. There should be a minimum of four (4) air changes per hour within each containment. The devices shall be exhausted to the exterior of the building via an exterior window within the space. If the windows in the space cannot be opened, the HMAc will have a window removed for the duration of the project, and replaced upon completion, at the cost of the HMAc.
4. Pre-clean all surfaces, fixtures, and objects within the work area. Cleaning is to be accomplished by HEPA vacuuming and wet wiping all surfaces to remove all dust, dirt and ACM residue and other debris. Any asbestos found in a pre-cleaned area during asbestos removal work or removal of the enclosures will be assumed as having been caused by the HMAc's work and shall be cleaned at the HMAc's expense. All fixtures and objects remaining within the work area are to be sealed with 1 layer of 6-mil polyethylene. All moveable items are to be secured in a contamination-free area until the abatement has been completed. The HMAc is responsible for the security and condition of all items stored during this contract.
5. Attach non-slip material to stairs to prevent falling.
6. Install a clear one square foot 1/4-inch Plexiglas viewing ports into each work area. Viewing port to be installed in a location, which will permit the visibility of the maximum area possible.
7. Attach polyethylene to a decontamination unit so that an airtight and watertight seal is made between the work area and the decontamination unit.
8. Prepare the personal decontamination unit by installing a shower (separated from the work area by an airlock) to the clean room area (separated from the shower by an airlock) to the non-regulated area (separated from the clean room by an airlock). The clean area shall be of sufficient size to allow the non-restricted entry/exit of the entire work crew and shall not be a storage area for abatement supplies.
9. The equipment/waste decontamination unit shall consist of a separate shower (isolated by airlocks) joined to a separate clean room area (isolated by airlocks). This area is to be used for the removal of ACM and equipment of ACM and equipment from the work area and is only to be used for personnel decontamination in the event of an emergency.
10. Document level of pressure differential containment. The minimum pressure differential shall be 0.02 inches of water. Daily pressure checks shall be obtained by the HMAc. HMAc shall continuously monitor differential pressure in the containment using a digital manometer. The University and Environmental Consultant reserve the right to approve or deny use of non-digital manometers. Readings shall be taken in areas remote from air filtration devices and sources of makeup air.
11. Emergency exits shall be clearly labeled and shall be constructed so as to provide easy exit from the containment in event of an emergency. Red paint shall be used to denote the locations of emergency exits, fire extinguishers and hazardous areas within the work area. HMAc's employees shall be trained in emergency procedures.
12. Work area enclosures shall be erected so as to remain intact during the duration of the abatement project. Methods to be used include, but are not limited to, anchoring polyethylene with wire or wooden blocks, attaching anchoring strips to the surface of walls, using prefabricated 2" x 4" panels with polyethylene stapled to the frame, etc. The University and Environmental Consultant reserves the right to approve or deny use of materials or devices used to anchor polyethylene.

K. Removal of ACM

1. Remove all equipment and fixtures from area to be abated necessary to accomplish the asbestos removal specified. All items removed are to be stored in a location designated by the University.
2. Pre-clean the entire work area if debris is present.
3. The floor of the work area shall be kept free of unnecessary equipment supplies and debris. All contaminated materials shall be promptly bagged and removed from the work area according to established removal methods. The HMAAC shall not allow asbestos-containing materials to dry out or collect on floors or other surfaces. Bagged ACM shall not accumulate within the work area. No contaminated materials are to be stored outside of the building except in a sealed, secure, temporary storage trailer.
4. The HMAAC shall use amended water during all asbestos removal operations. All ACM must be thoroughly wetted prior to and during removal and shall be wetted during bagging operations.
5. The use of the technique of dry brushing, dry sweeping or dry cleaning of asbestos, asbestos-contaminated material or ACM residue is strictly prohibited.
6. If a breach of containment occurs, removal activities are to cease until containment integrity has been restored.
7. Removal of ACM – Non-Intact Cat II Removal (Spot Abatement of Elevator Cab Exterior Tar Coating)
  - a. If impacting less than or equal to 3 square feet of ACM total, at a minimum, work must be conducted within regulated area with danger tape, drop layer of plastic, wet methods, and HEPA filtered air filtration device to provide local exhaust.
  - b. If impacting greater than 3 square feet of ACM total, refer to section 3.5.A-J above for full containment procedures.
  - c. The following apply regardless of ACM quantities removed:
    1. Adequately wet material (with amended water) and utilize hand tools for removal.
    2. Promptly bag all material upon removal ensuring that material is thoroughly wet prior to bagging.
    3. Perform inspection of the work area with Environmental Engineer. Upon passing, apply encapsulant utilizing an airless sprayer.
    4. Perform inspection and clearance of the work area.
8. Removal of ACM - Category II Non-Friable Materials Removed Intact (Elevator Cab Doors, Fire Doors)
  - a. Asbestos barrier tape and warning signs must be installed to mark off the work area.
  - b. Place an AFD in the work area to filter air for local exhaust.
  - c. Materials must be removed intact and all removal using hand tools must be performed using wet methods (with amended water).
  - d. Place the materials into disposal bags and/or wrap in two layers of 6-mil poly and remove from the work area via disposal procedures.
  - e. A drop layer of plastic, extending 10 feet from the structure must be secured to the structure to catch debris. This drop layer must be removed at the end of the work day and replaced daily.

- f. Perform inspection and clearance of work area.

L. Disposal of ACM

1. Open top dumpsters are strictly prohibited for ACM waste, regardless of the Category of ACM. Dumpsters shall be secured/ locked at all times except during supervised load-out. All ACM must be disposed of in approved containers.
2. All ACM generated from this project shall be properly documented. Detailed disposal documents including information concerning amounts of material, generator information, hauler information, date of generation, and disposal documentation must be processed for all material disposed of as contaminated wastes.
3. All bagged contaminated materials must be sufficiently wetted, sealed in airtight containers, and at a minimum must be sealed within two 6-mil polyethylene bags (one sealed inside the other). No rips or tears shall be visible in the bags, no material may be protruding through the polyethylene, and no visible residue may be visible outside of a container. HMAAC shall wash all inner, as well as outer, bags of asbestos-containing material.
4. All asbestos disposal containers must be labeled with the current hazardous warning labels and DOT information. The HMAAC shall label the inner and outer asbestos bag or container.
5. All contaminated materials must be moved from the work area through the waste decontamination unit. There, all bags will be washed and placed into clean bags before being moved from the building. PPE shall be utilized during this process and transporting to dumpster or enclosed vehicle compartment.
6. All ACM wastes must be transported in a fully enclosed vehicle and or dumpster. If vehicle, the driver compartment must be separated from the cargo compartment. The cargo compartment and or dumpster must be lined with 6-mil polyethylene, which is to be removed at the dump and disposed of as contaminated.
7. The cargo compartment of the disposal vehicle must be cleaned between loads. Cleaning shall include washing, wet-wiping and HEPA vacuuming.
8. All ACM wastes are to be removed from the structure and properly disposed of in a timely fashion.
9. All ACM bagged wastes shall be labeled, counted by HMAAC, and entered into daily logs.
10. Proper documentation of all ACM wastes generated as a result of this project must be delivered to the University's Environmental Consultant in a timely fashion.

M. Cleaning of the Work Area

1. All HEPA filtration devices shall continue to operate during cleaning of the work area. All vacuums inside work area shall utilize HEPA filtration. All HEPA vacuums when not in use shall have openings properly sealed.
2. HEPA filters and pre-filters shall be inspected by the HMAAC on a daily basis. This includes filters on air filtration devices and HEPA equipped vacuum cleaners. All vacuums in the work area must have and maintain HEPA attributes.
3. Cleaning shall be initiated only after all of the gross ACM has been removed from the work area.
4. All unnecessary equipment, tools, devices, and supplies shall be properly cleaned and removed from the work area via the equipment decontamination unit.
5. All liquids sprayed within the work area shall be delivered through an airless sprayer. Spraying with garden hoses and pressurized sprayers is prohibited.
6. Cleaning shall start by wetting all surfaces within the work area with clean water. Surfaces shall be wetted from top to bottom.

7. Removal of ACM residue shall be accomplished with the use of wire or nylon-bristle brushes, nylon scouring pads, towels, sponges, and HEPA-equipped vacuums. The use of the technique of dry brushing ACM residue is strictly prohibited.
  8. After all residue of ACM has been removed, the surfaces are to be cleaned with clear water and wiped with a clean disposable towel. Each towel is to be used only once and then disposed of. Rinse water is to be changed frequently.
  9. Perform inspection and clearance of work area.
  10. HMAc shall reinstall all fixtures removed during the abatement process.
- N. Final Clearance/Cleaning Procedures. The following clean-up sequence shall be utilized for this asbestos removal project. It consists of visual inspections, two cleanings, and one air-sampling event. The sequence is as follows:
1. Gross Removal Inspection – HMAc shall perform visual inspection of all surfaces previously containing ACM. All surfaces must be cleaned thoroughly so no visible debris, film, or residues remain.
  2. Gross Cleaning - HMAc shall remove all remaining accumulation and visible ACM, debris, and dust from all surfaces and plastic sheeting. Remove all containers and equipment not necessary for clean-up procedures. Wet clean all surfaces in work area.
  3. Gross Cleaning Inspection - A visual inspection of work area to ensure that all surfaces and plastic sheeting are clean of asbestos-containing materials. Encapsulant shall NOT be applied until the Environmental Consultant has passed the cleaning inspection.
  4. Encapsulation - HMAc shall apply a “bridging” encapsulant to all surfaces where ACM has been removed. Additionally, the contractor shall apply a coat of “bridging” encapsulant to all plastic sheeting on walls, floors, and all plastic sheeting in “dirty” areas of the decontamination units. The post-removal encapsulant shall be flame-resistant to 1,800°F and shall be colored with an easily identified pigment.
  5. Second Cleaning - HMAc shall remove all remaining floor and wall plastic sheeting except plastic sheeting used to cover critical barriers. This includes all plastic sheeting covering fixtures, wires, and equipment inside the work area. HMAc shall wet clean and vacuum all surfaces within the work area.
  7. Second Cleaning Inspection - A visual inspection of work area to ensure that all surfaces are clean and free of dust and debris. All asbestos-containing materials must be visually non-detectable.
  8. Final Clearance Air Sampling - HMAc shall give 48-hour notice to the Environmental Consultant for clearance testing. The Environmental Consultant with the appropriate state certifications and related credentials shall collect the air samples to verify that the “standard of final clearance” has been attained. Depending upon ACM to be removed, “aggressive methods” for air sampling may be used. All air filtration devices shall remain operative during collection of the final clearance air samples. If the “standard of final clearance” is not achieved, HMAc shall continue to clean until additional air sampling confirms “standard” has been met. The HMAc shall bear all costs associated with any required additional rounds of clearance sampling in event that the first round of clearance sampling does not meet the clearance standard.
  9. Upon favorable clearance results, the HMAc shall remove all remaining polyethylene barriers, equipment, air filtration devices and any supplies or materials from the work area and reinstall any fixtures removed during the abatement process. The decontamination enclosures shall be removed after all waste plastic sheeting and remaining equipment have been properly cleaned and removed from the work area. The decontamination enclosures may be disassembled by workers wearing half-mask or full-face respirators and disposable uniforms over normal street clothes. Air filtration devices shall remain within the work area and continue to operate.

### 3.6 FINAL CLEARANCE INSPECTION

- A. Inspection Procedures. Upon receipt of HMAC's request for inspection, the certified and credentialed Environmental Consultant shall proceed with the visual inspection and will advise the HMAC of unfulfilled prerequisites relative to the completion of this project. The HMAC's supervisor must conduct a visual inspection of the work area prior to requesting the EC's inspection. The HMAC supervisor must accompany the EC on the EC's inspection.

### 3.7 DISPOSAL OF MATERIALS

- A. General. Remove from building site debris, rubbish and other materials resulting from asbestos removal operations. Transport and legally dispose off site.
  - 1. Burning of removed materials is not permitted on project site.

### 3.8 CLEAN-UP AND REPAIR

- A. General. Upon completion of asbestos removal work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.
  - 1. Repair areas damaged by asbestos removal procedure. Return elements of construction and surfaces to condition existing prior to start of operations. Repair adjacent construction or surfaces soiled or damaged by asbestos removal work.

### 3.9 ENVIRONMENTAL PROTECTION

- A. Dispose of solid, liquid, and gaseous contaminants in accordance with local codes, laws, ordinances and regulations.
- B. Comply with applicable federal, state, and local noise control laws, ordinances, and regulations, including but not limited to 29 CFR, Part 1910.95 and 29 CFR, Part 1926.52

### 3.10 REMOVAL AND DISPOSAL OF OTHER HAZARDOUS MATERIALS

- A. **General.** All other hazardous materials, including, but not limited to PCB-containing ballasts and mercury containing fluorescent bulbs, and all other hazardous materials should be removed and disposed of in accordance with all applicable federal, state, and local regulations.
- B. **PCB-Containing Ballasts and Mercury-Containing Fluorescent Bulbs**
  - 1. Remove all ballasts and bulbs from light fixtures, including florescent light bulbs, screw-in light bulbs, exit/egress light bulbs.
  - 2. Separate labeled ballasts (non PCB containing) from non-labeled (PCB containing).
  - 3. Package mercury-containing bulbs in cardboard containers provided by the University.
  - 4. Package all ballasts within containers provided by the University; PCB ballasts are to be in a separate container from non-PCB ballasts.
  - 5. Remove and package all mercury containing thermostats, pressure gauges, etc. in packages provided by OSU EHS. HMAC must contact OSU EHS for number of packages required.
  - 6. These materials cannot be disposed of as demolition waste and must be disposed of as "Universal Waste". The HMAC must contact the Hazardous Waste Supervisor for the Office of Environmental Health and Safety (EHS) for containers, as well as pickup and disposal arrangements; there is no charge for these services. He can be reached at (614) 292-2962 or [hazwaste@osu.edu](mailto:hazwaste@osu.edu). When leaving a message include all pertinent details about the pickup request. Seven (7) day advanced notice is required for container drop off and also for pick up.

**END OF SECTION**

**SECTION 042000  
UNIT MASONRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Concrete block.
- B. Mortar and grout.
- C. Reinforcement and anchorage.
- D. Accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 040511 - Masonry Mortaring and Grouting.
- B. Section 055000 - Metal Fabrications: Loose steel lintels.
- C. Section 061000 - Rough Carpentry: Nailing strips built into masonry.
- D. Section 078400 - Firestopping: Firestopping at penetrations of fire-rated masonry and at top of fire-rated walls.
- E. Section 079200 - Joint Sealants: Sealing control and expansion joints.

**1.03 REFERENCE STANDARDS**

- A. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.
- B. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2019 (Reapproved 2025).
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
- D. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement; 2022.
- E. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2024.
- F. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2022.
- G. ASTM C91/C91M - Standard Specification for Masonry Cement; 2023.
- H. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2022.
- I. ASTM C140/C140M - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units; 2023.
- J. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.
- K. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- L. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.
- M. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019a, with Editorial Revision.
- N. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2018.
- O. ASTM C476 - Standard Specification for Grout for Masonry; 2023.
- P. ASTM C780 - Standard Test Methods for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2023.
- Q. ASTM C1634 - Standard Specification for Concrete Facing Brick and Other Concrete Masonry Facing Units; 2023.
- R. ASTM C1714/C1714M - Standard Specification for Preblended Dry Mortar Mix for Unit Masonry; 2019a.

- S. UL (FRD) - Fire Resistance Directory; Current Edition.

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all relevant installers.

#### **1.05 SUBMITTALS**

- A. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.
- B. Shop Drawings: Indicate pertinent dimensions, materials, anchorage, size and type of fasteners, and accessories for brickwork support system.
- C. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

#### **1.06 QUALITY ASSURANCE**

- A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

### **PART 2 PRODUCTS**

#### **2.01 CONCRETE MASONRY UNITS**

- A. Concrete Block: Comply with referenced standards and as follows:
1. Size: Standard units with nominal face dimensions of 16 by 8 inches (400 by 200 mm) and nominal depth of 8 inches (200 mm).
  2. Load-Bearing Units: ASTM C90, normal weight.
    - a. Hollow block, as indicated.
    - b. Exposed Faces: Manufacturer's standard color and texture where indicated.
    - c. Manufacturers:
      - 1) Wellnitz Concrete & Landscape Products
      - 2) New Holland Concrete, New Holland PA (800) 543-3860
      - 3) Rogers Block, Indianapolis IN (800) 837-3384
      - 4) Doberfields, Columbus OH (800) 845-7644
      - 5) Substitutions: See Section 016000 - Product Requirements.
  3. Nonloadbearing Units: ASTM C129.
    - a. Hollow block, as indicated.
    - b. Lightweight.

#### **2.02 MORTAR AND GROUT MATERIALS**

- A. Mortar and Grout: As specified in Section 040511.
- B. Masonry Cement: ASTM C91/C91M, Type N.
- C. Portland Cement: ASTM C150/C150M, Type I; color as required to produce approved color sample.
- D. Hydrated Lime: ASTM C207, Type S.
- E. Mortar Aggregate: ASTM C144.
- F. Grout Aggregate: ASTM C404.
- G. Water: Clean and potable.
- H. Moisture-Resistant Admixture: Water repellent compound designed to reduce capillarity.

#### **2.03 REINFORCEMENT AND ANCHORAGE**

- A. Manufacturers:
1. Blok-Lok Limited; \_\_\_\_\_: [www.blok-lok.com/#sle](http://www.blok-lok.com/#sle).



2. FERO Corporation; FERO Thermal Tie \_\_\_\_\_: [www.ferocorp.com/#sle](http://www.ferocorp.com/#sle).
  3. Hohmann & Barnard, Inc; X-Seal Anchor: [www.h-b.com/#sle](http://www.h-b.com/#sle).
  4. TruFast Walls, a division of Altenloh, Brinck & Co. US, Inc; Thermal-Grip MVA: [www.trufastwalls.com/#sle](http://www.trufastwalls.com/#sle).
  5. WIRE-BOND; \_\_\_\_\_: [www.wirebond.com/#sle](http://www.wirebond.com/#sle).
  6. Substitutions: See Section 016000 - Product Requirements.
- B. Reinforcing Steel: ASTM A615/A615M, Grade 40 (40,000 psi) (280 MPa), deformed billet bars; galvanized.
- C. Joint Reinforcement: Use ladder type joint reinforcement where vertical reinforcement is involved and truss type elsewhere, unless otherwise indicated.
- D. Single Wythe Joint Reinforcement: ASTM A951/A951M.
1. Type: Truss or ladder.
  2. Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M Class 3.
  3. Size: 0.1483 inch (3.8 mm) side rods with 0.1483 inch (3.8 mm) cross rods; width as required to provide not less than 5/8 inch (16 mm) of mortar coverage on each exposure.

## 2.04 FLASHINGS

- A. Metal Flashing Materials:
1. Copper Flashing: ASTM B370, 060 soft annealed; 20 oz/sq ft (0.7 mm) thick; natural finish.
  2. Stainless Steel Flashing: ASTM A666/A666M, Type 304, soft temper; 26 gauge, 0.0187 inch (0.48 mm) thick; finish 2B to 2D.
  3. Prefabricated Metal Flashing: Smooth fabricated 12 oz/sq ft (3.66 kg/sq m) copper flashing for surface mounted conditions.

## 2.05 ACCESSORIES

- A. Preformed Control Joints: Rubber material. Provide with corner and tee accessories, fused joints.
1. Manufacturers:
    - a. Blok-Lok Limited; \_\_\_\_\_: [www.blok-lok.com/#sle](http://www.blok-lok.com/#sle).
    - b. Hohmann & Barnard, Inc; \_\_\_\_\_: [www.h-b.com/#sle](http://www.h-b.com/#sle).
    - c. WIRE-BOND; \_\_\_\_\_: [www.wirebond.com/#sle](http://www.wirebond.com/#sle).
- B. Weeps:
1. Type: Polyester mesh.
  2. Color(s): As selected by Architect from manufacturer's full range.
  3. Manufacturers:
    - a. Advanced Building Products, Inc; \_\_\_\_\_: [www.advancedbuildingproducts.com/#sle](http://www.advancedbuildingproducts.com/#sle).
    - b. Blok-Lok Limited; \_\_\_\_\_: [www.blok-lok.com/#sle](http://www.blok-lok.com/#sle).
    - c. CavClear, a Division of Archovations Inc: [www.cavclear.com/#sle](http://www.cavclear.com/#sle).
    - d. Mortar Net Solutions; WeepVent: [www.mortarnet.com/#sle](http://www.mortarnet.com/#sle).
    - e. WIRE-BOND; \_\_\_\_\_: [www.wirebond.com/#sle](http://www.wirebond.com/#sle).
- C. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

## 2.06 MORTAR AND GROUT MIXING

- A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
1. Interior, loadbearing masonry: Type N.
  2. Interior, non-loadbearing masonry: Type O.
- B. Grout: ASTM C476; consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches (50 mm) or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches (50 mm).

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive masonry.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

### **3.02 PREPARATION**

- A. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

### **3.03 COLD AND HOT WEATHER REQUIREMENTS**

- A. Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

### **3.04 COURSING**

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
  - 1. Bond: Running.
  - 2. Mortar Joints: match existing.

### **3.05 PLACING AND BONDING**

- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- B. Lay hollow masonry units with face shell bedding on head and bed joints.
- C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- D. Remove excess mortar and mortar smears as work progresses.
- E. Interlock intersections and external corners.
- F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

### **3.06 WEEPS/CAVITY VENTS**

- A. Install weeps in veneer and cavity walls at 24 inches (600 mm) on center horizontally on top of through-wall flashing above shelf angles and lintels and at bottom of walls.

### **3.07 REINFORCEMENT AND ANCHORAGE - GENERAL, SINGLE WYTHE MASONRY, AND CAVITY WALL MASONRY**

- A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 8 inches on center.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches (400 mm) each side of opening.
- C. Place continuous joint reinforcement in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum 6 inches (150 mm).

### **3.08 MASONRY FLASHINGS**

- A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.

1. Extend flashings full width at such interruptions and at least 6 inches (152 mm), minimum, into adjacent masonry or turn up flashing ends at least 1 inch (25.4 mm), minimum, to form watertight pan at nonmasonry construction.
  2. Remove or cover protrusions or sharp edges that could puncture flashings.
  3. Seal lapped ends and penetrations of flashing before covering with mortar.
- B. Terminate flashing up 8 inches (203 mm) minimum on vertical surface of backing:
- C. Extend metal flashings through exterior face of masonry and terminate in an angled drip with hemmed edge. Install joint sealer below drip edge to prevent moisture migration under flashing.

### **3.09 LINTELS**

- A. Install loose steel lintels over openings.

### **3.10 GROUTED COMPONENTS**

- A. Reinforce bond beams in accordance with the structural notes and drawings.
- B. Lap splices minimum 24 bar diameters.
- C. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch (13 mm) of dimensioned position.
- D. Place and consolidate grout fill without displacing reinforcing.
- E. At bearing locations, fill masonry cores with grout for a minimum 12 inches (300 mm) either side of opening.

### **3.11 CONTROL AND EXPANSION JOINTS**

- A. General: Provide for exterior and interior masonry. Provide sash blocks with premolded shear key. Rake out mortar, if any, and form continuous vertical joints in masonry construction to receive sealant at the locations listed below. Verify locations with Architect. Sealant and backer rod specified elsewhere.
- B. Locations: In accordance with NCMA-TEK Bulletins 10-1 and 10-2.
1. Changes in wall height or thickness.
  2. Expansion joints in foundations, roof, and floors.
  3. Abutments with other construction.
  4. Within 1/2 normal design spacing or less of:
    - a. Corners. Provide on both legs of corners
    - b. Intersecting bonded walls.
  5. Openings: Provide as follows
    - a. Openings Less than 6 Feet Wide: May use reinforcement as specified elsewhere in lieu of control joint.
    - b. Opening 6 feet Wide or More: Provide control joints on both sides of opening.
      - 1) Above Openings: Offset to ends of lintel.
      - 2) At Opening: Use vertical side of opening as part of joint.
      - 3) Below Openings (Above Floor): Align with side of opening.
  6. As indicated on drawings except not less than specified.
- C. CMU, Straight Runs: Distance between joints shall not exceed the least of:
1. Length/ Height of wall ratio shall not exceed 1.5.
  2. 25 feet, unless a greater distance can be substantiated with CMU with lower linear shrinkage value than specified by calculations for Crack Control Coefficient in accordance with NCMA Tek 10-2A.
  3. Maximum spacing not to exceed 40 feet regardless of calculations.
  4. As indicated on drawings.
- D. Do not continue horizontal joint reinforcement through control or expansion joints.
- E. Form control joint with a sheet building paper bond breaker fitted to one side of the hollow contour end of the block unit. Fill the resultant core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.

- F. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.
- G. Size control joints as indicated on drawings; if not indicated, 3/4 inch (19 mm) wide and deep.

### **3.12 BUILT-IN WORK**

- A. As work progresses, install built-in metal door frames and glazed frames and other items to be built into the work and furnished under other sections.
- B. Install built-in items plumb, level, and true to line.
- C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
  - 1. Fill adjacent masonry cores with grout minimum 12 inches (300 mm) from framed openings.
- D. Do not build into masonry construction organic materials that are subject to deterioration.

### **3.13 TOLERANCES**

- A. Maximum Variation from Alignment of Columns: 1/4 inch (6 mm).
- B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch (1.6 mm).
- C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft (6 mm/3 m) and 1/2 inch in 20 ft (13 mm/6 m) or more.
- D. Maximum Variation from Plumb: 1/4 inch (6 mm) per story non-cumulative; 1/2 inch (13 mm) in two stories or more.
- E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft (3 mm/m) and 1/4 inch in 10 ft (6 mm/3 m); 1/2 inch in 30 ft (13 mm/9 m).
- F. Maximum Variation of Mortar Joint Thickness: Head joint, minus 1/4 inch, plus 3/8 inch (minus 6.4 mm, plus 9.5 mm).
- G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch (6 mm).

### **3.14 CUTTING AND FITTING**

- A. Cut and fit for chases. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

### **3.15 FIELD QUALITY CONTROL**

- A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.
- B. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C140/C140M for compliance with requirements of this specification.
- C. Mortar Tests: Test each type of mortar in accordance with ASTM C780, testing with same frequency as masonry samples.

### **3.16 CLEANING**

- A. Remove excess mortar and mortar droppings.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with cleaning solution.

### **3.17 PROTECTION**

- A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

**END OF SECTION**

**SECTION 055000  
METAL FABRICATIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Shop fabricated steel and aluminum items.

**1.02 RELATED REQUIREMENTS**

- A. Section 055100 - Metal Stairs, Railing and Ladders.
- B. Section 055133 - Metal Ladders.

**1.03 REFERENCE STANDARDS**

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
- B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2024.
- C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- D. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2018.
- E. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2021a.
- F. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2021.
- G. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
- H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.
- I. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- J. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2020.
- K. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2021, with Errata (2023).
- L. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2025.
- M. AWS D1.2/D1.2M - Structural Welding Code - Aluminum; 2014, with Errata (2020).
- N. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.
- O. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.

**1.04 SUBMITTALS**

- A. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
  - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
- B. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

**1.05 QUALITY ASSURANCE**

- A. Design \_\_\_\_\_ under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in The State of Ohio.

- B. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and AWS D1.2/D1.2M and dated no more than 12 months before start of scheduled welding work.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS - STEEL**

- A. Steel Sections: ASTM A36/A36M.
- B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.
- C. Plates: ASTM A283/A283M.
- D. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- E. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

### **2.02 MATERIALS - ALUMINUM**

- A. Sheet Aluminum: ASTM B209/B209M, 5052 alloy, H32 or H22 temper.

### **2.03 FABRICATION**

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- D. Furnish components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

### **2.04 FABRICATED ITEMS**

- A. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.
- B. Lintels: As detailed; prime paint finish.
- C. Elevator Hoistway Divider Beams: Beam sections; prime paint finish.
- D. Machine Room Partition / Hoistway Partition
  - 1. Openwork enclosures, where used above 2000mm (79") level, shall reject a ball 25mm (1") in diameter.
  - 2. Openwork enclosures shall be (1) at least 2.2mm (0.087 in.) thick wire, if of steel wire grille, (2) at least 2.2mm (0.087 in.) thick, if of expanded metal, and (3) so supported and braced as to deflect not over 15mm (0.6 in.) when subjected to a force of 450 N (100 lbf) applied horizontally at any point.

### **2.05 FINISHES - STEEL**

- A. Prime paint steel items.
  - 1. Exceptions: Galvanize items to be embedded in concrete, items to be embedded in masonry, and items specified for \_\_\_\_\_ finish.
- B. Prime Painting: One coat.
- C. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.
- D. Stainless Steel Finish: No. 4 Bright Polished finish.

### **2.06 FABRICATION TOLERANCES**

- A. Squareness: 1/8 inch (3 mm) maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch (1.5 mm).

- C. Maximum Misalignment of Adjacent Members: 1/16 inch (1.5 mm).
- D. Maximum Bow: 1/8 inch (3 mm) in 48 inches (1.2 m).
- E. Maximum Deviation From Plane: 1/16 inch (1.5 mm) in 48 inches (1.2 m).

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive work.

#### **3.02 PREPARATION**

- A. Clean and strip primed steel items to bare metal where site welding is required.

#### **3.03 INSTALLATION**

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Obtain approval prior to site cutting or making adjustments not scheduled.

#### **3.04 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS**

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions, and requirements indicated on Shop Drawings.
- B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

#### **3.05 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch (6 mm).
- C. Maximum Out-of-Position: 1/4 inch (6 mm).

**END OF SECTION**

**SECTION 055133  
METAL LADDERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Shop-fabricated metal ladders.
- B. Prefabricated ladders.

**1.02 RELATED REQUIREMENTS**

- A. Section 055213 - Pipe and Tube Railings.
- B. Section 099123 - Interior Painting: Paint finish.

**1.03 REFERENCE STANDARDS**

- A. AAMA 611 - Specification for Anodized Architectural Aluminum; 2024.
- B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.
- C. ANSI A14.3 - American National Standard for Ladders -- Fixed -- Safety Requirements; 2008 (Reaffirmed 2018).
- D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- E. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
- F. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2024.
- G. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- H. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2018.
- I. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.
- J. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2021a.
- K. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2021.
- L. ASTM B26/B26M - Standard Specification for Aluminum-Alloy Sand Castings; 2018, with Editorial Revision.
- M. ASTM B85/B85M - Standard Specification for Aluminum-Alloy Die Castings; 2018, with Editorial Revision.
- N. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- O. ASTM B210/B210M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes; 2019a.
- P. ASTM B211/B211M - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire; 2019.
- Q. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2022.
- R. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2020.



- S. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2021, with Errata (2023).
- T. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2025.
- U. AWS D1.2/D1.2M - Structural Welding Code - Aluminum; 2014, with Errata (2020).
- V. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel AC172; 2019.
- W. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.
- X. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.
- Y. SSPC-SP 2 - Hand Tool Cleaning; 2024.

#### **1.04 SUBMITTALS**

- A. Shop Drawings:
  - 1. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
  - 2. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
- B. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.
- C. Designer's Qualification Statement.
- D. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS - STEEL**

- A. Steel Sections: ASTM A36/A36M.
- B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.
- C. Plates: ASTM A283/A283M.
- D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
- E. Mechanical Fasteners: Same material or compatible with materials being fastened; type consistent with design and specified quality level.
- F. Bolts, Nuts, and Washers: ASTM A307, plain.
- G. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.
- H. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- I. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- J. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

#### **2.02 MATERIALS - ALUMINUM**

- A. Extruded Aluminum: ASTM B211/B211M, 6063 alloy, T6 temper.
- B. Sheet Aluminum: ASTM B209/B209M, 5052 alloy, H32 or H22 temper.
- C. Aluminum-Alloy Drawn Seamless Tubes: ASTM B210/B210M, 6063 alloy, T6 temper.
- D. Aluminum-Alloy Bars: ASTM B211/B211M, 6061 alloy, T6 temper.
- E. Aluminum-Alloy Sand Castings: ASTM B26/B26M.
- F. Aluminum-Alloy Die Castings: ASTM B85/B85M .
- G. Bolts, Nuts, and Washers: Stainless steel.

- H. Welding Materials: AWS D1.2/D1.2M; type required for materials being welded.

### **2.03 FABRICATION**

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by intermittent welds and plastic filler.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

### **2.04 FABRICATED LADDERS**

- A. Ladders: Steel; in compliance with ANSI A14.3; with mounting brackets and attachments; prime paint finish.
  - 1. Side Rails: 3/8 by 2 inches (9 by 50 mm) members spaced at 20 inches (500 mm).
  - 2. Rungs: One inch (25 mm) diameter solid round bar spaced 12 inches (300 mm) on center.
  - 3. Space rungs 7 inches (175 mm) from wall surface.

### **2.05 PREFABRICATED LADDERS**

- A. Prefabricated Ladder: Welded metal unit complying with ANSI A14.3; factory fabricated to greatest degree practical and in the largest components possible.
  - 1. Components: Manufacturer's standard rails, rungs, treads, handrails, returns, platforms and safety devices complying with the requirements of the MATERIALS article of this section.
  - 2. Materials: Aluminum; ASTM B211/B211M 6063 alloy, T52 temper.
  - 3. Finish: Mill finish aluminum.
  - 4. Finish: Powder coat; color to be selected by Architect from manufacturer's standard range.

### **2.06 FINISHES - STEEL**

- A. Prime paint steel items.
  - 1. Do not prime surfaces in direct contact with concrete.
  - 2. Do not prime surfaces where field welding is required.
- B. Prepare surfaces to be primed in accordance with SSPC-SP2.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: One coat.
- E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A123/A123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating. ( Provide minimum 530 g/sq m galvanized coating.)
- F. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.

### **2.07 FINISHES - ALUMINUM**

- A. Exterior Aluminum Surfaces: Class I natural anodized.
- B. Interior Aluminum Surfaces: Class I natural anodized.
- C. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils (0.018 mm) thick.

- D. High Performance Organic Coating System: AAMA 2604 multiple coat, thermally cured fluoropolymer system; color as selected from manufacturer's standard colors.
- E. Apply one coat of bituminous paint to concealed aluminum surfaces in contact with cementitious or dissimilar materials.

## **2.08 FABRICATION TOLERANCES**

- A. Squareness: 1/8 inch (3 mm) maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch (1.5 mm).
- C. Maximum Misalignment of Adjacent Members: 1/16 inch (1.5 mm).
- D. Maximum Bow: 1/8 inch (3 mm) in 48 inches (1.2 m).
- E. Maximum Deviation From Plane: 1/16 inch (1.5 mm) in 48 inches (1.2 m).

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive work.

### **3.02 PREPARATION**

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

### **3.03 INSTALLATION**

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Obtain approval prior to site cutting or making adjustments not scheduled.
- D. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

### **3.04 TOLERANCES**

- A. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch (6 mm).
- C. Maximum Out-of-Position: 1/4 inch (6 mm).

**END OF SECTION**

**SECTION 061000  
ROUGH CARPENTRY**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. All wood within this section shall be fire retardant treated unless noted otherwise.
- B. Preservative treated wood materials.
- C. Fire retardant treated wood materials.
- D. Concealed wood blocking, nailers, and supports.
- E. Miscellaneous wood nailers, furring, and grounds.

**1.02 REFERENCE STANDARDS**

- A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- B. ASTM D2898 - Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing; 2010 (Reapproved 2017).
- C. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.
- D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023a.
- E. AWPA U1 - Use Category System: User Specification for Treated Wood; 2023.
- F. PS 20 - American Softwood Lumber Standard; 2021.
- G. SPIB (GR) - Standard Grading Rules; 2021.
- H. UL 263 - Standard for Fire Tests of Building Construction and Materials; Current Edition, Including All Revisions.
- I. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

**1.03 DELIVERY, STORAGE, AND HANDLING**

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
- B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, and installation.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
  - 1. Species: Douglas Fir-Larch, unless otherwise indicated.
  - 2. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
  - 3. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at [www.alsc.org](http://www.alsc.org), and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
  - 4. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.
- B. Provide sustainably harvested wood; see Section 016000 - Product Requirements for requirements.

**2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS**

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
  - 1. Lumber: S4S, No. 2 or Standard Grade.
  - 2. Boards: Standard or No. 3.

## **2.03 ACCESSORIES**

- A. Fasteners and Anchors:
  - 1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.

## **2.04 FACTORY WOOD TREATMENT**

- A. Treated Lumber and Plywood: Comply with requirements of AWWA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
  - 1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
  - 2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWWA standards.
- B. Fire Retardant Treatment:
  - 1. Products:
    - a. Lonza Group; \_\_\_\_: [www.wolmanizedwood.com/#sle](http://www.wolmanizedwood.com/#sle).
    - b. Hoover Treated Wood Products, Inc; \_\_\_\_: [www.frtw.com/#sle](http://www.frtw.com/#sle).
    - c. Koppers, Inc; \_\_\_\_: [www.koppersperformancechemicals.com/#sle](http://www.koppersperformancechemicals.com/#sle).
    - d. Viance, LLC; D-Blaze: [www.treatedwood.com/#sle](http://www.treatedwood.com/#sle).
  - 2. Interior Type A: AWWA U1, Use Category UCFA, Commodity Specification H, low temperature (low hygroscopic) type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.
    - a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
    - b. Treat rough carpentry items as indicated .
    - c. Do not use treated wood in applications exposed to weather or where the wood may become wet.
- C. Preservative Treatment:
  - 1. Preservative Pressure Treatment of Lumber Above Grade: AWWA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
    - a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
    - b. Treat lumber exposed to weather.
    - c. Treat lumber in contact with roofing, flashing, or waterproofing.
    - d. Treat lumber in contact with masonry or concrete.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Coordinate installation of rough carpentry members specified in other sections.

### **3.02 INSTALLATION - GENERAL**

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

### **3.03 BLOCKING, NAILERS, AND SUPPORTS**

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to authorities having jurisdiction may be used in lieu of solid wood blocking.
- C. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.
- D. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- E. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.
- F. Provide the following specific nonstructural framing and blocking:
  - 1. Cabinets and shelf supports.
  - 2. Wall brackets.
  - 3. Handrails.
  - 4. Grab bars.
  - 5. Towel and bath accessories.
  - 6. Wall-mounted door stops.
  - 7. Chalkboards and marker boards.
  - 8. Wall paneling and trim.
  - 9. Joints of rigid wall coverings that occur between studs.

### **3.04 INSTALLATION OF CONSTRUCTION PANELS**

- A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches (610 mm) on center on all edges and into studs in field of board.
  - 1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
  - 2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
  - 3. Install adjacent boards without gaps.

**END OF SECTION**

**SECTION 078400  
FIRESTOPPING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Firestopping systems.
- B. Firestopping of joints and penetrations in fire-resistance-rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

**1.02 RELATED REQUIREMENTS**

- A. Section 092116 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.

**1.03 REFERENCE STANDARDS**

- A. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.
- B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2023a.
- C. ITS (DIR) - Directory of Listed Products; Current Edition.
- D. FM 4991 - Approval Standard of Firestop Contractors; 2013.
- E. FM (AG) - FM Approval Guide; Current Edition.
- F. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).
- G. UL 1479 - Standard for Fire Tests of Penetration Firestops; Current Edition, Including All Revisions.
- H. UL (FRD) - Fire Resistance Directory; Current Edition.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- C. Sustainable Design Submittal: Submit VOC content documentation for nonpreformed materials.
- D. Installer's qualification statement.

**1.05 QUALITY ASSURANCE**

- A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
  - 1. Listing in UL (FRD), FM (AG), or ITS (DIR) will be considered as constituting an acceptable test report.
  - 2. Valid evaluation report published by ICC Evaluation Service, Inc. (ICC-ES) at [www.icc-es.org](http://www.icc-es.org) will be considered as constituting an acceptable test report.
  - 3. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.
- B. Installer Qualifications: Company specializing in performing the work of this section and:
  - 1. Approved by Factory Mutual Research Corporation under FM 4991, or meeting any two of the following requirements:
  - 2. Verification of minimum three years documented experience installing work of this type.
  - 3. Verification of at least five satisfactorily completed projects of comparable size and type.
  - 4. Licensed by local authorities having jurisdiction (AHJ).

**1.06 FIELD CONDITIONS**

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Firestopping Manufacturers:
  - 1. 3M Fire Protection Product: [www.3m.com/firestop/#sle](http://www.3m.com/firestop/#sle).
  - 2. A/D Fire Protection Systems Inc: [www.adfire.com/#sle](http://www.adfire.com/#sle).
  - 3. Hilti, Inc: [www.hilti.com/#sle](http://www.hilti.com/#sle).
  - 4. Nelson FireStop Products: [www.nelsonfirestop.com/#sle](http://www.nelsonfirestop.com/#sle).
  - 5. Tremco Commercial Sealants & Waterproofing; TREMstop Acrylic: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).
  - 6. Substitutions: See Section 016000 - Product Requirements.

### **2.02 MATERIALS**

- A. Volatile Organic Compound (VOC) Content: Provide products having VOC content lower than that required by SCAQMD 1168.
- B. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.
- C. Fire Ratings: Refer to drawings for required systems and ratings.

### **2.03 FIRESTOPPING FOR FLOOR-TO-FLOOR, FLOOR-TO-WALL, HEAD-OF-WALL, AND WALL-TO-WALL JOINTS**

- A. Concrete and Concrete Masonry Walls and Floors:
  - 1. Floor-to-Floor Joints:
    - a. 2 Hour Construction: UL System FF-D-1013; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
  - 2. Concrete/Concrete Masonry Wall-to-Wall Joint Systems That Have Movement Capabilities (Dynamic-D):
    - a. 2 Hour Construction: UL System WW-D-0032; Hilti CP 606 Flexible Firestop Sealant.
- B. Gypsum Board Walls:
  - 1. Wall-to-Wall Joints That Have Movement Capabilities (Dynamic-D):
    - a. 2 Hour Construction: UL System WW-D-0067; Hilti CP 606 Flexible Firestop Sealant.
  - 2. Head-of-Wall Joints at Underside of Steel Beam and Concrete Over Metal Deck Floor with Sprayed On Fireproofing:
    - a. 2 Hour Construction: UL System HW-D-0259; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
  - 3. Head-of-Wall Joints at Underside of Flat Concrete:
    - a. 2 Hour Construction: UL System HW-D-1068; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
  - 4. Head-of-Wall Joints at Concrete Over Metal Deck, Wall Parallel to Ribs:
    - a. 2 Hour Construction: UL System HW-D-0184; Hilti CP 606 Flexible Firestop Sealant.
  - 5. Head-of-Wall Joints at Concrete Over Metal Deck, Wall Perpendicular to Ribs, Cut to Fit Ribs:
    - a. 2 Hour Construction: UL System HW-D-0045; Hilti CP 606 Flexible Firestop Sealant.

### **2.04 FIRESTOPPING PENETRATIONS THROUGH CONCRETE AND CONCRETE MASONRY CONSTRUCTION**

- A. Blank Openings:
  - 1. In Floors or Walls:
    - a. 2 Hour Construction: UL System C-AJ-0090; Hilti FS-ONE MAX Intumescent Firestop Sealant.
- B. Penetrations Through Floors or Walls By:
  - 1. Uninsulated Metallic Pipe, Conduit, and Tubing:
    - a. 2 Hour Construction: UL System C-AJ-1425; Hilti CFS-S SIL GG Firestop Silicone Sealant Gun-Grade.



2. Uninsulated Non-Metallic Pipe, Conduit, and Tubing:
  - a. 2 Hour Construction: UL System C-AJ-2167; Hilti FS-ONE MAX Intumescent Firestop Sealant.
3. Insulated Pipes:
  - a. 2 Hour Construction: UL System C-AJ-5091; Hilti FS-ONE IMAX Intumescent Firestop Sealant.

## **2.05 FIRESTOPPING PENETRATIONS THROUGH GYPSUM BOARD WALLS**

- A. Blank Openings:
  1. 2 Hour Construction: UL System W-L-3334; Hilti CP 653 Speed Sleeve.

## **2.06 FIRESTOPPING SYSTEMS**

- A. Firestopping: Any material meeting requirements.
  1. Fire Ratings: Use system that is listed by FM (AG), ITS (DIR), or UL (FRD) and tested in accordance with ASTM E814, ASTM E119, or UL 1479 with F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and in compliance with other specified requirements.

# **PART 3 EXECUTION**

## **3.01 EXAMINATION**

- A. Verify openings are ready to receive the work of this section.

## **3.02 PREPARATION**

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other materials that could adversely affect bond of firestopping material.
- B. Remove incompatible materials that could adversely affect bond.

## **3.03 INSTALLATION**

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
- B. Do not cover installed firestopping until inspected by authorities having jurisdiction.
- C. Install labeling required by code.

## **3.04 CLEANING**

- A. Clean adjacent surfaces of firestopping materials.

## **3.05 PROTECTION**

- A. Protect adjacent surfaces from damage by material installation.

**END OF SECTION**

**SECTION 079200  
JOINT SEALANTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Nonsag gunnable joint sealants.
- B. Self-leveling pourable joint sealants.
- C. Joint backings and accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions: Additional requirements for sealants and primers.
- B. Section 078400 - Firestopping: Firestopping sealants.
- C. Section 087100 - Door Hardware: Setting exterior door thresholds in sealant.
- D. Section 088000 - Glazing: Glazing sealants and accessories.
- E. Section 092116 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.
- F. Section 093000 - Tiling: Sealant at junctions with other materials and changes in plane.

**1.03 REFERENCE STANDARDS**

- A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015 (Reapproved 2022).
- B. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).
- C. ASTM C834 - Standard Specification for Latex Sealants; 2017 (Reapproved 2023).
- D. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2022.
- E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- F. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).
- G. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2022.
- H. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2023.
- I. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2015 (Reapproved 2021).
- J. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).
- K. SWRI (VAL) - SWR Institute Validated Products Directory; Current Edition.
- L. UL 263 - Standard for Fire Tests of Building Construction and Materials; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Section 013000 for submittal procedures.
- B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
  - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
  - 2. List of backing materials approved for use with the specific product.
  - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
  - 4. Substrates the product should not be used on.
  - 5. Substrates for which use of primer is required.
  - 6. Substrates for which laboratory adhesion and/or compatibility testing is required.

7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
  8. Sample product warranty.
  9. Certification by manufacturer indicating that product complies with specification requirements.
  10. SWRI Validation: Provide currently available sealant product validations as listed by SWRI (VAL) for specified sealants.
- C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.
- D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.
- E. Samples for Verification: Where custom sealant color is specified, obtain directions from Architect and submit at least two physical samples for verification of color of each required sealant.
- F. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.
- G. Guarantee:
1. Submit written guarantee signed jointly by Sealant Installer and Contractor agreeing that all caulking and sealant work will be free of defective material and workmanship for a period of five (5) years from date of Certificate of Substantial Completion for project, and that defective work, if any, occurring during guarantee period will be corrected at no additional cost to the University.
  2. Submit written guarantee to the University, through Architect, prior to final acceptance of project work by the University.
- H. Manufacturer's installation instructions: Indicate special procedures.

#### **1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.

#### **1.06 WARRANTY**

- A. See Section 017700 for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
1. Bostik Inc: [www.bostik-us.com/#sle](http://www.bostik-us.com/#sle).
  2. Dow: [www.dow.com/#sle](http://www.dow.com/#sle).
  3. Hilti, Inc: [www.us.hilti.com/#sle](http://www.us.hilti.com/#sle).
  4. Pecora Corporation: [www.pecora.com/#sle](http://www.pecora.com/#sle).
  5. Sika Corporation: [www.usa.sika.com/#sle](http://www.usa.sika.com/#sle).
  6. Tremco Commercial Sealants & Waterproofing: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).
  7. W.R. Meadows, Inc: [www.wrmeadows.com/#sle](http://www.wrmeadows.com/#sle).
- B. Self-Leveling Sealants: Pourable or self-leveling sealant that has sufficient flow to form a smooth, level surface when applied in a horizontal joint.
1. Bostik Inc: [www.bostik-us.com/#sle](http://www.bostik-us.com/#sle).
  2. Dow: [www.dow.com/#sle](http://www.dow.com/#sle).

3. Pecora Corporation: [www.pecora.com/#sle](http://www.pecora.com/#sle).
4. Sika Corporation: [www.usa.sika.com/#sle](http://www.usa.sika.com/#sle).
5. Tremco Commercial Sealants & Waterproofing: [www.tremcosealants.com/#sle](http://www.tremcosealants.com/#sle).
6. W.R. Meadows, Inc: [www.wrmeadows.com/#sle](http://www.wrmeadows.com/#sle).

## 2.02 JOINT SEALANT APPLICATIONS

- A. Scope:
1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
    - a. Wall expansion and control joints.
    - b. Joints between door, window, and other frames and adjacent construction.
    - c. Joints between different exposed materials.
    - d. Openings below ledge angles in masonry.
    - e. Other joints indicated below.
  2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
    - a. Joints between door, window, and other frames and adjacent construction.
    - b. Other joints indicated below.
  3. Do not seal the following types of joints.
    - a. Intentional weepholes in masonry.
    - b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
    - c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
    - d. Joints where installation of sealant is specified in another section.
    - e. Joints between suspended panel ceilings/grid and walls.
- B. Type JS-1 - Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.
- C. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
1. Type JS-5 - Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
  2. Type JS-4 - Wall and Ceiling Joints in Wet Areas: Non-sag polyurethane sealant for continuous liquid immersion.
  3. Type JS-4 - Floor Joints in Wet Areas: Non-sag polyurethane "non-traffic-grade" sealant suitable for continuous liquid immersion.
  4. Type JS-2 - Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.
  5. Type JS-9 - In Sound-Rated Assemblies: Acrylic emulsion latex sealant.
  6. Type JS-10 - Narrow Control Joints in Interior Concrete Slabs: Self-leveling epoxy sealant.
  7. Type JS-7 - Other Floor Joints: Self-leveling polyurethane "traffic-grade" sealant.
- D. Interior Wet Areas: Bathrooms, restrooms, kitchens, food service areas, and food processing areas; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, cabinets, and other similar items.
- E. Sound-Rated Assemblies: Walls and ceilings identified as "STC-rated", "sound-rated", or "acoustical".

## 2.03 JOINT SEALANTS - GENERAL

- A. Sealants and Primers: Provide products with acceptable levels of volatile organic compound (VOC) content; see Section 016116.

## 2.04 NONSAG JOINT SEALANTS

- A. Type JS-1 - Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.

1. Movement Capability: Plus and minus 50 percent, minimum.
  2. Non-Staining to Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
  3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
  4. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
  5. Color: Match adjacent finished surfaces, unless otherwise noted.
  6. Cure Type: Single-component, neutral moisture curing.
  7. Service Temperature Range: Minus 20 to 180 degrees F (Minus 29 to 82 degrees C).
- B. Type JS-2 - Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
1. Color: White.
- C. Type JS-3 - Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 50 percent, minimum.
  2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
  3. Color: Match adjacent finished surfaces, unless otherwise indicated.
  4. Service Temperature Range: Minus 40 to 180 degrees F (Minus 40 to 82 degrees C).
- D. Type JS-4 - Polyurethane Sealant for Continuous Water Immersion: ASTM C920, Grade NS, Uses M and A; single or multi-component; explicitly approved by manufacturer for continuous water immersion; suitable for traffic exposure when recessed below traffic surface.
1. Movement Capability: Plus and minus 35 percent, minimum.
  2. Hardness Range: 20 to 35, Shore A, when tested in accordance with ASTM C661.
  3. Color: Match adjacent finished surfaces, or as otherwise indicated.
  4. Service Temperature Range: Minus 40 to 180 degrees F (Minus 40 to 82 degrees C).
- E. Type JS-5 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
1. Color: Standard colors matching finished surfaces, Type OP (opaque).
  2. Grade: ASTM C834; Grade 0 Degrees F (Minus 18 Degrees C).

## **2.05 SELF-LEVELING SEALANTS**

- A. Type JS-6 - Self-Leveling Polyurethane Sealant for Continuous Water Immersion: Polyurethane; ASTM C920, Grade P, Uses M and A; single component; explicitly approved by manufacturer for traffic exposure and continuous water immersion.
1. Movement Capability: Plus and minus 25 percent, minimum.
  2. Hardness Range: 35 to 55, Shore A, when tested in accordance with ASTM C661.
  3. Color: Gray.
  4. Service Temperature Range: Minus 40 to 180 degrees F (Minus 40 to 82 degrees C).
- B. Type JS-7 - Rigid Self-Leveling Polyurethane Joint Filler: Two part, low viscosity, fast setting; intended for cracks and control joints not subject to significant movement.
1. Hardness Range: Greater than 100, Shore A, and 50 to 80, Shore D, when tested in accordance with ASTM C661.
- C. Type JS-8 - Flexible Polyurethane Foam: Single-component, gun grade, and low-expanding.
- D. Type JS-9 - High Quality Latex-Based Sound Sealant: ASTM C834, Type OP an opaque sealant, and Grade 0, 32 degrees F (0 degrees C), meets requirements for low-temperature flexibility.
1. Color: White.
- E. Type JS-10 - Semi-Rigid Self-Leveling Epoxy Joint Filler: Epoxy or epoxy/polyurethane copolymer; intended for filling cracks and control joints not subject to significant movement; rigid enough to support concrete edges under traffic.
1. Composition: Multi-component, 100 percent solids by weight.
  2. Durometer Hardness: Minimum of 85 for Type A or 35 for Type D, after seven days when tested in accordance with ASTM D2240.

3. Color: Concrete gray.
4. Joint Width, Minimum: 1/8 inch (3 mm).
5. Joint Depth: Provide product suitable for joints from 1/8 inch (3 mm) to 2 inches (51 mm) in depth including space for backer rod.

## **2.06 ACCESSORIES**

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
  1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
  2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
  3. Open Cell: 40 to 50 percent larger in diameter than joint width.
  4. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
- D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.
- F. Compressible Filler: Closed cell synthetic flexible foam joint filler and backup material for use to seal exterior wall conditions in expansion joints and where indicated on drawings.
  1. Manufacturer: WR Meadows - Ceramar flexible foam expansion joint filler; [www.wrmeadows.com](http://www.wrmeadows.com) or approved equal.
  2. Compression: 50%, 13psi (9g/mm<sup>2</sup>) 89.6,.Pa.
  3. Recovery: 99.21%
  4. Water Absorption, Bolume: 0.246%
  5. ASTM D 5249, Type 2, ASTM D7174-05

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.

### **3.02 PREPARATION**

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

### **3.03 INSTALLATION**

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Perform acoustical sealant application work in accordance with ASTM C919.

- D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- E. Install bond breaker backing tape where backer rod cannot be used.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.
- I. Provide caulking and sealant of joints and voids where indicated on drawings and as specified. Locations for such sealed joints and voids include but are not necessarily limited to the following:
  - 1. Interior
    - a. Perimeter joints of door frames, windows, louvers, etc., in exterior walls.
    - b. Open joints at perimeter of interior door frames and other framed openings in masonry or concrete walls.
    - c. Open joints at penetrations through walls, and open joints at penetrations through concrete or drywall ceilings, where intended to be tight, sealed joint.
    - d. Joints where edge trim of drywall abuts irregular surfaces or other surfaces and leaves open joints.
    - e. Exposed joints at junctures of countertops, cabinet work, or other built-in work with irregular surfaces and intended to be tight, sealed joint.
- J. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

### **3.04 FIELD QUALITY CONTROL**

- A. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

### **3.05 CLEANING**

- A. Clean adjacent soiled surfaces.

### **3.06 PROTECTION**

- A. Protect sealants until cured.

## **END OF SECTION**

**SECTION 081113  
HOLLOW METAL DOORS AND FRAMES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Non-fire-rated hollow metal doors and frames.
- B. Fire-rated hollow metal doors and frames.
- C. Thermally insulated hollow metal doors with frames.

**1.02 RELATED REQUIREMENTS**

- A. Section 087100 - Door Hardware.
- B. Section 088000 - Glazing: Glass for doors and borrowed lites.
- C. Section 099123 - Interior Painting: Field painting.

**1.03 REFERENCE STANDARDS**

- A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.
- B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2022.
- C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.
- D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2020.
- E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
- F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2021a.
- G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.
- H. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.
- I. ASTM C476 - Standard Specification for Grout for Masonry; 2023.
- J. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009 (Reapproved 2016).
- K. ASTM E413 - Classification for Rating Sound Insulation; 2022.
- L. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames; 2016.
- M. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.
- N. ITS (DIR) - Directory of Listed Products; Current Edition.
- O. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.
- P. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.
- Q. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2017.
- R. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.
- S. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.
- T. UL (DIR) - Online Certifications Directory; Current Edition.
- U. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.



#### **1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.
- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

#### **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.
- B. Maintain at project site copies of reference standards relating to installation of products specified.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Hollow Metal Doors and Frames:
  - 1. Ceco Door, an Assa Abloy Group company: [www.assaabloydss.com/#sle](http://www.assaabloydss.com/#sle).
  - 2. Republic Doors, an Allegion brand: [www.republicdoor.com/#sle](http://www.republicdoor.com/#sle).
  - 3. Steelcraft, an Allegion brand: [www.allegion.com/#sle](http://www.allegion.com/#sle).

#### **2.02 PERFORMANCE REQUIREMENTS**

- A. Requirements for Hollow Metal Doors and Frames:
  - 1. Steel Sheet: Comply with one or more of the following requirements; galvanized steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
  - 2. Accessibility: Comply with ICC A117.1 and ADA Standards.
  - 3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
  - 4. Door Edge Profile: Manufacturers standard for application indicated.
  - 5. Typical Door Face Sheets: Flush.
  - 6. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
  - 7. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvanized) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
    - a. Based on SDI Standards: Provide at least A40/ZF120 (galvanized) when necessary, coating not required for typical interior door applications, and at least A60/ZF180 (galvanized) for corrosive locations.
- B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

#### **2.03 HOLLOW METAL DOORS**

- A. Door Finish: Factory primed and field finished.
- B. Fire-Rated Doors:
  - 1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
    - a. Level 3 - Extra Heavy-duty.
    - b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
    - c. Model 1 - Full Flush.
    - d. Door Face Metal Thickness: 16 gauge, 0.053 inch (1.3 mm), minimum.
  - 2. Fire Rating: As indicated on Door Schedule, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
  - 3. Provide units listed and labeled by UL (DIR) or ITS (DIR).
    - a. Attach fire rating label to each fire rated unit.
  - 4. Door Thickness: 1-3/4 inches (44.5 mm), nominal.
  - 5. Door Face Sheets: Flush.

## **2.04 HOLLOW METAL FRAMES**

- A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.
- B. Frame Finish: Factory primed and field finished.
- C. General:
  - 1. Comply with the requirements of grade specified for corresponding door.
    - a. ANSI A250.8 Level 1 Doors: 14 gage frames. (Exterior Frames)
    - b. ANSI A250.8 Level 3 Doors: 16 gage frames. (Interior Frames)
- D. Exterior Door Frames: Face welded type.
  - 1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
  - 2. Weatherstripping: Separate, see Section 087100.
- E. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
  - 1. Frame Metal Thickness: 18 gauge, 0.042 inch (1.0 mm), minimum.
- F. Door Frames, Fire-Rated: Full profile/continuously welded type.
  - 1. Fire Rating: Same as door, labeled.
  - 2. Terminated Stops: Provide at interior doors; closed end stop terminated 6 inch (150 mm), maximum, above floor at 45 degree angle.
  - 3. Frame Metal Thickness: 16 gauge, 0.053 inch (1.3 mm), minimum.
- G. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
- H. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inches (102 mm) high to fill opening without cutting masonry units.
- I. Apply bituminous coating to backs of all exterior frames and those that are filled with mortar, grout, or plaster. Fill space between frames and masonry or concrete with mortar.

## **2.05 FINISHES**

- A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

## **2.06 ACCESSORIES**

- A. Glazing: As specified in Section 088000, factory installed.
- B. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered or butted corners; prepared for countersink style tamper proof screws.
- C. Grout for Frames: Mortar grout complying with ASTM C476 with maximum slump of 4 inches (102 mm) as measured in accordance with ASTM C143/C143M for hand troweling in place; plaster grout and thinner pumpable grout are prohibited.

- D. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
- E. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Verify that finished walls are in plane to ensure proper door alignment.

#### **3.02 PREPARATION**

- A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

#### **3.03 INSTALLATION**

- A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
- B. Install fire rated units in accordance with NFPA 80.
- C. Coordinate frame anchor placement with wall construction.
- D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.
- E. Install door hardware as specified in Section 087100.
- F. Comply with glazing installation requirements of Section 088000.

#### **3.04 TOLERANCES**

- A. Maximum Diagonal Distortion: 1/16 inch (1.6 mm) measured with straight edge, corner to corner.

#### **3.05 ADJUSTING**

- A. Adjust for smooth and balanced door movement.
- B. Adjust sound control doors so that seals are fully engaged when door is closed.
- C. Test sound control doors for force to close, latch, and unlatch; adjust as necessary in compliance with requirements.
- D. Adjust exterior doors so that weatherstripping is fully engaged when door is closed.

#### **3.06 SCHEDULE**

- A. Refer to Door and Frame Schedule on the drawings.

**END OF SECTION**

**SECTION 083100  
ACCESS DOORS AND PANELS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Wall- and ceiling-mounted access units.
- B. Access door and frame units, fire-rated, in wall and ceiling locations.

**1.02 RELATED REQUIREMENTS**

- A. Section 087100 - Door Hardware: Mortise cylinder and core hardware.
- B. Section 099123 - Interior Painting: Field paint finish.

**1.03 REFERENCE STANDARDS**

- A. ITS (DIR) - Directory of Listed Products; Current Edition.
- B. UL (FRD) - Fire Resistance Directory; Current Edition.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.
- C. Shop Drawings: Indicate exact position of each access door and/or panel unit.

**PART 2 PRODUCTS**

**2.01 ACCESS DOORS AND PANELS ASSEMBLIES**

- A. Fire-Rated Wall-Mounted Units:
  - 1. Location: As indicated on drawings. Size as shown on drawings.
  - 2. Wall Fire-Rating: As indicated on drawings.
  - 3. Panel Material: Steel.
  - 4. Door/Panel: Insulated double-surface panel, with tool-operated spring or cam lock and no handle. Provide keyed locks per OSU guidelines, 7-pin removable core.
- B. Fire-Rated Ceiling-Mounted Units:
  - 1. Location: Fire rated gyp. bd. ceilings and soffits..
  - 2. Ceiling Fire-Rating: As indicated on drawings.
  - 3. Panel Material: Steel.
  - 4. Size: As shown on drawings.
  - 5. Door/Panel: Hinged, standard duty, with tool-operated spring or cam lock and no handle.

**2.02 WALL- AND CEILING-MOUNTED ACCESS UNITS**

- A. Manufacturers:
  - 1. ACUDOR Products Inc: [www.acudor.com/#sle](http://www.acudor.com/#sle).
    - a. Fire-Rated Ceiling-Mounted Units - 2 Hours or Less: ACUDOR FWC-5015.
  - 2. Karp Associates, Inc: [www.karpinc.com/#sle](http://www.karpinc.com/#sle).
  - 3. Milcor Inc: [www.milcorinc.com](http://www.milcorinc.com). (Basis of Design).
- B. Wall- and Ceiling-Mounted Units: Factory-fabricated door and frame, fully assembled units with corner joints welded, filled and ground flush; square and without rack or warp; coordinate requirements with type of installation assembly being used for each unit.
  - 1. Style: Exposed frame with door surface flush with frame surface.
    - a. Gypsum Board Mounting Criteria: Use drywall bead type frame.
  - 2. Door Style: Single thickness with rolled or turned in edges.
  - 3. Frames: 16-gauge, 0.0598-inch (1.52 mm) minimum thickness.
  - 4. Door Panels to Receive Wall/Ceiling Finish: Surface recessed 5/8 inch (15.9 mm) back from wall face.

5. Insulation: Non-combustible mineral wool or glass fiber.
6. Units in Fire-Rated Assemblies: Fire rating as required by applicable code for fire-rated assembly that access doors are being installed.
7. Steel Finish: Primed.
8. Primed and Factory Finish: Polyester powder coat; color \_\_\_\_\_.
9. Hardware:
  - a. Hardware for Fire-Rated Units: As required for listing.
  - b. Hinges for Non-Fire-Rated Units: Concealed, constant force closure spring type.
  - c. Latch/Lock: Cylinder lock-operated with 7-pin Best core, two keys for each unit.
    - 1) Contractor to coordinate with University.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that rough openings are correctly sized and located.
- B. Begin installation only after substrates have been properly prepared, and if the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Coordinate with Electrical, Plumbing, and Mechanical Contractors and building coordinators for exact locations.

#### **3.02 INSTALLATION**

- A. Install units in accordance with manufacturer's instructions.
- B. Install frames plumb and level in openings, and secure units rigidly in place.
- C. Position units to provide convenient access to concealed equipment when necessary.

**END OF SECTION**

## SECTION 087100 - DOOR HARDWARE

### PART 1 - GENERAL

#### 1.01 SUMMARY

##### A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components

##### B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

##### C. Related Sections:

1. Division 01 "General Requirements" sections for Allowances, Alternates, Owner Furnished Contractor Installed, Project Management and Coordination.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
  - a. "Metal Doors and Frames"
  - b. "Flush Wood Doors"
  - c. "Stile and Rail Wood Doors"
  - d. "Interior Aluminum Doors and Frames"
  - e. "Aluminum-Framed Entrances and Storefronts"
  - f. "Stainless Steel Doors and Frames"
  - g. "Special Function Doors"
  - h. "Entrances"
6. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
7. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

#### 1.02 REFERENCES

##### A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

##### B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

### 1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
  - a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
  - b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
  - a. Wiring Diagrams: For power, signal, and control wiring and including:
    - 1) Details of interface of electrified door hardware and building safety and security systems.
    - 2) Schematic diagram of systems that interface with electrified door hardware.
    - 3) Point-to-point wiring.
    - 4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
  - a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

4. Door Hardware Schedule:
  - a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
  - b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
  - c. Indicate complete designations of each item required for each opening, include:
    - 1) Door Index: door number, heading number, and Architect's hardware set number.
    - 2) Quantity, type, style, function, size, and finish of each hardware item.
    - 3) Name and manufacturer of each item.
    - 4) Fastenings and other pertinent information.
    - 5) Location of each hardware set cross-referenced to indications on Drawings.
    - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
    - 7) Mounting locations for hardware.
    - 8) Door and frame sizes and materials.
    - 9) Degree of door swing and handing.
    - 10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.
5. Key Schedule:
  - a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
  - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
  - c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
  - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
  - e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
  - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:
  - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
  - b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
  - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
  - b. Catalog pages for each product.
  - c. Final approved hardware schedule edited to reflect conditions as installed.
  - d. Final keying schedule



- e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
- f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

- 1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
  - a. Fire door assemblies, in compliance with NFPA 80.
  - b. Required egress door assemblies, in compliance with NFPA 101.

#### 1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

- 1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
- 2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
- 3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
  - a. For door hardware: DHI certified AHC or DHC.
  - b. Can provide installation and technical data to Architect and other related subcontractors.
  - c. Can inspect and verify components are in working order upon completion of installation.
  - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
- 4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

- 1. Fire-Rated Door Openings:
  - a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
  - b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
- 2. Smoke and Draft Control Door Assemblies:
  - a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105

- b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
- 3. Electrified Door Hardware
  - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
- 4. Accessibility Requirements:
  - a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

#### C. Pre-Installation Meetings

- 1. Keying Conference
  - a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
    - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
    - 2) Preliminary key system schematic diagram.
    - 3) Requirements for key control system.
    - 4) Requirements for access control.
    - 5) Address for delivery of keys.
- 2. Pre-installation Conference
  - a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - b. Inspect and discuss preparatory work performed by other trades.
  - c. Inspect and discuss electrical roughing-in for electrified door hardware.
  - d. Review sequence of operation for each type of electrified door hardware.
  - e. Review required testing, inspecting, and certifying procedures.
  - f. Review questions or concerns related to proper installation and adjustment of door hardware.
- 3. Electrified Hardware Coordination Conference:
  - a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
- C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
- D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

- E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

#### 1.06 COORDINATION

- A. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- B. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- C. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

#### 1.07 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
  - 1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
  - 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.
    - a. Mechanical Warranty
      - 1) Locks
        - a) 10 years
      - 2) Closers
        - a) 30 years

#### 1.08 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. The Owner requires use of certain products for their unique characteristics and project suitability to ensure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."

1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.
- B. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance with section 01 25 00.
- C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

## 2.02 MATERIALS

### A. Fabrication

1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer's recognized installation standards for application intended.
2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.
- B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
  1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

## 2.03 HINGES

### A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
  - a. Ives 5BB series
2. Acceptable Manufacturers and Products:
  - a. Hager BB1191/1279 series
  - b. McKinney TB series

### B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
  - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
  - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high

4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
  - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
  - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
  - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
  - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
  - a. Steel Hinges: Steel pins
  - b. Non-Ferrous Hinges: Stainless steel pins
  - c. Out-Swinging Exterior Doors: Non-removable pins
  - d. Out-Swinging Interior Lockable Doors: Non-removable pins
  - e. Interior Non-lockable Doors: Non-rising pins
9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

## 2.04 MORTISE LOCKS

### A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
  - a. Schlage L9000 series
2. Acceptable Manufacturers and Products:
  - a. Best 45H series
  - b. Marshall Best RW series

### B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches. Provide motor based electrified and motor based latch retraction locksets that comply with the following requirements:
  - a. Universal input voltage – single chassis accepts 12 or 24VDC to allow for changes in the field without changing lock chassis.

- b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and electrically unlocked (fail secure) is field selectable without opening the lock case
  - c. Low maximum current draw – maximum 0.4 amps (Lever control) and maximum 2.0 amps (Latch retraction) to allow for multiple locks on a single power supply.
  - d. Low holding current (Lever control or latch retraction) – maximum 0.01 amps to produce minimal heat, eliminate “hot levers” in electrically locked applications and motorized latch retraction applications, and to provide reliable operation in wood doors that provide minimal ventilation and air flow.
  - e. Connections – provide quick-connect Molex system standard.
8. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
- a. Lever Design: 03N

## 2.05 CYLINDERS

### A. Manufacturers and Products:

- 1. Scheduled Manufacturer:
  - a. Falcon
- 2. Acceptable Manufacturers and Products:
  - a. Best

### B. Requirements:

- 1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset; manufacturer’s series as indicated. Refer to “KEYING” article, herein.
- 2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
  - a. Open: cylinder with small format interchangeable core (SFIC) core with open keyway

## 2.06 KEYING

### A. Scheduled System:

- 1. Existing non-factory registered system:
  - a. Provide cylinders/cores keyed into Owner’s existing keying system managed by Owner’s locksmith, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference. Contact:
    - 1) Firm Name: The Ohio State University FOD’s Lock & Key Services.

### B. Requirements:

- 1. Permanent Keying:
  - a. Provide permanent cores keyed by the manufacturer according to the following key system.
    - 1) Master Keying system as directed by the Owner.
  - b. OSU FOD’s Lock & Key Services will provide the key bitting information directly to the manufacturer as described below.
  - c. Provide keys with the following features:
    - 1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)

- d. Identification:
    - 1) Mark permanent cores (Visual Core Control) and keys (Visual Key Control) with industry standard key set symbol for identification.
    - 2) Identification stamping provisions must be approved by the Owner.
    - 3) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
    - 4) Forward permanent cores to OSU FOD's Lock & Key Services, packaged separately from keys, by means as directed by Owner.
  - e. Quantity: Furnish in the following quantities.
    - 1) Change (Day) Keys: 2 per core.
    - 2) Provide 2 cut key per key symbol and balance as blanks (included Custom stamping)
2. Construction Keying:
- a. Replaceable Construction Cores.
    - 1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
      - a) 3 construction control keys
      - b) 12 construction change (day) keys.
    - 2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.
    - 3) Damage caused to locks and components due to failure to utilize construction cores will be repaired at no cost to the project.
- C. Ordering Process:
- 1. Falcon(provided by Allegion)
    - a. The Distributor (Supplier of the door hardware) is to provide a keying schedule of the cores required for the project, to OSU FOD Lock & Key Services. This keying schedule is to include the door number, the number of cores required for the opening, and the part number for the core(s) on that door.
    - b. OSU FOD Lock & Key Services will provide the appropriate key symbols(s), key mark(s), for each door to the distributor to order the cores.
    - c. OSU FOD Lock & Key Services will create a bitting report, report containing key symbol and the bitting code, for each key symbol that is included on the keying schedule. This bitting report will be provided to an Allegion Representative. The Allegion Representative will submit this bitting report to the Allegion Factory for processing with the order that is submitted by the distributor.
  - 2. Best (provided by Dorma Kaba)
    - a. Distributor (Supplier of the door hardware) is to provide a keying schedule of the cores required for the project, to OSU FOD Lock & Key Services. This keying schedule is to include the door number, the number of cores required for the opening, and the part number for the core(s) on that door.
    - b. OSU FOD Lock & Key Services will provide the appropriate key symbols(s), key mark(s), for each door to the distributor to order the cores.
    - c. OSU FOD Lock & Key Services will create a bitting report, report containing key symbol and the bitting code, for each key symbol that is included on the keying schedule. This bitting report will be provided to an Best/Dorma Kaba Representative. The Best/Dorma Kaba Representative will submit this bitting report to the Best Factory for processing with the order that is submitted by the distributor.
  - 3. Shipping:
    - a. Ship all keys and cores to the following.
      - 1) OSU FOD Lock & Key Services, Room 050 Central Service Building 2003 Millikin Rd. Columbus, OH 43210

- b. Ship keys separate from cores.

## 2.07 DOOR CLOSERS

### A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
  - a. LCN 4040XP series
2. Acceptable Manufacturers and Products:
  - a. No Substitute

### B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter piston with 5/8-inch (16 mm) diameter double heat-treated pinion journal. QR code with a direct link to maintenance instructions.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards. Provide snap-on cover clip, with plastic covers, that secures cover to spring tube.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck. Provide graphically labelled instructions on the closer body adjacent to each adjustment valve. Provide positive stop on reg valve that prevents reg screw from being backed out.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

## 2.08 PROTECTION PLATES

### A. Manufacturers:

1. Scheduled Manufacturer:
  - a. Ives
2. Acceptable Manufacturers:
  - a. Burns
  - b. Trimco

### B. Requirements:



1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

## 2.09 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

### A. Manufacturers:

1. Scheduled Manufacturers:
  - a. Glynn-Johnson
2. Acceptable Manufacturers:
  - a. Rixson
  - b. Sargent

### B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop.

## 2.10 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

### A. Manufacturers:

### B. Scheduled Manufacturer:

1. Zero International

### C. Acceptable Manufacturers:

1. National Guard
2. Reese

### D. Seals and Gasketing: Provide continuous gasketing on exterior openings, to the head and jambs, forming a continuous seal between the door and the frame. Provide smoke, light, or sound gasketing on interior doors where indicated.

1. Provide self-tapping fasteners for aluminum extruded gasketing being applied to hollow metal frames.
  - a. Provide non-corrosive fasteners for all exterior applications.
  - b. Provide security fasteners where indicated.
2. Provide neoprene, EPDM, silicone, or nylon brush inserts as specified in hardware sets. Provide non brush inserts of solid or sponge cell, as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.

### E. Smoke Labeled Gasketing: At all smoke labeled openings, provide smoke listed perimeter gasketing assemblies complying with NFPA 105 listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for smoke control ratings indicated based on testing according to UL 1784.

- F. Fire Listed Gasketing: Assemblies complying with NFPA 80 that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction for fire ratings indicated based on testing according to UL-10C.
  - 1. Where frame-applied intumescent seals are required by the manufacturer, provide gaskets that comply with UL10C Standard for Positive Pressure Fire Tests of Door Assemblies and UBC 7-2, Fire Tests of Door Assemblies.
- G. Sound-Rated Gasketing: Provide acoustic gasketing to meet Sound Transmission Class (STC) rating required.
- H. Meeting-Stile Gasketing: Provide meeting-stile gasketing that fastens to the meeting stiles forming a continuous seal when doors are closed.
- I. Door Sweeps or Shoes: Apply to the bottom of the door to close the gap between the door bottom and finished floor or saddle threshold.
  - 1. Provide solid neoprene, EPDM, silicone, or nylon brush type of seal as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.
- J. Automatic Door Bottoms:
  - 1. Provide closed cell sponge, bulb neoprene. or EPDM type of seal as specified in hardware sets.
  - 2. Door bottom to be mortised, semi mortised, or surface mount as with a minimum thickness as specified in hardware sets.
- K. Rain Drips:
  - 1. Provide overhead rain drips for out-swinging hollow metal doors that are not covered against 45 degree blowing rain. Aluminum extrusion to be a minimum of .088 inches thick and extend 2.50 inches from the face of the frame, in anodized finish to match door.
  - 2. Door sweeps or shoes with integral rain drip must meet ADA requirements
- L. Thresholds: Provide threshold units not less than 4 inches wide, formed to accommodate change in floor elevation where indicated, and fabricated to accommodate door hardware and fit door frames.
  - 1. Threshold extrusion to be a minimum thickness as specified in hardware sets.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
  - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
  - 2. Custom Steel Doors and Frames: HMMA 831.
  - 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
  - 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.
- C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
- I. Lock Cylinders:
  - 1. Install construction cores to secure building and areas during construction period.
  - 2. Replace construction cores with permanent cores as indicated in keying section.
  - 3. Furnish permanent cores to Owner for installation.
- J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:
  - 1. Conduit, junction boxes and wire pulls.
  - 2. Connections to and from power supplies to electrified hardware.
  - 3. Connections to fire/smoke alarm system and smoke evacuation system.
  - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
  - 5. Connections to panel interface modules, controllers, and gateways.
  - 6. Testing and labeling wires with Architect's opening number.
- K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- L. Continuous Hinges: Re-locate the door and frame fire rating labels where they will remain visible so that the hinge does not cover the label once installed.

- M. Door Closers & Auto Operators: Mount closers/operators on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers/operators so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- N. Overhead Stops/Holders: Mount overhead stops/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- O. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- P. Thresholds:
  - 1. Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
  - 2. Aluminum thresholds to be cut-in, and scribed around mullions, frame members, and stops. Do not butt to thresholds. Provide a continuous surface across full width of opening from jamb to jamb.
  - 3. Where aluminum panic-type (rabbeted) thresholds with neoprene inserts are specified, undercut doors as required to properly mate with seal in threshold.
- Q. Stops: Provide as detailed in the hardware sets.
- R. Perimeter Gasketing:
  - 1. Apply to head and jamb, forming seal between door and frame.
  - 2. Install gasketing in a manner eliminating need to cut any seal to install surface mounted hardware. Install compatible mounting bracket for surface mounted hardware unless minimum 1/4 inch thick solid aluminum seals are provided for mounting of surface applied hardware.
- S. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- T. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

### 3.03 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
  - 1. Spring Hinges: Adjust to achieve positive latching when door can close freely from an open position of 30 degrees.
  - 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
  - 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

### 3.04 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items per manufacturer's instructions to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

### 3.05 DOOR HARDWARE SCHEDULE

- A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.
- C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets:

143245 OPT0460973 Version 1

Hardware Group No. 01

Provide each SGL door(s) with the following:

| QTY |    | DESCRIPTION      | CATALOG NUMBER                     | FINISH | MFR |
|-----|----|------------------|------------------------------------|--------|-----|
| 4   | EA | HINGE            | 5BB1 4.5 X 4.5                     | 652    | IVE |
| 1   | EA | STOREROOM LOCK   | L9080L 03N                         | 626    | SCH |
| 1   | EA | MORTISE CYLINDER | C987 (CAM & BLOCKING RING AS REQ.) | 626    | FAL |
| 1   | EA | SFIC CORE        | CB809                              | 626    | FAL |
| 1   | EA | OH STOP          | 100S                               | 630    | GLY |
| 1   | EA | SURFACE CLOSER   | 4040XP REG OR PA AS REQ            | 689    | LCN |
| 1   | EA | KICK PLATE       | 8400 8" X 1 1/2" LDW B-CS          | 630    | IVE |
| 1   | EA | GASKETING        | 488SBK PSA                         | BK     | ZER |

END OF SECTION

**SECTION 092116  
GYPSUM BOARD ASSEMBLIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Performance criteria for gypsum board assemblies.
- B. Metal stud wall framing.
- C. Metal channel ceiling framing.
- D. Acoustic insulation.
- E. Gypsum wallboard.
- F. Joint treatment and accessories.
- G. Flexible Gypsum Panels

**1.02 RELATED REQUIREMENTS**

- A. Section 024100 - Demolition
- B. Section 054000 - Cold-Formed Metal Framing: Structural steel stud framing.
- C. Section 061000 - Rough Carpentry: Wood blocking product and execution requirements.
- D. Section 072100 - Thermal Insulation: Acoustic insulation.
- E. Section 078400 - Firestopping: Top-of-wall assemblies at fire-resistance-rated walls.

**1.03 REFERENCE STANDARDS**

- A. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members; 2016, with Supplement (2020).
- B. AISI S220 - North American Standard for Cold-Formed Steel Nonstructural Framing; 2020.
- C. AISI S240 - North American Standard for Cold-Formed Steel Structural Framing; 2015, with Errata (2020).
- D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
- E. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2015.
- F. ASTM C1007 - Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories; 2020.
- G. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017 (Reapproved 2022).
- H. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2023.
- I. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.
- J. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2020.
- K. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2022.
- L. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2022.
- M. ASTM C1278/C1278M - Standard Specification for Fiber-Reinforced Gypsum Panel; 2017.
- N. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.

- O. ASTM C1629/C1629M - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels; 2019.
- P. ASTM C1658/C1658M - Standard Specification for Glass Mat Gypsum Panels; 2019, with Editorial Revision (2020).
- Q. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.
- R. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009 (Reapproved 2016).
- S. ASTM E413 - Classification for Rating Sound Insulation; 2022.
- T. GA-216 - Application and Finishing of Gypsum Panel Products; 2021.

#### **1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data:
  - 1. Provide data on metal framing, gypsum board, accessories, and joint finishing system.
  - 2. Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.
- C. Test Reports: For stud framing products that do not comply with AISI S220 or ASTM C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

#### **1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: Company specializing in performing work of the type specified and with at least 5 years of documented experience.

### **PART 2 PRODUCTS**

#### **2.01 GYPSUM BOARD ASSEMBLIES**

- A. Provide completed assemblies complying with ASTM C840 and GA-216.
- B. Interior Partitions, Indicated as Acoustic: Provide completed assemblies with the following characteristics:
  - 1. Acoustic Attenuation: STC of 50-54 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- C. Shaft Walls at Elevator Shafts: Provide completed assemblies with the following characteristics:
  - 1. Air Pressure Within Shaft: Intermittent loads of 5 lbf/sq ft (0.24 kPa) with maximum mid-span deflection of L/240.
  - 2. Acoustic Attenuation: STC of 35-39 calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.
- D. Fire-Resistance-Rated Assemblies: Provide completed assemblies as indicated on drawings.

#### **2.02 METAL FRAMING MATERIALS**

- A. Steel Sheet: ASTM A1003/A1003M, subject to the ductility limitations indicated in AISI S220 or equivalent.
- B. Manufacturers - Metal Framing, Connectors, and Accessories:
  - 1. ClarkDietrich: [www.clarkdietrich.com/#sle](http://www.clarkdietrich.com/#sle).
  - 2. MarinoWARE: [www.marinoware.com/#sle](http://www.marinoware.com/#sle).
  - 3. Phillips Manufacturing Co: [www.phillipsmfg.com/#sle](http://www.phillipsmfg.com/#sle).
- C. Nonstructural Framing System Components: AISI S220; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf (L/120 at 240 Pa).
  - 1. Studs: C-shaped with knurled or embossed faces.

2. Runners: U shaped, sized to match studs.
  3. Ceiling Channels: C-shaped.
  4. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch (22 mm).
  5. Resilient Furring Channels: Single or double leg configuration; 1/2 inch (13 mm) channel depth.
- D. Shaft Wall Studs and Accessories: AISI S220; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 and specified performance requirements.
- E. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection and prevent rotation of studs while maintaining structural performance of partition.
1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100.
  2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot-dipped galvanized coating.
  3. Provide components UL-listed for use in UL-listed fire-resistance-rated head of partition joint systems indicated on drawings.

## 2.03 BOARD MATERIALS

- A. Manufacturers - Gypsum-Based Board:
1. American Gypsum Company: [www.americangypsum.com/#sle](http://www.americangypsum.com/#sle).
  2. CertainTeed Corporation: [www.certainteed.com/#sle](http://www.certainteed.com/#sle).
  3. Georgia-Pacific Gypsum: [www.gpgypsum.com/#sle](http://www.gpgypsum.com/#sle).
  4. Gold Bond Building Products, LLC provided by National Gypsum Company: [www.goldbondbuilding.com/#sle](http://www.goldbondbuilding.com/#sle).
  5. USG Corporation: [www.usg.com/#sle](http://www.usg.com/#sle).
- B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
  2. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
  3. Thickness:
    - a. Vertical Surfaces: 5/8 inch (16 mm).
    - b. Ceilings: 5/8 inch (16 mm).
    - c. Multi-Layer Assemblies: Thicknesses as indicated on drawings or per the UL Assembly.
- C. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Ceilings, unless otherwise indicated.
  2. Thickness: 5/8".
  3. Edges: Tapered.
  4. Products:
    - a. Georgia-Pacific Gypsum; ToughRock Span 24 Ceiling Board: [www.gpgypsum.com/#sle](http://www.gpgypsum.com/#sle).
- D. Shaftwall and Coreboard: Type X; 1 inch (25 mm) thick by 24 inches (600 mm) wide, beveled long edges, ends square cut.
1. Glass Mat Faced Type: Glass mat shaftliner gypsum panel or glass mat coreboard gypsum panel as defined in ASTM C1658/C1658M.
  2. Glass Mat Faced Products:
    - a. American Gypsum Company; M-Glass Shaft Liner: [www.americangypsum.com/#sle](http://www.americangypsum.com/#sle).
    - b. CertainTeed Corporation; GlasRoc Shaftliner Type X: [www.certainteed.com/#sle](http://www.certainteed.com/#sle).
    - c. Georgia-Pacific Gypsum; DensGlass Shaftliner (mold-resistant): [www.gpgypsum.com/#sle](http://www.gpgypsum.com/#sle).



- d. USG Corporation; Sheetrock Brand Glass-Mat Liner Panels Mold Tough 1 in. (25.4 mm): [www.usg.com/#sle](http://www.usg.com/#sle).

## **2.04 GYPSUM BOARD ACCESSORIES**

- A. Acoustic Insulation: ASTM C665; preformed mineral-fiber, friction fit type, unfaced; thickness 2 inches (51 mm).
- B. Acoustic Insulation: See Section 072100.
- C. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
- D. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches (0.84 mm) in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.
- E. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch (0.84 to 2.84 mm) in Thickness: ASTM C954; steel drill screws, corrosion-resistant.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that project conditions are appropriate for work of this section to commence.

### **3.02 SHAFT WALL INSTALLATION**

- A. Shaft Wall Framing: Install in accordance with manufacturer's installation instructions.
  - 1. Install studs at spacing required to meet performance requirements.
- B. Shaft Wall Liner: Cut panels to accurate dimensions and install sequentially between special friction studs.

### **3.03 FRAMING INSTALLATION**

- A. Metal Framing: Install in accordance with ASTM C1007/AISI S220 and manufacturer's instructions.
- B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
- C. Studs: Space studs at 16 inches on center (at 406 mm on center).
  - 1. Extend partition framing to structure where indicated and to ceiling in other locations.
  - 2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
  - 3. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.
- D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.
- E. Blocking: Install wood blocking for support of:
  - 1. Framed openings.
  - 2. Wall-mounted door hardware.

### **3.04 ACOUSTIC ACCESSORIES INSTALLATION**

- A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.
- B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
  - 1. Place one bead continuously on substrate before installation of perimeter framing members.
  - 2. Place continuous bead at perimeter of each layer of gypsum board.

### **3.05 BOARD INSTALLATION**

- A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Fire-Resistance-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

### **3.06 INSTALLATION OF TRIM AND ACCESSORIES**

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
  - 1. Not more than 30 feet (10 meters) apart on walls and ceilings over 50 feet (16 meters) long.
- B. Corner Beads: Install at external corners, using longest practical lengths.
- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

### **3.07 JOINT TREATMENT**

- A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
  - 1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
  - 2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
  - 3. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.
  - 4. Level 0: Temporary partitions.
- B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
  - 1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).
- C. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

### **3.08 TOLERANCES**

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet (3 mm in 3 m) in any direction.

**END OF SECTION**

**SECTION 096500  
RESILIENT FLOORING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Resilient sheet flooring.
- B. Resilient base.
- C. Installation accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions.

**1.03 REFERENCE STANDARDS**

- A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2025a.
- B. ASTM F1303 - Standard Specification for Sheet Vinyl Floor Covering with Backing; 2004 (Reapproved 2021).
- C. ASTM F1861 - Standard Specification for Resilient Wall Base; 2021.
- D. ASTM F1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing; 2019.
- E. ASTM F2034 - Standard Specification for Sheet Linoleum Floor Covering; 2018.
- F. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2023.
- G. NSF 332 - Sustainability Assessment for Resilient Floor Coverings; 2022.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
- C. Shop Drawings: Indicate seaming plans and floor patterns.
- D. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.
- E. Verification Samples: Submit two samples, \_\_\_ by \_\_\_ inch (\_\_\_ by \_\_\_ mm) in size illustrating color and pattern for each resilient flooring product specified.
- F. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 016000 - Product Requirements, for additional provisions.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.
- B. Store all materials off of the floor in an acclimatized, weather-tight space.

**PART 2 PRODUCTS**

**2.01 SHEET FLOORING**

- A. Linoleum Sheet Flooring - Type SF-1: Homogeneous wear layer bonded to backing, with color and pattern through wear layer thickness.
  - 1. Manufacturers:
    - a. Tarkett Flooring - Basis of Design
    - b. Armstrong Flooring: [www.armstrongflooring.com/#sle](http://www.armstrongflooring.com/#sle).

- c. Forbo Flooring, Inc: [www.forboflooringna.com/#sle](http://www.forboflooringna.com/#sle).
  - d. Johnsonite, a Tarkett Company: [www.johnsonite.com/#sle](http://www.johnsonite.com/#sle).
- 2. Minimum Requirements: Comply with ASTM F2034, Type corresponding to type specified.
- 3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
- 4. Backing: Jute fabric.
- 5. Thickness: 0.100 inch (2.5 mm), minimum, excluding backing.
- 6. Sheet Width: 79 inch (2000 mm), minimum.
- 7. Seams: Heat welded.
- 8. Pattern: Marbleized.
- 9. Color: As indicated on drawings.
- B. Welding Rod: Solid bead in material compatible with flooring, produced by flooring manufacturer for heat welding seams, and in color matching field color.

## **2.02 RESILIENT BASE**

- A. Resilient Base: ASTM F1861, Type TS, rubber, vulcanized thermoset; style as scheduled.
  - 1. Manufacturers:
    - a. Johnsonite, a Tarkett Company: [www.johnsonite.com/#sle](http://www.johnsonite.com/#sle).
    - b. Mannington Commercial: [www.manningtoncommercial.com/#sle](http://www.manningtoncommercial.com/#sle).
    - c. Roppe Corporation; Contours Profiled Wall Base System: [www.roppe.com/#sle](http://www.roppe.com/#sle).
  - 2. Height: 4 inches (100 mm).
  - 3. Thickness: 0.125 inch (3.2 mm).
  - 4. Finish: Satin.
  - 5. Color: To be selected by Architect from manufacturer's full range.

## **2.03 ACCESSORIES**

- A. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.
- B. Adhesive for Vinyl Flooring:
  - 1. Per flooring manufacturer's requirements.
- C. Moldings, Transition and Edge Strips: Same material as flooring where applicable. Rubber transition strips at carpet.
  - 1. Product: Rubber Transition strips; T Moulding CD-XX manufactured by Johnsonite. (Basis of Design - or equal)

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.
- C. Verify that required floor-mounted utilities are in correct location.

### **3.02 PREPARATION**

- A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.
- B. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.
- C. Prohibit traffic until filler is fully cured.

### **3.03 INSTALLATION - GENERAL**

- A. Starting installation constitutes acceptance of subfloor conditions.

- B. Install in accordance with manufacturer's written instructions.
- C. Adhesive-Applied Installation:
  - 1. Spread only enough adhesive to permit installation of materials before initial set.
  - 2. Fit joints and butt seams tightly.
  - 3. Set flooring in place, press with heavy roller to attain full adhesion.
- D. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.
- E. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
- F. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

#### **3.04 INSTALLATION - SHEET FLOORING**

- A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns at seams.
- B. Seal seams by heat welding where indicated.

#### **3.05 INSTALLATION - RESILIENT BASE**

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches (45 mm) between joints.
- B. Site form internal and external corners with joints minimum 18" from corners.
- C. Terminal ends of base shall be beveled and toes rounded.
- D. Install base on solid backing. Bond tightly to wall and floor surfaces.
- E. Scribe and fit to door frames and other interruptions.

#### **3.06 CLEANING**

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean in accordance with manufacturer's written instructions.

#### **3.07 PROTECTION**

- A. Prohibit traffic on resilient flooring for 48 hours after installation.

**END OF SECTION**

**SECTION 099123  
INTERIOR PAINTING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
  - 1. Elevator pit ladders.
  - 2. Mechanical and Electrical:
    - a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
- D. Do Not Paint or Finish the Following Items:
  - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
  - 2. Items indicated to receive other finishes.
  - 3. Items indicated to remain unfinished.
  - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
  - 5. Fire-treated plywood backboards for electrical and telecom equipment, where located in electrical/mechanical or telecom rooms.
  - 6. Floors, unless specifically indicated.
  - 7. Glass.
  - 8. Concealed pipes, ducts, and conduits.

**1.02 RELATED REQUIREMENTS**

- A. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions.
- B. Section 055000 - Metal Fabrications: Shop-primed items.

**1.03 REFERENCE STANDARDS**

- A. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
  - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").
  - 2. MPI product number (e.g., MPI #47).
  - 3. Cross-reference to specified paint system products to be used in project; include description of each system.
- C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.
  - 1. Where sheen is specified, submit samples in only that sheen.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Paints:
  - 1. Base Manufacturer: Sherwin-Williams Company.
  - 2. Behr Process Corporation: [www.behr.com/#sle](http://www.behr.com/#sle).

3. Pittsburgh Paints: [www.ppgpaints.com/#sle](http://www.ppgpaints.com/#sle).
4. Sherwin-Williams Company: [www.sherwin-williams.com/#sle](http://www.sherwin-williams.com/#sle).

## **2.02 PAINTS AND FINISHES - GENERAL**

- A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.
  1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
  2. Supply each paint material in quantity required to complete entire project's work from a single production run.
  3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content: See Section 016116.
- C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Test shop-applied primer for compatibility with subsequent cover materials.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
  1. Gypsum Wallboard: 12 percent.

### **3.02 PREPARATION**

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Concrete:
  1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
  2. Prepare surface as recommended by top coat manufacturer and according to SSPC-SP 13.
- F. Masonry:
  1. Remove efflorescence and chalk. Do not coat surfaces if moisture content, alkalinity of surfaces, or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
  2. Prepare surface as recommended by top coat manufacturer.
- G. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

### **3.03 APPLICATION**

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- F. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

**3.04 CLEANING**

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

**3.05 PROTECTION**

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

**END OF SECTION**



## **SECTION 101419 DIMENSIONAL LETTER SIGNAGE**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES**

- A. Room and door sign types in accordance with the attached THE OHIO STATE UNIVERSITY FACILITIES OPERATIONS and DEVELOPMENT BUILDING DESIGN STANDARDS: SIGNAGE REQUIREMENTS AND SCHEDULE
- B. Interior directional and informational signs.

#### **1.02 REFERENCE STANDARDS**

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.
- B. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.
- C. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

#### **1.03 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Manufacturer's product literature for each type of dimensional letter sign, indicating style, font, colors, locations, and overall dimensions of each sign.
- C. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
  - 1. When content of signs is indicated to be determined later, request such information from University through Architect prior to start of fabrication; upon request, submit preliminary schedule.
  - 2. Submit for approval by University through Architect prior to fabrication.
- D. Verification Samples: Submit samples showing colors and finishes specified.

#### **1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Package dimensional letter signs as required to prevent damage before installation.
- B. Package room and door signs in sequential order of installation, labeled by floor or building.
- C. Store tape adhesive at a normal room temperature of 68 to 72 degrees F (20 to 22 degrees C).

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Flat Signs:
  - 1. UniPrint (<https://uniprint.osu.edu/>) shall provide and install all signage for this project. Contractor to enter into an agreement with UniPrint for this scope of work..

#### **2.02 REGULATORY REQUIREMENTS**

- A. Accessibility Requirements: Comply with ADA Standards and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most restrictive requirements.
- B. Interior Directional and Informational Signs:
  - 1. Sign Type: Reference OSU Building Design Standards - Appendix S, excerpts as attached to this specification section.

#### **2.03 SIGN TYPES**

- A. Refer to attached SIGNAGE REQUIREMENTS after this specification. Signage types include:
  - 1. Interior Room Signs - Type IN-1.
  - 2. Safety/Fire Signs for use of identifying fire extinguisher locations - Type IN-10

3. Safety/Fire Signs for use of identifying special rooms (Elevator Machine Rooms) - Type IN-13.
4. Elevator Door Jamb Plate - Type IN-17

#### **2.04 TACTILE SIGNAGE MEDIA**

- A. Relief Engraved Panels: Per attached THE OHIO STATE UNIVERSITY FACILITIES OPERATIONS and DEVELOPMENT BUILDING DESIGN STANDARDS: SIGNAGE REQUIREMENTS AND SCHEDULE
  1. Total Thickness: 1/8 inch.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that substrate surfaces are ready to receive work.
- B. Notify Architect if conditions are not suitable for installation of signs; do not proceed until conditions are satisfactory.

#### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install with horizontal edges level.
- C. Locate signs as coordinated with University.
- D. Protect from damage until Date of Substantial Completion; repair or replace damaged items.

#### **3.03 SIGNAGE SCHEDULE:**

- A. Provide signage at every Elevator Machine Room Entrance per code.
- B. Provide signage at every fire extinguisher in Elevator Machine rooms.

**END OF SECTION**

**SECTION 104400  
FIRE PROTECTION SPECIALTIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fire extinguishers.
- B. Self-service reloadable fire extinguishers.
- C. Accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 061000 - Rough Carpentry: Wood blocking product and execution requirements.
- B. Section 099000 - Painting and Coating: Field paint finish.

**1.03 REFERENCE STANDARDS**

- A. FM (AG) - FM Approval Guide; Current Edition.
- B. NFPA 10 - Standard for Portable Fire Extinguishers; 2022.
- C. UL (DIR) - Online Certifications Directory; Current Edition.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

**1.05 FIELD CONDITIONS**

- A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Fire Extinguishers:
  - 1. Ansul, a Tyco Business: [www.ansul.com/#sle](http://www.ansul.com/#sle).
  - 2. Kidde, a unit of United Technologies Corp: [www.kidde.com/#sle](http://www.kidde.com/#sle).
  - 3. Nystrom, Inc: [www.nystrom.com/#sle](http://www.nystrom.com/#sle).
  - 4. Pyro-Chem, a Tyco Business: [www.pyrochem.com/#sle](http://www.pyrochem.com/#sle).

**2.02 FIRE EXTINGUISHERS**

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
  - 1. Provide extinguishers labeled by UL (DIR) or FM (AG) for purpose specified and as indicated.
- B. Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.
  - 1. Class: A:B:C type.
  - 2. Size: 10 pound (4.54 kg).
  - 3. Temperature range: Minus 40 degrees F (Minus 40 degrees C) to \_\_\_\_ degrees F (\_\_\_\_ degrees C).

**2.03 ACCESSORIES**

- A. Extinguisher Brackets: Formed steel, chrome-plated.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify existing conditions before starting work.
- B. Verify rough openings for cabinet are correctly sized and located.

**3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Place extinguishers in cabinets.

**END OF SECTION**

**SECTION 142400**  
**HYDRAULIC ELEVATOR MODERNIZATION**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section includes modernization of hydraulic elevators as follows:
  - 1. One (1) passenger elevator, Car 1
- B. Products Installed but Not Furnished Under This Section:
  - 1. CCTV camera provisions.
  - 2. Elevator security devices, control unit, mounting brackets, wiring materials, logic circuits, security system interface terminals, boxes, and relays.
  - 3. Car flooring.

**1.2 DEFINITIONS**

- A. Technical terms used are defined in the latest edition of the Safety Code for Elevators and Escalators, ASME A17.1. or in this section.
- B. ELEVATOR CONSULTANT or CONSULTANT refers to Lerch Bates Inc. (Lerch Bates).
- C. PROVIDE means “furnish and install.”
- D. MANUFACTURER means either the Original Equipment Manufacturer (OEM) or the principal manufacturer of a component or system.
- E. RETAIN means, unless otherwise specified, the existing equipment is to be left in place with no alterations and no change in the original manufacturer’s designed performance or functionality. Items that are “retained” shall be thoroughly cleaned in place and adjusted to achieve originally designed function.
- F. REFURBISH means, unless otherwise specified, the existing equipment is to be cleaned, repainted, repaired, and parts replaced to put the equipment into a condition to provide the same appearance, performance, and functionality as the equipment provided when it was originally installed. Unless otherwise specified, the scope of replacement of components is limited to those items currently available for purchase as replacement parts from the manufacturer or after-market suppliers approved by the manufacturer.
- G. REUSE means that the Contractor shall carefully remove equipment from the existing installation, avoiding any damage or additional wear. Store in a safe location to maintain equipment in its pre-removal condition. Reinstall and incorporate into the modernized elevator installation using the same procedures and recommendations provided by the manufacturer of the equipment.
- H. CALL BACK means a request from the Owner to the Contractor to provide a technician on site to evaluate an elevator that is out of service or not functioning properly, rectify the root cause of the malfunction, and place the unit back into normal service.

- I. INCLUDES or INCLUDING means including the items specified but not limited solely to those items if additional work or components are required to achieve the specified outcome.
- J. Words in the singular shall include the plural whenever applicable or context so indicates.

### 1.3 WORK INCLUDED

- A. Provide all labor, engineering, tools, transportation, services, supervision, materials, and equipment necessary for and incidental to satisfactory completion of required work as indicated in Contract Documents.
- B. Provide all required staging, hoisting and movement of new equipment, reused equipment, or removal of existing equipment.
- C. Applicable conditions of Owner's General, Special, and Supplemental Conditions.
- D. Scope of work includes, but is not limited to, the following:
  - 1. Coordination, scheduling, and management of work of component suppliers and subcontractors.
  - 2. Furnish and install equipment as specified, utilizing existing hoistway and new machine room.

### 1.4 ALLOWANCES

- 1. Not required.

### 1.5 ALTERNATES

- A. Not Required.

### 1.6 RELATED WORK

- A. Hoistway and Pit:
  - 1. Wall blockouts and fire rated closure for control and signal fixture boxes which penetrate walls. All cutting and patching of existing construction as required for the complete installation of the elevators is the responsibility of the Elevator Contractor.
  - 2. Cutting and patching walls and floors. All cutting and patching of existing construction as required for the complete installation of the elevators is the responsibility of the Elevator Contractor.
  - 3. Paint pit walls and floors up to first landing sill.
  - 4. Pit lighting adequate to meet code required 10fc throughout pit area.
  - 5. One GFCI receptacle per elevator in pit.
  - 6. One Non-GFCI receptacle for pit each sump pump, including sump pump pit.
  - 7. Waterproof pit.
    - a. Indirect waste drain or sump with flush grate and pump.
    - b. Sump pump/drain capacity minimum 3000 gallons per hour, per elevator.
  - 8. Protect open hoistways and entrances during construction per OSHA Regulations.
  - 9. Protect car enclosure, hoistway entrance assemblies, and special metal finishes from damage.
  - 10. Hoistway venting modification:
    - a. If currently vented through machine room vent and not required, the vent will need covered or vented to outside air in rated assembly.

- 1) When required, install new hoistway venting power louvered vent to outside.
  - 2) Power vent to be normally closed and powered open. Default open with fire recall, smoke detector activation or loss of power.
11. Patching in the hall for existing hall lanterns. Materials to match existing materials and finish.
  12. Pit water sensing device to be installed in the elevator pit to activate alternate floor recall.
  13. Elevator smoke detectors are not to be installed in the hoistway.
  14. Remove sprinklers in hoistway not required by NFPA.
  15. Relocate equipment that interferes with code compliant pit ladder installation.
- B. Machine Room and Machinery Spaces:
1. Fire rated, Self-closing and locking out swinging access door.
  2. NEW – Ventilation and heating.
    - a. Maintain minimum temperature of 55° F, maximum 90° F.
    - b. Maintain maximum 80% relative humidity, non-condensing.
    - c. HVAC System to be stand alone and separate from the other building HVAC.
  3. Class “ABC” fire extinguisher in each elevator machine room. Refer to Section 10 44 00 or extinguisher type.
  4. Paint machine room floors, ceiling, and walls. Clay brick walls are excluded from the paint requirement and should not be painted.
  5. New – Provide a new infill partition between the machine room and the hoistway as noted in architectural drawings. Offset traction machine to be removed. New fire rated assembly required for hydraulic elevator machine room.
  6. Firestopping and patching of machine room for fire rating. Repair existing and new penetrations.
- C. Electrical Service, Conductors, and Devices (Electrical Contractor to Perform):
1. For the Elevator circuits, Design Engineer shall specify that Contractor shall install, and the PM/CM should enforce and make certain that Main Feeder, Sub-feeder and Branch circuit Protective Devices are selectively coordinated for all possible values of overloads and short circuits for the system. This requirement in compliance with section 620.62 of NEC.
  2. Machine room lighting per code requirements for 19 fc throughout machine room.
    - a. Provide machine room light switch adjacent to machine room out swinging door.
    - b. One light at machine room access stairs to remain on at all times.
    - c. Confirm building code requirements for machine room lighting.
    - d. GFCI convenience outlets in machine room, minimum four outlets provided one on each of the four walls.

Three-phase mainline copper power feeder to terminals of each elevator controller in the machine room with protected lockable “open” disconnecting means.
  3. Single-phase copper power feeder to each elevator controller for car lighting and exhaust blower with individual protected lockable “open” disconnecting means located in machine room.
  4. Emergency telephone line to each dual phone jack demarcation location in the elevator equipment room.
    - a. Box with dual phone jack phone line cover mounted adjacent to each controller. Box to be mounted on equipment room wall, or ceiling. Boxes are not permitted to be attached to the elevator controller.
  5. Fire alarm initiating devices in each elevator lobby, for each group of elevators or single elevator and each machine room to initiate firefighters’ return feature.

- a. Provide alarm initiating signal devices in the elevator equipment room, mounted on ceiling, or wall, near controllers, as indicated on the architectural drawings and confirmed in job coordination meetings. No devices shall be mounted on the elevator controllers. Final connection to devices by alarm contractor. Fire alarm initiating devices in elevator equipment rooms: layout of devices required to meet NFPA 72 – 2016, or the current code year adopted.
- b. Device in machine room to provide signal for general alarm and discrete signal for Phase II firefighters' operation.
6. Main power, emergency power and illumination to install, test and adjust elevator equipment.
7. Electrical contractor shall provide a quantity of four dedicated CAT 6 wire and conduit from each group controller to the nearest phone/data IDF or MDF
8. Fire Alarm speakers with connections to individual control panel in each elevator car and machine room. Fire Alarm speaker for elevator cab to be provided by the Electrical Contractor and installed by the Elevator Contractor
9. Means to automatically disconnect power to affected elevator drive unit and controller prior to activation of machine room fire sprinkler system. The disconnect shall be located on the line side in order to prevent alarms when the elevator mainline is powered "off" for routine elevator maintenance. Contractor to review and comply with NFPA 13 – 8.15.5.3.
  - a. Manual shut-off means shall be located outside bounds of machine room for the fire sprinkler system.
10. Single-phase power feeders to machine room elevator monitoring panel/display unit with single-phase, protected lockable "open" disconnecting means.

NOTE: Electrical contractor to provide means for absorbing regenerated from the elevator drive power during an overhauling load condition per NEC 620.91.

D. Elevator Emergency Power Provisions

1. Emergency power of normal voltage characteristics via normal electrical feeders to run one elevator at a time in the elevator group, at full-rated car speed and capacity
2. Emergency power of normal voltage characteristics via normal electrical feeders to run the elevator at full- rated car speed and capacity.
3. Conductor from auxiliary form "C" dry contacts, located in the emergency power transfer switch to a designated elevator control panel in elevator group 1, 2, and 3. Provide a time delay of 30 - 45 seconds for pre-transfer signal in either direction.
4. Emergency single-phase power to each group controller, and each elevator controller for car lighting, exhaust blower, emergency signaling device, fire announcement speaker.
5. Emergency power shall be supplied to all other code mandated items.

E. Elevator Emergency Battery Lowering, if installed:

1. Battery Standby Power Transfer:
  - a. Electrical contractor to install the required relay on the elevator disconnect for battery rescue operation. Provide wiring and conduit to elevator controller.

1.7 RELATED WORK COORDINATION

A. General:

1. Coordinate the following requirements with the other trades.

B. Electric:

1. Electrical service, outlets, lights, switches in elevator machine rooms and pits.



- C. Sprinklers:
  - 1. Including installation of sprinkler systems in the elevator pits or shaft per NFPA 13.
- D. HVAC:
  - 1. Provide necessary information to General Contractor and coordinate installation of equipment for elevator machine rooms.
- E. Finishes:
  - 1. Cab interiors, hoistway entrances, fixtures.
- F. Elevator Cab Flooring:
  - 1. Material and finish to be specified in other applicable section.
  - 2. Flooring installation must be coordinated to ensure car saddle is installed at proper height (even with finished floor).
- G. Security Equipment:
  - 1. Coordinate location(s) in elevator machine rooms and cabs where cables, conduit, components, etc. for CCTV and/or secure access interface equipment must be installed.
  - 2.

## 1.8 ACTION AND INFORMATION SUBMITTALS

- A. Within thirty calendar days after award of contract and before beginning equipment fabrication submit field verified existing installation information for review.
  - 1. Hydraulic Car Information:
    - a. Existing Total Car Weight:
      - 1) Documented on crosshead data tag, all cars.
      - 2) Field Verified: weigh single cars and one car per group of each identical duty type.
    - b. Estimated Gross Load on Jack
  - 2. Power Confirmation Information: Field verified existing conditions at each elevator main disconnect:
    - a. Actual maximum available voltage and current.
    - b. Verify true earth ground value.
- B. Within thirty calendar days after award of contract and before beginning equipment fabrication submit planned modernization design information, shop drawings, and required material samples for review. Allow thirty calendar days for response to initial submittal.
- C. Indicate equipment lists, reactions, and design information on layouts, including:
  - a. Car:
    - 1) Total car weight to be included on new crosshead data tag.
    - 2) Written confirmation that designed modernization total combined weight of car and rated load:
      - a) Does not vary by more than 5% from that of the original installation.
    - 3) Verify buffer capacity via data tags or known manufacturing data.
  - 2. Power Confirmation Information: Design for existing conditions.
    - a. Motor horsepower and code letter designation.
    - b. Motor starter in-rush current, full load running current, and demand factor.
    - c. Engineered power consumption based on hydraulic elevator with 80 upstarts per hour full load.

- d. Written confirmation that existing electrical provisions are adequate for post modernization installation equipment requirements.
  3. Written confirmation that total planned modernization reactions on building structure do not exceed originally designed reactions by more than 5%. If installation has been altered previously and original car top data tag is missing, confirm that new reactions will not exceed existing reactions. Reaction calculations shall include:
    - a. Gross Load on Jack
    - b. Traveling Cables
    - c. Total Car Weight
    - d. Car Capacity
  4. Product Data, Including:
    - a. Capacities, sizes, performances, operation, control, signal systems operations, safety features, finishes, and similar information.
    - b. Product data for car enclosures and hoistway entrances.
    - c. Product data for signal fixtures, lights, graphics, tactile marking plates, and details of mounting.
    - d. Full details of ascending car protection means and installation.
    - e. Two-way conversation devices.
    - f. Post-modernization machine room heat emissions in BTU.
- D. Shop Drawings:
  1. Fully Dimensioned Fixture Drawings:
    - a. Car operating panels.
    - b. Car floor indicators.
    - c. Hall stations.
    - d. Position indicators.
    - e. Access key switch.
- E. Samples for Initial Selection: For finishes involving surface treatment or paint.
- F. Samples for Verification:
  1. For exposed car, hoistway door and frame, and signal equipment finishes.
  2. Samples of Sheet Materials: 3" (75 mm) square.
  3. Running Trim Members: 4" (100 mm) lengths.
- G. Written Maintenance Control Program (MCP) specifically designed for the equipment included under this contract.
  1. Include any unique or product specific procedures or methods required to inspect or test the equipment.
  2. Identify weekly, bi-weekly, monthly, quarterly, and annual maintenance procedures, including statutory and other required equipment tests.
- H. Submittal review shall not be construed as an indication that submittal is correct or suitable or that the work represented by submittal complies with the Contract Documents. Compliance with Contract Documents, Code requirements, dimensions, fit, and interface with other work is Contractor's responsibility.
- I. Acknowledge and/or respond to review comments within fourteen calendar days of return.
  1. Promptly incorporate required changes due to inaccurate data or incomplete definition so that delivery and installation schedules are not affected.

2. Identify and cloud drawing revisions including Contractor elective revisions on each re-submittal.

- J. Contractor's revision response time is not justification for equipment delivery or installation delay.

#### 1.9 CLOSEOUT SUBMITTALS

##### A. Manufacturer's Warranty:

1. Provide documentation of Manufacturer's Warranty in compliance with Contract Documents.

##### B. Owner's Information:

1. Provide electronic copies (flash drive or Consultant-approved equivalent) of written information necessary for proper maintenance and adjustment of equipment within 30 days following final acceptance. Final retention will be withheld until data is received and reviewed by Consultant. Include the following as minimums:
  - a. Straight-line wiring diagrams of "as-installed" elevator circuits with index of location and function of components. Provide one set reproducible master. Mount one set wiring diagrams on panels, racked, or similarly protected, in elevator machine room. Provide remaining set rolled and in a protective drawing tube. Maintain all drawing sets with addition of all subsequent changes. These diagrams are Owner's property.
  - b. Written Maintenance Control Program (MCP) specifically designed for the equipment included under this contract. Include any unique or product-specific procedures or methods required to inspect or test the equipment. In addition, identify weekly, bi-weekly, monthly, quarterly, and annual maintenance procedures, including statutory and other required equipment tests.
  - c. Lubrication instructions, including recommended grade of lubricants.
  - d. Parts catalogs for all replaceable parts, including ordering forms and instructions.
  - e. Instructions explaining all operating features, including all apparatus in the car and lobby control panels.
  - f. Maintenance Control Program documentation for all equipment.

##### C. Provide Owner with the following:

1. Any interface cards required for equipment maintenance, code mandated testing, and troubleshooting.
2. Four sets of keys for all switches and control features properly tagged and marked.
3. Diagnostic equipment complete with access codes, adjusters' manuals, and set-up manuals for adjustment, diagnosis, and troubleshooting of elevator system, and performance of routine safety tests.

#### 1.10 PERMITS, TESTS, AND CERTIFICATES

##### A. Permits:

1. Secure and pay for all permits required for Work to be performed, including but not limited to:
2. Municipal and State permits.
3. Device or equipment removal permits.
4. Hot works permits.

5. Post, maintain, and renew all permits in compliance with local governmental requirements.
  6. Obtain final close-out of all required permits.
  7. Tests and Inspections: Schedule with the AHJ and perform tests required by Governing Authority in accordance with procedure described in ASME A17.2 Guide for Inspection of Elevators, Escalators, and Moving Walks in the presence of Authorized Representative of the AHJ.
- B. Certificates: Obtain, pay for, and deliver to General Contractor with all temporary and final inspection certificates provided by proper governing authorities.
- C. Violations: Resolve any outstanding violations on record with the AHJ on devices being removed prior to final acceptance by the General Contractor.

#### 1.11 QUALITY ASSURANCE

- A. Compliance with Regulatory Agencies: Comply with most stringent applicable provisions of currently enforced codes, laws, and/or authorities, including revisions and changes in effect including, but not limited to:
1. American Society of Mechanical Engineers:
    - a. ASME A17.1, Safety Code for Elevators, Escalators, and Moving Walks.
    - b. ASME A17.2, Guide for Inspection of Elevators, Escalators, and Moving Walks.
    - c. ASME A17.5, Elevator and Escalator Electrical Equipment.
    - d. ASME A17.6, Standard for Elevator Suspension, Compensation, and Governor Systems.
    - e. ASME A17.7, Performance Based Safety Code for Elevators, Escalators, and Moving Walks.
  2. National Fire Protection Association (NFPA):
    - a. NFPA 70, National Electric Code.
    - b. NFPA 80, Fire Doors and Windows.
    - c. NFPA 101, Life Safety Code.
    - d. NFPA 13, Installation of Sprinkler Systems.
  3. International Building Code (IBC).
  4. Accessibility:
    - a. ADAAG, Americans with Disabilities Act Accessibility Guidelines.
  5. Local Codes:
    - a. State of Ohio
- B. Inspections: Provide access to areas where work is being performed for the Consultant, architect and general contractor at any time throughout the project.

#### 1.12 WARRANTY MAINTENANCE

1. Warranty: Provide special project warranty, signed by Contractor, Installer, and Manufacturer, agreeing to replace/repair/restore defective materials and workmanship of elevator work during warranty period. "Defective" is hereby defined to include, but not by way of limitation, operation or control system failures, performances below required minimums, excessive wear, unusual deterioration or aging of materials or finishes, unsafe conditions, the need for excessive maintenance, abnormal noise or vibration, and similar unusual, unexpected and unsatisfactory conditions.
  - a. The warranty period shall be for 12 months from the date of substantial completion as dated on the substantial completion document received by the university from

- the primary contractor. Each elevator shall receive a final inspection by the State of Ohio, and punch list by the consultant, and the University. The warranty shall include all labor to meet the EMCP requirements, and materials for period of 12 months after the university acceptance and the State of Ohio operating permit is issued.
- b. Provide after-hours on-site coverage to troubleshoot and repair equipment showing continued failures, ongoing passenger entrapment, or other conditions which Owner determines to be unsatisfactory modernization results, until said circumstances are remedied to the owner's satisfaction. The after-hour's coverage for troubleshooting and repair is to be provided to the university at no additional cost.
2. Maintenance: Provide full maintenance service by elevator "Journeymen" and aides in the regular employment of the elevator installer, beginning at 08:00 on the date of the modernization mobilization for the first elevator in the building. The full maintenance elevator service on all elevators will then extend for a period of one-year following University acceptance of the last elevator completed in the building.
- a. Maintenance service shall be in accordance with OSU's current PM specification.
  - b. Include repair/replacement of worn or defective parts or components and lubrication, cleaning and adjusting as required for proper elevator operation in conformance with specified requirements including manufacturer recommendations.
  - c. The installer shall respond within 30 minutes for emergencies or entrapments and within 60 minutes for all other service requests, 24/7. For warranty maintenance and all callbacks, keys shall be picked up and returned at Lincoln Tower. Keys must be returned following completion of the day's service. Timecard for maintenance and service requests shall be submitted with key return. Monthly Firefighter's service testing is included within the PM requirement.
  - d. Maintenance provided under this contract shall include replacement of failed lighting and signal indications and shall not be limited to the scheduled maintenance exam schedule nor to the newly installed equipment.
3. Failure to comply with the terms of the maintenance covered in this specification shall be a penalty of \$300 for each failure to respond within the above limits, and for elevators not restored to service within 48 hours of notification of the reported failure.
- a. The monthly maintenance price per elevator as stated in the bid documents and included in this bid shall be used as the basis for the credit.
- B. The selected elevator contractor will be required to utilize the university's eMCP program.
- 1.13 DELIVERY AND STORAGE
- A. The protection of all equipment and exposed finishes shall be the responsibility of the Elevator Contractor during delivery, handling, and installation until completion of project.
  - B. The Elevator Contractor shall replace damaged materials with new at no additional cost for material and labor to Owner.
  - C. Manufacturers' original packing must adequately protect materials during delivery.

- D. Deliver materials to the site ready for use in the accepted manufacturer's original and unopened containers and packaging, bearing labels as to type of material, brand name, and manufacturer's name. Delivered materials shall be identical to accepted samples.
- E. Store materials in original protective packaging under cover in a dry and clean location off the ground. Remove delivered materials that are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials.
- F. It is the responsibility of the Contractor to properly store and protect all materials in space provided or designated by the Owner against damage, stains, scratches, corrosion, weather, construction debris, and environmental conditions.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS AND PRODUCTS

- A. Subject to compliance with project requirements, provide products by one of the following:
  - 1. Controllers:
    - a. GAL. Galaxy.
  - 2. Passenger Elevator Door Equipment (Operators, Tracks, Hangers and Sill Mounted Closers):
    - a. GAL MOVFR II.
  - 3. Pump Unit:
    - a. Valve Maxton
    - b. Motor: Imperial
  - 4. Elevator Car Enclosures:
    - a. EDI/ECI.
    - b. Elite Cabs.
    - c. Globe Architectural & Metal.
    - d. National.
    - e. Regency Elevator Cabs.
    - f. G & R Elevator
    - g. Fab a Cab
    - h. Snap Cabs
  - 5. Car and Hall Signal Fixture-Vandal Resistant:
    - a. Innovation.
  - 6. Two-Way Audio Communication Device:
    - a. Janus/Rath
    - b. Wurtec
  - 7. Two-Way Video/Non-Verbal Communication Devices:
    - a. Janus/Rath
    - b. Wurtec
  - 8. Door Edge Detector with Approaching Object Detection:
    - a. Janus PanaChrome 3D Infrared
  - 9. PitSafe: ECI America

### 2.2 PERFORMANCE REQUIREMENTS

- A. Car Speed: Allowable variance from contract speed of no more than +/- 10% in the up direction and +10%/-20% in the down direction.

- B. Car Capacity: Safely lower, stop, and hold rated load.
- C. Car Stopping Zone:  $\pm 3/8$ " under any loading condition.
- D. Door Times: Seconds from start to fully open or fully closed:
  - 1. Car [1]: Door Open: [3.2] seconds. Door Close: [4.1] seconds.
- E. Car Floor-to-Floor Performance Time: Seconds from start of doors closing until doors are 3/4 open for center-opening doors or 1/2 open for side-opening doors, and car is level and stopped at next successive floor under any loading condition or travel direction:
  - 1. Car [1]: [17.0] seconds.
- F. Noise and Vibration Control:
  - 1. Airborne Noise:
    - a. Measured noise level of elevator equipment and its operation shall not exceed 60dBA inside car under any condition including door operation and car ventilation exhaust blower on its highest speed.
    - b. Limit noise level in the machine room and control space relating to elevator equipment and its operation to no more than 80 dBA.
    - c. All dBA readings to be taken 3'-0" off the floor and 3'-0" from the equipment using the "A" weighted scale.
  - 2. Vibration Control: Mechanically isolate all new elevator equipment from the building structure and other components. Minimize objectionable noise and transmission of vibrations to occupied areas of the building.

## 2.3 ELEVATOR OPERATION REQUIREMENTS

- A. General:
  - 1. Cars automatically slow down and stop level at floors in response to car and landing calls with stops made in sequence in the established direction of travel, regardless of order in which buttons are pressed.
  - 2. Landing calls are canceled when the assigned car arrives at the landing.
  - 3. Automatic Dispatch Failure: Provide auxiliary dispatch system to automatically dispatch elevators in the event of failure of the primary control system.
  - 4. Hall Call Button Failure: Should failure of hall call button system occur, initiate operation providing predetermined service to all landings; elevators respond normally to car calls.
  - 5. Automatic Leveling:
    - a. When arriving at a floor cars level to within 1/8" above or below the landing sill prior to opening doors, without travelling past the landing during leveling
    - b. Maintain leveling accuracy regardless of carload, direction of travel, rope slippage or stretch.
- B. Door Operation:
  - 1. Passenger Elevators:
    - a. Automatically open doors when car arrives at a floor.
    - b. Stop and reopen doors or hold doors in open position upon activation of "door open" button.
    - c. At expiration of normal dwell time, or upon activation of "door close" button, close doors:

- 1) Prevent doors from closing and reverse doors at normal opening speed if door reopening device beams are obstructed while doors are closing, except during nudging operation.
    - 2) In event of door reopening device failure, provide for automatic shutdown of car at floor level with doors open.
    - 3) Close cycle does not begin upon activation of “door close” button until normal door dwell time for a car or hall call has expired, except firefighters’ operation.
  - d. Nudging Operation:
    - 1) After beams of door reopening device are obstructed for a predetermined time interval (minimum 20.0-25.0 seconds), sound warning signal, and attempt to close doors with maximum of 2.5 foot-pounds kinetic energy.
    - 2) Activation of the door open button overrides nudging operation and reopens doors.
  - e. Interrupted Beam Time:
    - 1) When beams are interrupted during initial door opening, hold door open a minimum of 3.0 seconds.
    - 2) When beams are interrupted after the initial 3.0 second hold open time, reduce time doors remain open to an adjustable time of approximately 1.0 1.5 seconds after beams are reestablished.
  - f. Differential Door Time:
    - 1) Field adjustable time that doors remain open after stopping in response to calls.
    - 2) Car Call: Hold open time adjustable between 3.0 and 5.0 seconds.
    - 3) Hall Call: Hold open time adjustable between 5.0 and 8.0 seconds.
  - g. Use hall call time when car responds to coincidental calls.
  - h. Reopen doors when car is designated for loading.
- C. Independent Service:
1. When feature is activated from within the car allow control of car only from buttons and controls inside the car.
  2. Close doors by constant pressure on desired destination floor button or door close button.
- D. Load Weighing:
1. Provide cars with adjustable cable tension monitoring load weighing device.
  2. Devices are to be self-calibrating for the time-dependent effects of compression in any resilient materials in the assemblies, transducers, etc.
  3. Provide dispatching at main floor in advance of normal intervals when car fills to capacity.
  4. Provide hall call by-pass when car is filled to a field adjustable (10%-100%) range of percentage of rated capacity and traveling in down direction.
  5. Activate audible tone and visual overload signaling device inside elevator cab activated when load weighing device senses carload has reached or exceeded a pre-determined percentage of capacity.
  6. Elevator does not close doors or run when Overload signaling device is active.
- E. Selective Collective Operation, Single Car:
1. Elevators operate via momentary pressure buttons to:
    - a. Place hall call by selecting direction of travel at each hall landing (up and down buttons at each intermediate landing, single buttons at each terminal landing).



- b. Place car call by selecting destination floor from inside the car (individual buttons for each floor served).
  2. Hall calls, other than calls placed at the landing at which car is standing, start car, and cause the car to stop at first landing for which a call is registered in the direction of travel.
  3. Stops are made in order in which landings are reached, irrespective of sequence in which calls are registered.
  4. Parked Car (No Demand):
    - a. When feature is enabled elevator remains at landing of last assignment (if no further demand) with doors closed, for a predetermined amount of time (programmable for any amount of time). Upon expiration of time, the elevator returns to the main egress landing with the doors closed.
    - b. If feature is disabled, if no further demand, the elevator remains at landing of last assignment with the doors closed until a hall call is registered.
  5. Car Lanterns:
    - a. Lanterns provide audio and visual signal upon each stop, regardless of responding to car or hall call.
    - b. Visual signal remains active from commencement of door opening until doors are completely closed.
- F. Flood Operation:
  1. Provide the following operation:
    - a. Upon activation of pit flood devices, the elevators shall automatically recall to the upper terminal floor. first level located above the Design Flood Elevation
    - b. Once car has arrived, doors shall open and remain open for the duration of the flood event.
    - c. Hall signage shall remain illuminated indicating that the elevator(s) is(are) out of service.
    - d. Elevator is to remain out of service until flood devices have been manually reset.
  2. In Special Flood Hazard Areas, designated fire emergency recall landing shall be the next available landing above the Design Flood Elevation.
  3. Elevator components located below the Design Flood Elevation shall be constructed of watertight materials and enclosures designed for prolonged submersion to resist physical damage during flooding:
    - a. Use only stainless-steel doors and door frames.
    - b. Use stainless-steel selector tape when used for elevator position monitoring.
    - c. Use galvanized sill angles and hardware.
    - d. Grout full length of sill.
    - e. Utilize corrosion-resistant finishes for all other elevator components.
- G. Pit safe access additional equipment:
  1. Incorporate PitSafe hardware and fail-safe emergency stop to elevator controller.
  2. Incorporate oil and water alarms into elevator controller.
- H. Battery Rescue Operation:
  1. Upon loss of normal power automatically lower or raise the car to the nearest landing depending on the load in the car.
  2. Upon arrival at the landing, the elevator doors shall open automatically and remain open until regular door time has expired; the elevator shall then be removed from service.
  3. Upon restoration of normal power, the elevator shall automatically resume normal operation.

- I. Firefighters' Emergency Operation: Provide equipment and operation in accordance with applicable code requirements. Replace all Firefighters Emergency Operation key switches that control non-modernized elevators in this building to match modernized elevators when first car in group is returned to service.
- J. Battery Backup Operation for Emergency Lighting, Communication, and Alarm:
  - 1. Car mounted battery unit with solid-state charger to operate alarm bell, car emergency lighting, and voice communication system.
  - 2. Car lighting and communication shall be provided with a minimum of 4 hours of operation on back-up power during a loss of normal power, and a minimum of 1 hour of operation for car-mounted alarm, and any remote alarm mounted at the designated floor level.
  - 3. Battery to be rechargeable with minimum five-year life expectancy.
  - 4. Provide constant pressure test button in service compartment of car operating panel.
  - 5. Provide lighting integral with portion of normal car lighting system.
- K. Emergency Car Communication System Operation:
  - 1. Comply with all requirements of ASME A17.1 2019 and IBC 2018 , or later editions if adopted by the AHJ.
  - 2. Hands-Free Phone System:
    - a. In Car System:
      - 1) Hands-free two-way audio communication system in each elevator car.
      - 2) Automatic dialer to include automatic rollover capability if call is not answered with minimum two numbers.
      - 3) Intercom type systems shall be capable of auto dialing out of the building to any active telephone number selected by Owner if intercom call is not answered.
      - 4) Means to identify building and car for Authorized Personnel and Emergency Personnel on demand.
      - 5) Activated by button in car identified with "PHONE" symbol or by external telephone call.
      - 6) Adjacent light jewel illuminates and flashes when call is acknowledged.
  - 3. Authorized Personnel Communication:
    - a. Communication system allows authorized personnel, via phone or intercom system, inside the building or at an outside location, to establish verbal communications with each elevator individually.
    - b. Provide car interior display video capability for entrapment assessment.
  - 4. Communication for Deaf, Hard of Hearing and Speech Impaired:
    - a. Means for non-verbal communication between passengers inside the elevator car and Authorized Personnel and Emergency Personnel inside or outside of the building.
    - b. System allows for in car video display of custom or preselected text messages generated by Authorized Personnel or Emergency Personnel.
    - c. Passengers inside the elevator car respond to text messages via "Yes" and "No" buttons that generate a visible indication at the location monitored by the Authorized/Emergency Personnel.

## 2.4 HYDRAULIC PASSENGER ELEVATOR:

| ALTERATION SUMMARY                    |                                     |                         |
|---------------------------------------|-------------------------------------|-------------------------|
| CAR [1]                               | EXISTING INSTALLATION               | MODERNIZED INSTALLATION |
| Capacity:                             | 2500 lbs.                           | No Change               |
| Class of Loading:                     | Class A                             | No Change               |
| Duty Type:                            | Passenger                           | No Change               |
| Contract Speed:                       | 100 fpm                             | No Change               |
| Hydraulic Jack Type:                  | In Ground                           | No Change               |
| Machine Type:                         | Dry Type Power Unit                 | Submersible Power Unit  |
| Machine Location:                     | Adjacent at floor [1]               | Remote at floor (1)     |
| Operation Control:                    | Two-Button Selective Collective     | No Change               |
| Floors Served:                        | [*1, 2, 3] Front                    | No Change               |
| Total Entrances:                      | [3]Front                            | No Change               |
| Car Entrance Type:                    | Two Speed Side Opening (2SSO) Front | No Change               |
| Hoistway Entrance Type:               | Two Speed Side Opening (2SSO) Front | No Change               |
| Entrance Size:                        | 44" Wide x 84" (7'-0") High         | No Change               |
| Minimum Clear to Underside of Canopy: | 8'.0" High                          | No Change               |

## 2.5 MATERIALS

## A. Steel:

1. Sheet Steel (Furniture Steel for Exposed Work): Stretcher-leveled, cold-rolled, commercial quality carbon steel, complying with ASTM A366, matte finish.
2. Sheet Steel (for Unexposed Work): Hot-rolled, commercial quality carbon steel, pickled and oiled, complying with ASTM A568/A568M-03.
3. Structural Steel Shapes and Plates: ASTM A36.

## B. Stainless Steel: Type 304 complying with ASTM A240, with standard tempers and hardness required for fabrication, strength, and durability. Apply mechanical finish on fabricated work in the locations shown or specified, Federal Standard and NAAMM nomenclature, with texture and reflectivity required to match Architect's sample. Protect with adhesive paper covering.

1. No. 4 Satin: Directional polish finish. Graining directions as shown or, if not shown, in vertical dimension.
2. No. 8 Mirror: Reflective polish finish with no visible graining.
3. Textured: 5WL as manufactured by Rigidized Metals or 5-SM as manufactured by Rimex Metals or approved equal with .050" mean pattern depth with bright directional polish (satin finish).
4. Burnished: Non-directional, random abrasion pattern.

## C. Bronze: Stretcher-leveled, re-squared sheets composed of 60% copper and 40% zinc similar to Muntz Metal, Alloy Group 2, with standard temper and hardness required for fabrication, strength, and durability. Clean and treat bronze surfaces before mechanical finish. After

completion of the final mechanical finish on the fabricated work, use a chemical cleaner to produce finish, Federal Standard, and NAAMM nomenclature, matching Architect's sample:

1. No. 4 Satin: Directional polish finish, fine-satin, clear-coated with clear-organic coating recommended by Fabricator. Provide graining direction as shown or, if not shown, in vertical dimension.
  2. No. 8 Mirror: Reflective polish finish with no visible graining, bright-polished, clear-coated finish with clear-organic lacquer coating recommended by Fabricator.
  3. Acid-Etched Pattern: Provide a No. 8 mirror reflective-polished background with selectively acid-etched, matte-textured, custom pattern as shown. Acid selection and dilution, if required, as recommended by Fabricator. After final finishing, coat bronze with clear-organic lacquer coating recommended by Fabricator.
- D. Aluminum: Extrusions per ASTM B221; sheet and plate per ASTM B209.
- E. Plastic Laminate: ASTM E84 Class A and NEMA LD3.1, Fire-Rated Grade (GP-50), Type 7, 0.050"  $\pm$  0.005" thick, color and texture as follows:
1. Exposed Surfaces: Color and texture selected by Architect.
  2. Concealed Surfaces: Contractor's standard color and finish.
- F. Fire-Retardant Treated Particle Board Panels: Minimum 3/4" thick backup for natural finished wood and plastic laminate veneered panels, edged and faced as shown, provided with suitable anti-warp backing; meet ASTM E84 Class "I" rating with a flame-spread rating of 25 or less, registered with Local Authorities for elevator finish materials.
- G. Natural Finish Wood Veneer: Standard thickness, 1/40" thoroughly dried conforming to ASME/HPMA HP-1983, Premium Grade. Place veneer, tapeless spliced with grain running in direction shown, belt and polish sanded, book-matched. Species and finish designated and approved by Architect.
- H. Paint: Clean exposed metal parts and assemblies of oil, grease, scale, and other foreign matter and factory paint one shop coat of standard rust-resistant primer. After erection, provide one finish coat of industrial enamel paint. Galvanized metal need not be painted.
- I. Prime Finish: Clean all metal surfaces receiving a baked enamel paint finish of oil, grease, and scale. Apply one coat of rust-resistant primer followed by a filler coat over uneven surfaces. Sand smooth and apply final coat of primer.
- J. Baked Enamel Finish: Prime finish per above. Unless specified "prime finish" only, apply and bake three additional coats of enamel in the selected solid color.
- K. Entrance Field Paint:
1. Clean all surfaces to remove dirt and grease.
  2. Sand and finish surfaces as necessary to remove pits and scratches and prepare surface for painting.
  3. Apply filler to ensure smooth surface; sand and apply one coat of electrostatic enamel in the selected solid color.
- L. Refinishing of natural metals: Remove existing protective finish. Buff as necessary to remove scratches. Regrain or finish as specified and protect as indicated for particular metal type.

- M. Entrance Support Equipment within Hoistway: Include strut angles, headers, sill support angles, fascia, hanger covers, etc.
  - 1. Clean, remove, and check for corrosive activity. Replace components which exhibit severe deterioration.
  - 2. Tighten all fastenings.

## 2.6 PERFORMANCE AND OPERATION

### A. General:

- 1. Cars automatically slow down and stop level at floors in response to car and landing calls with stops made in sequence in the established direction of travel, regardless of order in which buttons are pressed.
- 2. Landing calls canceled when answered.
- 3. Automatic Leveling:
  - a. An automatic two-way leveling device shall be provided, designed to govern the leveling of the car to within 1/8" above or below the landing sill. The leveling operation shall be effective to avoid overtravel, as well as undertravel of the car and maintain the leveling accuracy regardless of the load in the car, direction of travel, rope slippage or stretch.
- 4. Door Control:
  - a. A car without registered car calls arriving at a floor where both up and down hall calls are registered, responds to the call in the direction of car travel. If no car call is registered for further travel in that direction, lantern immediately indicates changed direction without closing and reopening doors.
  - b. Direction lantern to remain illuminated until doors are fully closed.
- 5. Independent Service:
  - a. Provide controls for operation of each car from its pushbuttons only.
  - b. Close doors by constant pressure on desired destination floor button or door close button.
  - c. Open doors automatically upon arrival at selected floor.

### B. New Microprocessor, Selective Collective Operation:

- 1. New GAL Manufacturing (GAL) GALaxy Selective Collective Microprocessor- Based:
  - a. Operate car without attendant from pushbuttons in car and located at each floor. When car is available, automatically start car and dispatch it to floor corresponding to registered car or hall call. Once car starts, respond to registered calls in direction of travel and in the order the floors are reached.
  - b. Do not reverse car direction until all car calls have been answered, or until all hall calls ahead of car and corresponding to the direction of car travel have been answered.
  - c. Slow car and stop automatically at floors corresponding to registered calls, in the order in which they are approached in either direction of travel. As slowdown is initiated for a hall call, automatically cancel hall call. Cancel car calls in the same manner. Hold car at arrival floor for an adjustable time interval to allow passenger transfer. Transfer time to be compliant with ADA guidelines.
  - d. Illuminate appropriate pushbutton to indicate call registration. Extinguish light when call is answered.
  - e. Parked Car (No Demand):
    - 1) Elevator may remain at landing of last assignment (if no further demand) with doors closed, for a predetermined amount of time (programmable for any amount of time) if feature is enabled.

- 2) If this feature is enabled, upon expiration of time, the elevator shall return to the main egress landing with the doors closed.
    - 3) If this feature is disabled, if no further demand exists, the elevator shall remain at landing of last assignment with the doors closed until a hall call is registered.
  2. Controller Updates: Elevator controller software updates shall be provided and installed immediately upon notification of such updates
- C. Other Items:
  1. New - Low Oil Control: In the event oil level is insufficient for travel to the top floor, provide controls to return elevator to the main level and park until oil is added.
  2. New – Pit Water feature, All Cars. The elevator shall recall to a designated floor above the lower terminal floor when provided upon notification of high water in pit. The elevator controller shall contain a third alternate floor to add this feature. Car to be removed from service and remain with the doors open.
- D. New Car Lantern Signals:
  1. The lantern shall generate signal upon each stop, regardless of responding to car or hall call.
  2. An option shall be provided to allow lanterns to be active in response to hall calls only.
  3. Lantern shall be provided with signal from controller compliant with ADA requirements.
- E. New Firefighters' Service:
  1. Provide equipment and operation in accordance with code requirements.
- F. New Standby Lighting, Communication, and Alarm:
  1. Car mounted battery unit with solid-state charger to operate alarm bell, car emergency lighting, and voice communication system.
  2. Car lighting and communication shall be provided with a minimum of 4 hours of operation on back-up power during a loss of normal power, and a minimum of 1 hour of operation for car-mounted alarm.
  3. Battery to be rechargeable with minimum five-year life expectancy.
  4. Provide constant pressure test button in service compartment of car operating panel.
  5. Provide lighting integral with portion of normal car lighting system.
- G. New Door Operation:
  1. Automatically open doors when car arrives at a floor.
  2. At expiration of normal dwell time, close doors.
  3. Reopen doors when car is designated for loading.
- H. New Battery Lowering Operation:
  1. Upon loss of normal power automatically lower car to the nearest landing depending on position at time of power outage.
  2. Upon arrival at the landing, the elevator doors shall open automatically and remain open until regular door time has expired; the elevator shall then be removed from service.
  3. The auxiliary power source shall be provided via 12-volt D.C. battery units installed in machine room.
  4. Include solid-state charger and testing means mounted in a common metal container.
  5. Battery to be rechargeable lead acid or nickel cadmium with a ten-year life expectancy.
  6. Upon restoration of normal power, the elevator shall automatically resume normal operation.

7. Disable if normal power switched off.

I. Emergency Car Communication System Operation:

1. Hands- Free Phone System: Provide space for future 2019 Code Communications Provisions
  - a. Two-way communication instrument in car to provide automatic dialing, tracking, and recall features.
    - 1) Automatic dialer to include automatic rollover capability with minimum two numbers:
  - b. Activated by "Help" button in car or by external telephone call.
  - c. Adjacent light jewel illuminates and flashes when call is acknowledged.
  - d. On the same car operating panel as the phone push button, provide capability to communicate with and obtain responses from passengers.
  - e. Provide display video capability for entrapment assessment.
2. Communication for Deaf, Hard of Hearing and Speech Impaired: Provide provisions only for the 2019 communication requirement.

J. Additional Pit Safety Device

1. Integrate pit safety device into elevator controller operation.:
  - a. Allow intentional movement for service operations as designed and programed by Manufacturer.
  - b. Oil/Water alarm
    - 1) Incorporate Oil/Water alarm into Building Automation System (BAS) including notification to Service2Facilities.
    - 2) Activate elevator Flood Operation to protect elevator equipment.
    - 3) Coordinate with GC and Owner for Service2Facilities and BAS integration. Demonstration functionality. Provide written confirmation from Service2Facilities.
  - c. Provide equipment necessary to integrate pit safety device with Elevator Controller.
  - d. Confirm functionality prior to scheduling Final Inspection with the Authority Having Jurisdiction.

## 2.7 MACHINE ROOM EQUIPMENT

- A. Arrange equipment in spaces shown on drawings.
- B. Identification: Permanently identify (painted on or securely attached) machine room equipment with minimum 3" characters corresponding to elevator identification.
  1. Hydraulic Machine (Power Unit)
  2. Controller.
  3. Main line disconnect switch.
  4. Pit equipment.
- C. Assembled unit consisting of positive displacement pump, induction motor, master-type control valves combining safety features, holding, direction, bypass, stopping, manual lowering functions, shut off valve, oil reservoir with protected vent opening, oil level gauge, outlet strainer, drip pan, muffler, all mounted on isolating pads.
  1. Tank Heater:
    - a. Provide an oil tank heater with adjustable thermostat to keep the oil tank temperature within the manufacturer's recommended operating range.

2. Enclose entire unit with removable sheet steel panels lined with sound-absorbing material.
- D. Landing System:
1. Solid-state, magnetic, or optical type.
- E. New: Motor Starter:
1. Soft start type unit including:
    - b. Integral electronic overload protection
    - c. Integral bypass.
- F. Piping and Oil:
1. All piping, connections and oil required for the elevator system.
  2. Buried piping shall be secondarily contained with watertight Schedule 80 PVD sleeves between elevator machine room and pit.
  3. A minimum of two sound isolation couplings shall be provided between the pump unit and oil line and oil line and jack unit.
  4. Provide 2-90° joints to reduce vibration and create wave diffraction.
  5. Provide isolated pipe stands or hangers.
- G. Shut-Off Valve:
1. Oil line shut off valve in machine room or accessible from outside the hoistway.
  2. Second valve in pit adjacent to jack unit.
- H. New - GALaxy (GAL) Controller:
1. Compartment:
    - a. UL/CSA labeled.
    - b. Securely mount all assemblies, power supplies, chassis switches, relays, etc., on a substantial, self-supporting steel frame.
    - c. Completely enclose equipment with covers.
    - d. Provide means to prevent overheating.
  2. Relay Design:
    - a. Magnet operated with contacts of design and material to insure maximum conductivity, long life, and reliable operation without overheating or excessive wear.
    - b. Provide wiping action and means to prevent sticking due to fusion.
    - c. Contacts carrying high inductive currents shall be provided with arc deflectors or suppressors.
  3. Microprocessor Hardware:
    - a. Provide built-in noise suppression devices that provide a high level of noise immunity on all solid-state hardware and devices.
    - b. Provide power supplies with noise suppression devices.
    - c. Isolate inputs from external devices (such as pushbuttons) with opto-isolation modules.
    - d. Design control circuits with one leg of power supply grounded.
    - e. Safety circuits shall not be affected by accidental grounding of any part of the system.
    - f. System shall automatically restart when power is restored.
    - g. System memory shall be retained in the event of power failure or disturbance.
    - h. Equipment shall be provided with Electro Magnetic Interference (EMI) shielding within FCC guidelines.



4. Wiring:
    - a. CSA labeled copper for factory wiring.
    - b. Neatly route all wiring interconnections and securely attach wiring connections to studs or terminals.
    - c. Provide labels for all extra or spare wires, neatly organized at base of controller cabinet.
  5. Permanently mark components (relays, fuses, PC boards, etc.) with symbols shown on wiring diagrams.
  6. Provide control panel compliant with UL 508A SB.SCCR of 5000A required.
- I. New Electrical Wiring and Wiring Connections:
1. Auxiliary Disconnect:
    - a. Provide controller or machine mounted auxiliary, lockable “open” disconnect.
  2. Conductors and Connections:
    - a. Copper throughout with individual wires coded and connections on identified studs or terminal blocks.
    - b. Use no splices or similar connections in wiring except at terminal blocks, control compartments, or junction boxes.
  3. Conduit:
    - a. Galvanized steel conduit, EMT, or duct.
    - b. Flexible conduit length not to exceed 3’-0”.
  4. Traveling Cables:
    - a. Tag spares in machine room.
    - b. Provide cables from controller to car top.
  5. Auxiliary Wiring:
    - a. Provide machine room demarcation junction boxes for the fire alarm initiating devices, emergency two-way communication system, firefighters’ phone, paging speaker, CCTV, digital video display, security system and card reader interface terminals and relays, intercom, announcement speaker and/or background music.
    - b. Provide conduit, wiring and connections for the fire alarm initiating devices, emergency two-way communication system, firefighters’ phone, paging speaker, CCTV, digital video display, security system and card reader interface terminals and relays, intercom, announcement speaker and/or background music from machine room junction box to each car controller in machine room.
  6. Include wiring to accommodate 2019 communication devices.
- J. Battery Rescue System:
1. Auxiliary power source shall be provided via 12-volt D.C. battery units installed in machine room or controller space.
  2. Include solid-state charger and testing means mounted in a common metal container.
  3. Battery to be rechargeable lead acid or nickel cadmium with a ten-year life expectancy.
  4. Coordinate with electrical contractor.
- K. Muffler:
1. Provide in discharge oil line near pump unit.
    - a. Design shall dampen and absorb pulsation and noise in the flow of hydraulic fluid.
    - b. Muffler shall be an air charged or non-baffled design.
- L. New Pressure Switch:
1. Provide oil pressure sensitive switch to automatically close and prevent loss of oil in cylinder upon loss of pressure in oil supply line.

- M. Additional Pit Safety Device
1. Provide pit safety device:
    - a. Incorporate auxiliary pit lighting activation with activation of pit stop switch
      - 1) Two (2) 4'-0" high luminaire LED lights in addition to pit lighting provided in other Sections by other disciplines.
    - b. Emergency lighting battery backup
    - c. Allow intentional movement for service operations as designed and programmed by Manufacturer.
    - d. Oil/Water alarm
      - 1) Incorporate Oil/Water alarm into Building Automation System (BAS) including notification to Service2Facilities.
      - 2) Activate elevator Flood Operation to protect elevator equipment.
      - 3) Coordinate with GC and Owner for Service2Facilities and BAS integration. Demonstration functionality. Provide written confirmation from Service2Facilities.
    - e. Provide equipment necessary to integrate pit safety device with Elevator Controller.
    - f. Confirm functionality prior to scheduling Final Inspection with the Authority Having Jurisdiction.

## 2.8 HOISTWAY EQUIPMENT

- A. Provide and arrange equipment in existing hoistway spaces.
- B. Hydraulic Jack Assembly:
1. Retain.
    - a. Repack
- C. Jack Support and Shut-Off Valves:
1. New:

Steel pit channels to support jack assembly and transmit loads to building structure.

Intermediate stabilizers as required to

Manual shut off valves in oil lines adjacent to jack units in pit.
- D. Guide Rails:
1. Retain:
    - a. Clean rails and brackets.
    - b. Remove rust.
    - c. Repaint non-machined surfaces.
    - d. Check and tighten all rail and bracket fastenings.
- E. Buffers, Car:
1. Retain:
    - a. Remove rust and repaint non-machined surfaces.
- F. Pit Ladder: Provide permanent pit ladder to comply with Code requirements.
- G. Terminal Stopping Devices:
1. New:

- a. Normal and final devices.
- H. Electrical Wiring and Wiring Connections:
  - 1. Conductors and Connections:
    - a. Copper throughout with individual wires coded and connections on identified studs or terminal blocks.
    - b. Use no splices or similar connections in wiring except at terminal blocks, control compartments, or junction boxes.
  - 2. Conduit:
    - a. Galvanized steel conduit, EMT, or duct.
    - b. Flexible conduit length not to exceed 3'-0".
  - 3. Traveling Cables:
    - a. Provide 12 twisted shielded pairs in addition to wires needed to connect specified items and code required spares.
    - b. Tag spares in machine room.
    - c. Provide cables from controller to car top.
  - 4. Auxiliary Wiring:
    - a. Provide conduit, wiring, connections, and machine room demarcation junction boxes for:
      - 1) Fire alarm initiating devices.
      - 2) Emergency two-way communication system.
      - 3) Security video camera.

## 2.9 HOISTWAY ENTRANCES

- A. Retain Frames: Retain existing. Recondition as needed. New paint to be selected by Architect.
  - 1. Refinish and paint to match existing finishes.
  - 2. Provide new Arabic floor designation/Braille plates, centered at 60" above finished floor on both side jambs of all entrances.
  - 3. Centered at 60" above finished floor.
  - 4. Located on both side jambs of all entrances.
  - 5. Minimum 4" high.
  - 6. Tactile marking indications shall be below Arabic floor designation.
  - 7. Provide plates at main egress landing with "Star" designation.
  - 8. Finish with new paint, as selected by architect.
- B. New Door Panels:
  - 1. 16-gauge steel, sandwich construction without binder angles.
  - 2. Provide one leading edge of doors with rubber astragals.
  - 3. Provide a minimum of two gibs per panel, one at leading and one at trailing edge with gibs in the sill groove entire length of door travel.
  - 4. Provide one separate 4" steel reinforcement safety gib mounted between door gibs, where not integrated with door gibs.
  - 5. Construct door panels with interlocking, stiffening ribs.
  - 6. Door panels in brushed stainless finish.
  - 7. Provide secondary mechanical means to interconnect multi-speed door panels.
- C. New Sight Guards:
  - 1. 14-gauge, same material, finish, and height as hoistway entrance door panels.
  - 2. Construct without sharp edges.

- D. Retain Sills:
  - 1. Clean
- E. Retain Sill Supports:
  - 1. Structural or formed steel designed to support door sill based upon car loading classification.
  - 2. Design to eliminate need for grout under the sill.
- F. Retain Fascia, Platform Guards and Hanger Covers:
  - 1. Provide new as needed 14-gauge furniture steel with Manufacturer's standard finish.
- G. Struts and Headers: Retain & Recondition
  - 1. Provide all support of entrances and related material to building structure. No intermediate support provided.
  - 2. Provide door open bumpers on entrances equipped with vertical struts.
  - 3. Paint/Stencil floor number on fascia or hoistway wall all floors visible where car doors are initially opened.
- H. New Finish of Frames and Doors:
  - 1. Satin finish stainless-steel for doors and paint for frames.
  - 2. Provide final painting requirements to General Contractor where factory prime finish is specified.
- I. New Hoistway Access:
  - 1. Hoistway Door Unlocking Device:
    - a. Provide unlocking device with locking escutcheon in door panel at all floors, with finish to match adjacent surface.
  - 2. Hoistway Access Switches:
    - a. Mount in hall station.

## 2.10 PIT EQUIPMENT

- A. Retain Buffers:
  - 1. Remove rust and repaint non-machined surfaces.
- B. Retain Hydraulic Jack Assembly:
  - 1. Repack
- C. Retain Jack Support and New Fluid Shut-Off Valves:
  - 1. Retain steel pit channels to support jack assembly and transmit loads to building structure.
  - 2. Provide new manual on/off valves in oil lines adjacent to pump unit and jack units in pit.
- D. New Pit Access:
  - 1. Hoistway Access Key Switch:
    - a. Provide key switch at lowest terminal landing.
    - b. Mount in hall station.
  - 2. Provide pit stop switch(es).

## 2.11 CAR EQUIPMENT

- A. Retain Frame:
  - a. Check and tighten all fastenings.
  - b. Adjust as required for plumb and square alignment.
- B. Retain Platform:
  - a. Adjust as necessary for plumb and level alignment.
  - b. Reinforce if required.
  - c. Check and tighten all fastenings.
- C. Work Light Fixtures & AC Receptacles:
  - 1. Provide permanent mounted work light fixtures below platform, complete with proper lamp guards.
- D. New Platform Guard:
  - 1. Minimum 21", 14-gauge steel, reinforced and braced to car platform front with Manufacturer's standard finish
- E. New Cartop Guard Rail:
  - 1. Provide a railing system provided on the outside perimeter of the car top on all sides where the horizontal distance between the edges of the car top and the adjacent hoistway enclosure exceeds 12 inches.
- F. New - Passenger Elevator Car Guides:
  - 1. Elscot roller type with three or more spring dampened, sound-deadening rollers per shoe.
- G. New Sills:
  - 1. One-piece extrusion with extension between car entrance columns to face of car front return.
  - 2. Extruded extension to match finish of sill.
  - 3. Nickel silver
    - a. Match hoistway sill cladding finish.
- H. New Door Panels:
  - 1. 16-gauge steel, sandwich construction without binder angles.
  - 2. Provide one leading edge of doors with rubber astragals.
  - 3. Provide a minimum of two gibs per panel, one at leading and one at trailing edge with gibs in the sill groove entire length of door travel.
  - 4. Construct door panels with interlocking, stiffening ribs.
- I. New GAL Door Hangers: Two-point hanger roller with neoprene roller surface and suspension with eccentric upthrust roller adjustment.
- J. New Door Track:
  - 1. Bar or formed, cold-drawn removable steel track with smooth roller contact surface.
- K. New GAL Door Header: Construct of minimum 12 gauge steel, shape to provide stiffening flanges.
- L. New GAL Door Electrical Contact:

1. Prohibit car operation unless car door is closed. Raise door contact to be out of site, disguised, and painted black..
- M. New GAL Door Clutch: Heavy-duty clutch, linkage arms, drive blocks and pickup rollers or cams to provide positive, smooth, quiet door operation. Design clutch so car doors can be closed, while hoistway doors remain open.
- N. New GAL Restricted Opening Device: Restrict opening of car doors outside unlocking zone. Plunger type restrictors not acceptable.
- O. New Door Operator:
  1. High speed, heavy-duty door operator capable of opening doors at no less than 2.5 fps
    - a. G.A.L. MOVFR II
  2. Accomplish reversal within 2½" of door movement.
  3. Provide solid-state door control with closed loop circuitry to constantly monitor and automatically adjust door operation based upon velocity, position, and motor current.
  4. Provide a minimum of four controller-based motion profiles, per floor, per door, to maintain consistent, smooth, and quiet door operation at all floors, regardless of door weight or varying air pressure.
- P. New Door Reversing Device: Janus PanaChrome 3D Door Control Device
  1. Infrared Reopening Device:
    - a. Black fully enclosed device with full screen infrared matrix or multiple beams extending vertically along leading edge of each door panel to minimum height of 7'-0" above finished floor.
    - b. Provide lens beams full height of door panels. 3D beam device to detect approach from elevator lobby.
    - c. Device shall prevent doors from closing and reverse doors at normal opening speed if beams are obstructed while doors are closing, except during nudging operation.
    - d. In event of device failure, provide for automatic shutdown of car at floor level with doors open.
  2. Nudging Operation:
    - a. After beams of door control device are obstructed for a predetermined time interval (minimum 20.0-25.0 seconds), warning signal shall sound, and doors shall attempt to close with a maximum of 2.5 foot-pounds kinetic energy.
    - b. Activation of the door open button shall override nudging operation and reopen doors.
  3. Interrupted Beam Time:
    - a. When beams are interrupted during initial door opening, hold door open a minimum of 3.0 seconds.
    - b. When beams are interrupted after the initial 3.0 second hold open time, reduce time doors remain open to an adjustable time of approximately 1.0-1.5 seconds after beams are reestablished.
  4. Differential Door Time:
    - a. Provide separately adjustable timers to vary time that doors remain open after stopping in response to calls.
    - b. Car Call:
      - 1) Hold open time adjustable between 3.0 and 5.0 seconds.
    - c. Hall Call:
      - 1) Hold open time adjustable between 5.0 and 8.0 seconds.
      - 2) Use hall call time when car responds to coincidental calls.

5. All door performance times must meet the A.D.A. standards
6. Reference Appendix A for Sample Fixture Drawings.
7. Include provisions for 2019 Communication and use of Owner allowance.
8. Provide and install all new signal equipment unless otherwise noted and as follows:
  - a. All equipment is to be by Innovation Industries unless otherwise noted, utilizing #4 brushed stainless steel (S/S) fixtures with all language and visuals permanently engraved, and all LED illuminations flush mounted into fixtures. Innovation Industries buttons shall be vandal resistant bruiser series.
    - 1) Provide PB 25 or PB 52 with mechanical contacts
  - b. All fixtures shall have all components flush and be vandal resistant.
  - c. All illumination to be by LED bulbs capable of a minimum of 5 years continual service life.
  - d. Provide flush mounted vandal resistant 2 pin head fastenings on all fixtures, signal and signage equipment for fastening and securing.
9. One car operating pane with faceplate:
  - a. Consisting of a metal box containing vandal resistant operating fixtures, mounted behind the car stationary return panel:
  - b. Car operating panel to be an applied flush mounted with a faceplate
10. Provide Exposed Pushbuttons to Initiate:
  - a. Car call registration.
  - b. Alarm.
    - 1) Provide alarm button to ring bell located on car. Illuminate button when actuated.
  - c. Door open.
  - d. Door close.
  - e. Emergency push-to-call communication.
11. Pushbuttons:
  - a. Provide minimum 3/4" diameter raised floor pushbuttons which illuminate to indicate call registration.
  - b. Provide brushed stainless buttons with illuminated LED halo.
  - c. Include 5/8" high floor designation on face of pushbutton.
  - d. Locate operating controls no higher than 48" above the car floor; no lower than 35" for emergency push-to-call button and alarm button.
  - e. Identify buttons with cast tactile symbols recessed flush rear mounted.
  - f. Floor pushbuttons to be located on the panel with floor below grade at the bottom row, vertically with increasing to the above grade levels.
    - 1) Refer to Appendix A Fixture Drawings.
12. Locked Firefighters' Emergency Operation Panel:
  - a. Provide firefighters' Phase II key switch with engraved instructions filled red.
  - b. Openable by the same key which operates the Fire Operation switch.
  - c. Including the following features:
    - 1) Phase II fire access switch.
    - 2) Firefighters' visual indication.
    - 3) Call cancel button.
    - 4) Stop switch, manually operated.
    - 5) Door open button.
    - 6) Door close button.
    - 7) Floors served.
13. Include the following controls with function and operating positions identified by permanent signage or engraved legend:
  - a. Access switch.

- b. Light switch.
  - c. Four-position exhaust blower switch.
  - d. Independent service switch.
  - e. Constant pressure test button for battery pack emergency lighting.
  - f. 120-volt, AC, GFCI protected electrical convenience duplex outlet.
  - g. Card reader override switch.
  - h. Switch to select either floor voice annunciation, floor passing tone, or chime.
  - i. Keyed stop switch.
14. Provide and install keyed operating switches per the following:
- a. Stop switch GEM FB520.
  - b. Independent switch GEM FB514.
  - c. Fan switch GEM FB513.
  - d. Light switch GEM FB513.
  - e. Fire operation switch FEO K1.
  - f. Hoistway access: GEM FB512.
  - g. Emergency Lighting Test switch GEM FB512.
  - h. Door hold: 2 Position, Door Hold, Mortise Cylinder with Electrical Contacts. Key Removable in 12 O'clock Position. Core provided by OSU.
    - 1) Extended Door Open: Provide programable extended door hold open. Provide adjustable hold duration between 20 seconds and 300 seconds. Door close button shall cancel timer.
  - i. Hall Fixtures
    - 1) Hoistway access: GEM FB512.
    - 2) Communication Failure Reset: GEM FB513.
    - 3) Car call lockout
      - a) Bio Science: Include keyswitch to lockout upper terminal "PH" landing.
      - b) Coordinate key switch for restricted floor operation with OSU using BEST 1W7A1 7-pin key switch with momentary actuation or removeable in either position, or approved equal, as approved by OSU.
  - j. All key switches and cores are to be provided and installed by the contractor. The university will provide the core number to the contractor during construction.
  - k. All operational keys are only to be provided to the appropriate FOD elevator office personnel and NOT to any others.
15. Provide minimum 3/4" diameter visual and audible car overload flashing indicator.
16. Provide black paint filled (except as noted), engraved, or approved etched signage as follows with approved size and font:
- a. Phase II firefighters' operating instructions on inside face of firefighters' compartment door.
  - b. Engrave filled red firefighters' operation on outside face of compartment door.
  - c. Engrave black paint filled:
    - 1) Building identification number
    - 2) Building Address
    - 3) Car Capacity
    - 4) Load weighing indicator identification
    - 5) Two-way communication engraving "call received" to verify the call has been received.
    - 6) Hall station car position indicator Elevator ID

Q. Car Top Control Station:

- 1. Mount to provide safe access and utilization while standing on car top.



2. Operating device with Up and Down direction buttons, a Run button, an Inspection/Automatic switch and Emergency Stop switch.
3. Operating device provides an audible and visible indicator that fire recall has been initiated.
4. Fix station to the car crosshead or provide portable station provided the extension cord and housing is permanently attached to the car crosshead.
5. The car will be operated by constant pressure on the appropriate directional button and the Run button simultaneously.
6. Normal operating devices will be inoperative while this device is in use.

R. Car Top Emergency Audible Signal:

1. Provide on top of each elevator.
2. Activation of Alarm Button or Emergency Stop switch will cause Emergency Audible Signal.
3. Provide auxiliary power supply to provide 1-hr. power in the event of loss of normal power.

S. Work Light and Duplex Plug Receptacle:

1. GFCI protected outlet at top and bottom of car.
2. Include on/off switch and lamp guard.
3. Provide additional GFCI protected outlet on car top for installation of car CCTV.

## 2.12 CAR ENCLOSURE AND INTERIOR FINISHES

- A. Unless specifically identified as "Retain," "Reuse," or "Refurbish," provide new equipment. Contractor may, with Consultant approval, provide new equipment in lieu of refurbishing existing.

- B. Car Enclosure: Retain existing car shell. Remove existing interior finishes, weigh, and document. Check and tighten all fastenings. Provide new interior finishes as specified and/or detailed on architectural drawings. Verify weight of new interior finishes does not exceed weight of removed finishes by more than Code allowable. Modify shell for application of new signal and pushbutton fixtures. Provide the following features:

1. Refer to architectural drawings
2. Shell: Retain existing shell. Patch any holes on side walls to maintain fire rating.
3. Canopy: Retain existing canopy and remove any drop ceilings, or lighting, seal existing holes, cover fan with design as provided in the architectural drawings and prepare ceiling to appear as new after receiving final finish coat of paint. If existing escape hatch size does not meet requirement, contractor to perform alterations to meet code requirement. Finished ceiling shall be flush finish and not contain any visible fastening devices.
4. New - Front Stationary Return Panels: Reinforced 14 gauge satin stainless steel with cutouts for car operating panels and other equipment.
5. New - Entrance Columns: Reinforced 14 gauge satin stainless steel.
6. New - Car Front Door Panels: Reinforced minimum 16 gauge stainless steel satin finish. Same construction as hoistway door panels.
7. New - Interior Wall Finish: Removable panels, faced with brushed stainless steel. Panels to contain a satin stainless steel binder angle cover the side of each panel, and a minimum 1/2" on the face. Panel type, size and arrangement as detailed on the architectural drawings.
8. New - Ventilation: Two-speed OE AA exhaust blower mounted to car canopy on isolated rubber grommets. Exhaust blower shall meet requirements of Item 2.03, H.

- Ventilation shall shut off after adjustable period of no elevator demand. Initial setting should be set for 10 minutes. after adjustable period (60 – 180 seconds) of no elevator demand. Cab fan blades to be accessible from car top to keep clean, free of dust buildup.
9. New - Lighting: Provide and install light sconces with LED lighting as detailed in the architectural drawings. New light sconces shall be incorporated with the emergency lighting, coordinate with emergency lighting requirements.
    - a. Base of Design: Kenall M013HL or approved equal.
    - b. Refer to architectural drawings to confirm quantity and location of lights.
  10. New- Handrails: Minimum 1-1/2" diameter stainless steel tubular grab bar as detailed on architectural drawings.
  11. New- Finished Flooring: Provide and install new sheet vinyl flooring. Color to be selected by the Architect and/or the university.
  12. New- Pads and Buttons: Three-piece removable pads. Two pads covering side walls and adjacent front returns and one covering rear wall. Provide cutouts to access main car operating panel.
- C. Top of Car Guardrail: Provide car top railings where fall hazard exceeds 12". Install guardrails, necessary hardware, and toe board to meet code requirements.

## 2.13 HALL CONTROL STATIONS

- A. New Hall Push Button Stations:
  1. Engrave Car Identification above each digital position indicator
  2. Provide any cutting and patching required.
  3. Enlarged faceplate to cover existing wall block out. Trim plates will not be accepted.
  4. Any floors that contain hall lanterns, or position indicators will be patched. The patch work for hall lanterns has been provided under other sections.
  5. Install stations flush, plumb, and level.
- B. Pushbuttons:
  1. Provide one (1) flush mounted hall station per opening.
  2. Include approved engraved message and pictorial representation prohibiting use of elevator during fire or other emergency as part of faceplate.
  3. Hall buttons shall have engraved Braille markings showing "Up" or "Down" and be located adjacent to the buttons within the same fixture.
  4. Pushbutton design shall match car operating panel pushbuttons.
  5. Provide vandal resistant pushbutton and light assemblies.
  6. Provide LED illumination.
  7. Provide Phase I Fire Service key switch, engraved operating instructions and illuminating jewel incorporated in hall station with push button.
  8. All floor landing stations shall contain flush digital position indicators from C.E. Electronics. Displays will be required for each elevator car. Units are C.E. Electronics model # ME 205-RRR, segmented LED display, 1/2" high characters with directional arrows behind a 1 1/2" diameter LN0511 lens.
    - a. Provide elevator identification engraving above each position indicator
  9. Provide communication check failure indication and silence key switch.
    - a. Key to FB513
  10. Incorporate all items required by Code at the primary egress level into a single hall fixture.

11. Provide illuminating jewels indicating standby power status, when standby power is provided.
12. Provide Hoistway Access key switch integral in push button hall stations at upper and lower terminal floor.
  - a. Key to FB514

## 2.14 SIGNALS

### A. New Hall Position Indicator

1. Refer to 2.11 Hall control Input stations.
2. Mount in hall push button station, all floors.
  - a. C.E. Electronics. Displays will be required for each elevator car. Units are C.E. Electronics model # ME 205-RRR, segmented LED display, ½" high characters with directional arrows behind a 1 ½" diameter LN0511 lens.
  - b. Provide car identification engraving above digital position indicator.

### B. New Car Direction Lantern

1. Provide flush-mounted car lantern in all car entrance columns.
2. Provide two (2) lantern per entrance column.
3. Illuminate up or down LED lights and sound tone once for up and twice for down direction.
4. Provide one (1) with chime and one (1) without chime per entrance.
5. Illuminate light until the car gate starts to close.
6. Sound level shall be adjustable from 20-80 dBA measured at 5'-0" in front of hall control station and 3'-0" off floor.
7. Car direction lenses shall be arrow shaped with faceplates.
8. Lenses shall be minimum 2½" in their smallest dimension.
9. Provide vandal resistant lantern and light assemblies consisting of series of dots or lines for maximum visibility.

### C. New Car Position Indicator:

1. Alpha-numeric digital indicator screens containing floor designations and direction arrows a minimum of 2" high to indicate floor served and direction of car travel.
2. Locate fixture in above each car operating panel.
3. When a car leaves or passes a floor, illuminate indication representing position of car in hoistway.
4. Illuminate proper direction arrow to indicate direction of travel.
5. Provide multi-numeral vandal resistant indicator and light assemblies.

### D. New Position Indicator Messages

1. All position indicators should flash these codes alternating the floor level location, or the nearest floor level location of the car, while in any of these service modes. Indicator and respective code shall flash/function continuously while car is disabled or unavailable to allow respondents to view cars location and its inability to operate.
  - a. All displays shall continually show car location in its respective hoist way and direction of car travel as opposed to that floor. A MCCU controller powers floor units. Equip with a MAMMI-X message module for visual indications, including:
    - 1) OS (out of service; elevator unable to function)
    - 2) ES (extended service; extended door hold open time)
    - 3) FS (fire service)
    - 4) IS (independent service)

- 5) ND (door nudging)
  - 6) EM for emergency power
  - 7) IN for Inspect
  - 8) ST for run stop switch
  - 9) Three (3) extra, future codes which can be programmed when/as needed.
  - 10) Position Indicators shall remain functional during Fire Service operation.
- E. Fixture Faceplate Material and Finish: St satin finish all fixtures. All operational key switches to be GEM EX style key switches to match key schedule.
- F. Fixture Faceplate Material and Finish:
1. Car Direction Lantern: Match Car entrance frame. Satin stainless steel.
  2. Car Position Indicator: Match car operating panel. Satin stainless steel.
  3. Phase I Key Switch Faceplate: Match entrance frame. Satin stainless steel.
  4. Hall Stations: Satin stainless steel.
- G. Floor Passing Tone:
1. Provide an audible tone of no less than 20 decibels and frequency of no higher than 1500 Hz, to sound as the car passes or stops at a floor served.

## 2.15 COMMUNICATION

- A. Car Communication System:
1. Include room for future provisions for 2019 communication. Install a phone that will meet 2016 code requirements.
  2. Hands-Free Phone System:
    - a. Two-way communication instrument in car with automatic dialing, tracking, and recall features, with shielded wiring to car controller in machine room.
    - b. Provide dialer with automatic rollover capability with minimum two numbers:
      - 1) Actuate two-way communication via "Help" button.
      - 2) Button or adjacent light jewel shall illuminate and flash when call is acknowledged.
      - 3) Button shall match car operating panel pushbutton design.
      - 4) Provide "Help" button tactile symbol, engraved signage, and Tactile marking adjacent to button mounted integral with car front return panel.

## PART 3 - EXECUTION

### 3.1 SITE CONDITION INSPECTION

- A. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify no irregularities exist which affect execution of work specified.
- B. Inform Consultant of any irregularities in writing prior to commencing work.
- C. Do not proceed with installation until work in place conforms to project requirements.

### 3.2 INSTALLATION

- A. Install all equipment as follows:

1. in accordance with Contractor's instructions, referenced codes, specifications, and approved submittals.
  2. with clearances in accordance with referenced codes, and specifications.
  3. to be easily maintained and/or removed.
  4. to afford maximum accessibility, safety, and continuity of operation.
- B. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.
1. All exposed equipment and metal work installed as part of this work which does not have architectural finish.
  2. Machine room equipment, and pit equipment.
  3. Neatly touch up damaged factory-painted surfaces with original paint color.
  4. Protect machine-finish surfaces against corrosion.
- C. Paint machine room and pit floors.

### 3.3 FIELD QUALITY CONTROL

- A. Work at jobsite will be checked during course of installation. Full cooperation with reviewing personnel is mandatory. Accomplish corrective work required prior to performing further installation.
- B. Perform complete "Acceptance" level pre-testing as specified in the latest edition of ASME A17.2 "Guide for Inspection of Elevators, Escalators, and Moving Walks" prior to AHJ witnessed acceptance testing. Complete any adjustments, repairs, or replacements necessary to achieve code compliant operation including but not limited to:
1. Car safety.
  2. Car emergency communications. Inform Owner and Consultant of any noted failures of Owner provided and maintained equipment or systems.
  3. Car buffers.
  4. Phase I and II Firefighters' Emergency Operation. Phase I initiated by smoke sensing devices.
  5. Power car door operation including door closing force, reopening device, and restricted opening.
  6. Suspension members.
- C. Have Code Authority acceptance inspection performed and complete corrective work.
- D. Provide access to installed equipment and elevator personnel assistance for Consultant's final observation and review requirements.

### 3.4 ADJUSTMENTS

- A. Static balance car to equalize pressure of guide shoes on guide rails.
- B. Verify that weights of existing or altered cars, counterweights, and compensation comply with traction machine manufacturers' requirements and do not exceed total weights indicated on approved submittals. See Section 01 30 00, Submittals.
- C. Lubricate all equipment in accordance with Contractor's instructions.

- D. Adjust motors, power conversion units, brakes, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks, and safety devices to achieve required performance levels.

### 3.5 CLEAN UP

- A. Keep work areas orderly and free from debris during progress of project. Remove packaging materials daily.
- B. Elevator hoistways and all equipment therein shall be cleaned and left free of rust, filings, welding slag, rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt, and dust, including walls, building beams, sill ledges, and hoistway divider beams.
- C. Care shall be to not to mark, soil, or otherwise deface existing or new surfaces. Clean and restore such surfaces to their original condition.
- D. Clean down surfaces and areas which require final painting and finishing work. Cleaning includes removal of rubbish, broom cleaning of floors, removal of any loose plaster or mortar, dust, and other extraneous materials from finish surfaces, and surfaces which will remain visible after the work is complete.
- E. Paint machine room walls and floors.
- F. Remove all loose materials and filings resulting from work.
- G. Clean machine room equipment and floor.
- H. Clean car, car enclosure, entrances, operating and signal fixtures.
- I. Contractor shall remove and properly dispose of all rubbish as fast as it accumulates including all existing parts and components not retained. Keep building and premises clean during progress of work and leave premises at completion in a condition acceptable to the university.
  - 1. Contractor shall properly remove salvaged equipment, as indicated by the university, and coordinate for pick up or delivery to designated area.

### 3.6 FINAL COMPLIANCE REVIEW

- A. Review procedure shall apply for individual elevators, portions of groups of elevators, and completed groups of elevators accepted on an interim basis, or elevators and groups of elevators completed, accepted, and placed in operation.
- B. Contractor shall perform review and evaluation of all aspects of its work prior to requesting Consultant's final review. Work shall be considered ready for Consultant's final contract compliance review when all Contractor's tests are complete, all deficiencies noted by the AHJ have been rectified, and all elements of work or a designated portion thereof are in place and elevator or group of elevators are deemed ready for service as intended.
- C. Contractor shall perform review and evaluation of all aspects of its work prior to requesting consultant's review.

- D. Furnish labor, materials, and equipment necessary for Consultant's review. Notify Consultant five working days in advance when ready for final review of elevator or group of elevators.
- E. Consultant's written list of observed deficiencies of materials, equipment, and operating systems will be submitted to Contractor for corrective action. Consultant's review shall include as a minimum:
  - 1. Workmanship and equipment compliance with Contract Documents.
  - 2. Contract speed, capacity, floor-to-floor times, and door performance compliance with Contract Documents.
  - 3. Performance of following is satisfactory:
    - a. Starting, accelerating, running.
    - b. Decelerating, stopping accuracy.
    - c. Door operation and closing force.
    - d. Equipment noise levels.
    - e. Signal fixture utility.
    - f. Overall ride quality.
    - g. Performance of door control devices.
    - h. Operations of emergency two-way communication device.
    - i. Operations of firefighters' service.
    - j. Operations of special security features and floor lock-off provisions.
    - k. Operations of remote monitoring devices.
    - l. Operations of emergency brake device.
- F. Test Results:
  - 1. In all test conditions, obtain specified contract speed, performance times, stopping accuracy without re-leveling, and ride quality to satisfaction of Owner and Consultant. Tests will be conducted under both no load and full load condition.

### 3.7 THE UNIVERSITY'S INFORMATION

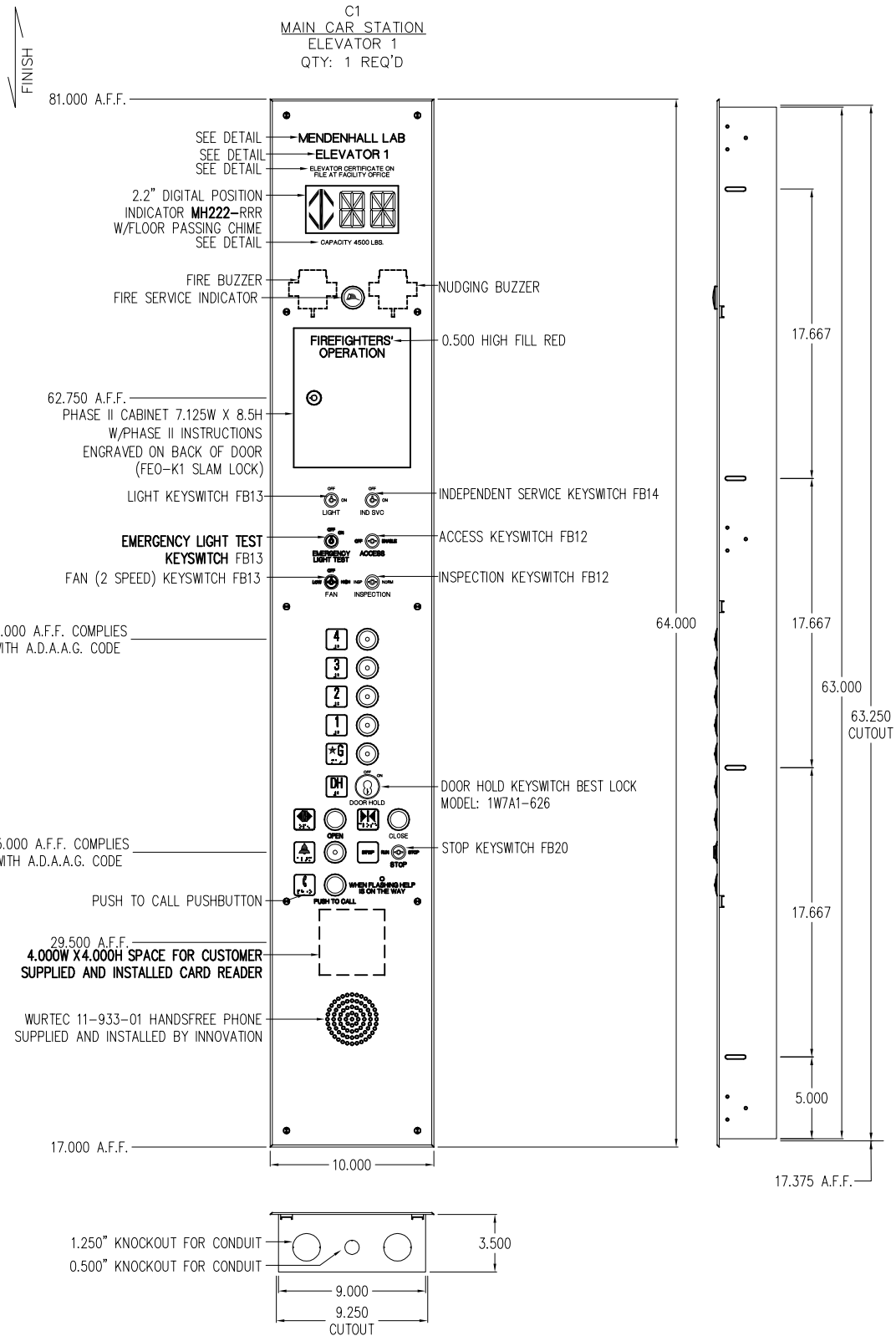
- A. Provide three sets of neatly bound written information necessary for proper maintenance and adjustment for equipment of within 30 days following final acceptance. Final retention will be withheld until data is received by The University and reviewed by Consultant. Include the following as minimums:
  - 1. Straight-line wiring diagrams of "as-installed" elevator circuits, with index of location and function of components. Provide one set reproducible master. Mount one set wiring diagrams on panels, racked, or similarly protected, in elevator machine room. Provide remaining set rolled and in a protective drawing tube. Maintain all drawing sets with addition of all subsequent changes. These diagrams are The University's property. A legend sheet shall be furnished with each set of drawings to provide the following information:
    - a. Name and symbol of each relay, switch, or other apparatus.
    - b. Location on drawings, drawing sheet number and area, and location of all contacts.
    - c. Location of apparatus, whether on controller or on car.
  - 2. Written Maintenance Control Program (MCP) specifically designed for the equipment included under this contract. Include any unique or product specific procedures or methods required to inspect or test the equipment.
  - 3. Printed instructions explaining all operating features.
  - 4. Complete software documentation for all installed equipment.
  - 5. Lubrication instructions, including recommended grade of lubricants.

6. Parts catalogs listing all replaceable parts including Contractor's identifying numbers and ordering instructions.
  7. Four sets of keys for all switches and control features properly tagged and marked.
  8. Diagnostic test devices together with all supporting information necessary for interpretation of test data and troubleshooting of elevator system, and performance of routine safety tests.
  9. The elevator installation shall be a design which can be maintained by any licensed elevator maintenance company employing journeymen mechanics, without the need to purchase or lease additional diagnostic devices, special tools, or instructions from the original equipment Manufacturer.
    - a. Provide onsite capability to diagnose faults to the level of individual circuit boards and individual discreet components for the solid-state elevator controller.
    - b. Provide attached onboard device for fault diagnosis. The device is to be self-contained within the controller.
    - c. Installed equipment not meeting this requirement shall be removed and replaced with conforming equipment at no cost to the University.
  10. Provide upgrades and/or revisions of software during the progress of the work, warranty period and the term of the ongoing maintenance agreement between the University and Contractor.
  11. All software update notifications shall be provided to the installation contractor and the university. Installation contractor shall immediately notify the university of any software upgrade notifications, regardless of if the installation contractor is the maintenance contractor at the time of notification.
- B. Acceptance of such records by The University/Consultant shall not be a waiver of any Contractor deviation from Contract Documents or shop drawings or in any way relieve Contractor from his responsibility to perform work in accordance with Contract Documents.

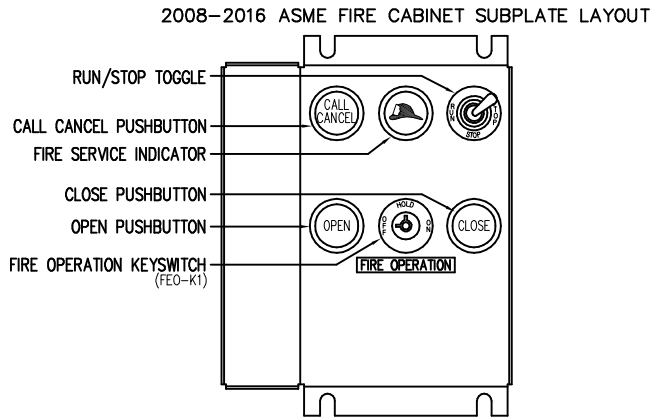
END OF SECTION



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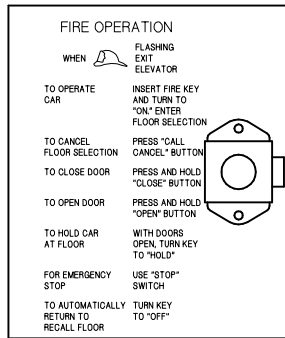


| PANEL KEYSWITCH AND TOGGLE LEGEND |                     |                     |                      |             |       |            |
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| SWITCH IDENTIFICATION             | OPERATING POSITIONS | KEY REMOVE POSITION | MAINTAINED POSITIONS | MOMEN. POS. | MOUNT | HALO COLOR |
| LIGHT                             | OFF-ON              | ALL                 | ALL                  |             | VER   |            |
| FAN (2 SPEED)                     | LOW-OFF-HIGH        | ALL                 | ALL                  |             | VER   |            |
| IND. SVC                          | OFF-ON              | ALL                 | ALL                  |             | VER   |            |
| ACCESS                            | OFF-ENABLE          | ALL                 | ALL                  |             | VER   |            |
| EMERG LT TEST                     | ON-OFF              | OFF                 | OFF                  | ON          | VER   |            |
| DOOR HOLD                         | OFF-ON              | OFF                 | OFF                  | ON          | VER   |            |
| INSPECTION                        | INSP-NORM           | ALL                 | ALL                  |             | VER   |            |
| STOP                              | RUN-STOP            | ALL                 | ALL                  |             | HOR   |            |



| FIRE SERVICE CABINET KEYSWITCH AND TOGGLE LEGEND |                     |                     |                      |             |       |            |
|--------------------------------------------------|---------------------|---------------------|----------------------|-------------|-------|------------|
| SWITCH IDENTIFICATION                            | OPERATING POSITIONS | KEY REMOVE POSITION | MAINTAINED POSITIONS | MOMEN. POS. | MOUNT | HALO COLOR |
| FIRE OPERATION                                   | OFF-HOLD-ON         | OFF-HOLD            | ALL                  |             | VER   | RED        |
| STOP                                             | RUN-STOP            | OFF-HOLD            | ALL                  |             | VER   | RED        |

REAR VIEW OF FIRE DOOR (2005-2016)



ENGRAVING DETAILS

0.500 HIGH FILL BLACK — ELEVATOR 1

0.250 HIGH FILL BLACK — ELEVATOR CERTIFICATE ON FILE AT FACILITY OFFICE

0.500 HIGH FILL BLACK — MENDENHALL LAB

0.250 HIGH FILL BLACK — CAPACITY 4500 LBS.

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| APPROVED AS DRAWN:   | APPROVED BY: _____ |
| APPROVED AS NOTED:   | DATE: _____        |
| REVISE AND RESUBMIT: |                    |

**DEVICE STYLE**

PB-25 PUSHBUTTON — RED LED

PB-1 INDICATOR

PB-13 KEYSWITCH

PB-1 TOGGLE

★ 1

RED JEWEL

1.250 [31.75 mm] SQ.

CUSTOM FISHTAIL BRAILLE

0VAL SURROUND 2.750 X 1.500

1.375 [34.93 mm] DIA.

STAINLESS CHARACTERS ON — BLACK — BACKGROUND

FASTENERS (#10-24 X 1.000) SPANNERHEAD

**BRILLE ADA COMPLIANT:**

1.250 [31.75 mm] SQ.

CUSTOM FISHTAIL BRAILLE

0VAL SURROUND 2.750 X 1.500

1.375 [34.93 mm] DIA.

STAINLESS CHARACTERS ON — BLACK — BACKGROUND

FASTENERS (#10-24 X 1.000) SPANNERHEAD

**ADVISORY NOTES**

1. CUSTOMER TO SUPPLY WIRING DIAGRAMS PRIOR TO MANUFACTURING.

**ELEVATOR CONTROLLER INFORMATION**

MANUFACTURER: GAL

MODEL: GALAXY

FIXTURE VOLTAGE: 24 VDC

POLARITY: \_\_\_\_\_

PULSE WIDTH MODULATION OPTION(Y/N): NO

**EXISTING RETURN DIMENSIONS**

HEIGHT: \_\_\_\_\_

WIDTH: \_\_\_\_\_

JAMB DEPTH: \_\_\_\_\_

**EXISTING FACEPLATE DIMENSIONS**

HEIGHT: \_\_\_\_\_

WIDTH: \_\_\_\_\_

TOP AFF: \_\_\_\_\_

BOTTOM AFF: \_\_\_\_\_

**CAR STATION INFORMATION**

MATERIAL: 11 GA. (TYPE 304)

FINISH: STAINLESS STEEL

NO. 4 (150 GRIT) BRUSHED

ENGRAVING FONT: HELVETICA LIGHT

BEVEL 15°: YES

PREWIRE: YES

HINGING: RIGHT

HINGE TYPE (QTY): SNAP (3 REQ'D)

CAPACITY: CAPACITY 4500 LBS.

**ASME / STATE / FIRE CODE**

FIRE YEAR CODE: 2016

FIRE KEYCODE: FEO-K1

**DIGITAL PI INFORMATION**

DISPLAY COLOR: RED

LENS COLOR: RED

SIGNAL VOLTAGE: \_\_\_\_\_

SIGNAL FORMAT: \_\_\_\_\_

NO. OF INPUTS: \_\_\_\_\_

SCROLLING: (IH320 ONLY)

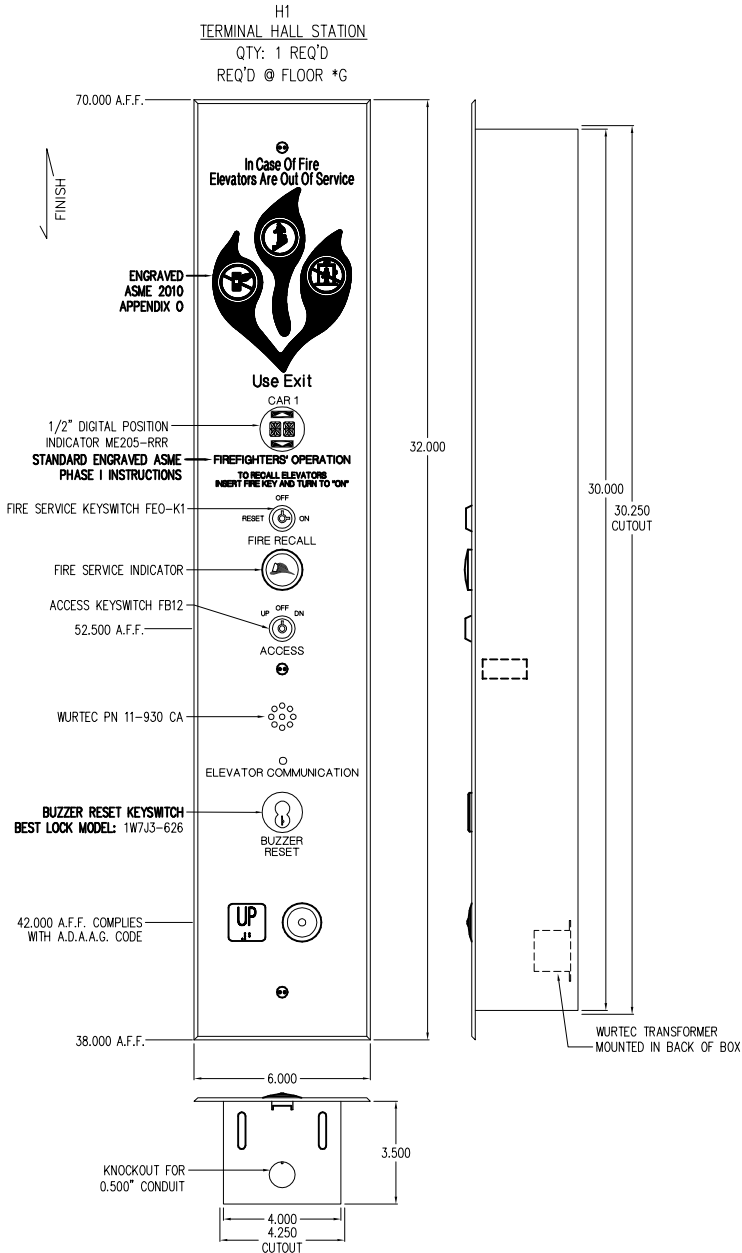
**INNOVATION INDUSTRIES INC**

3500 E. MAIN ST., RUSSELLVILLE, AR 72802

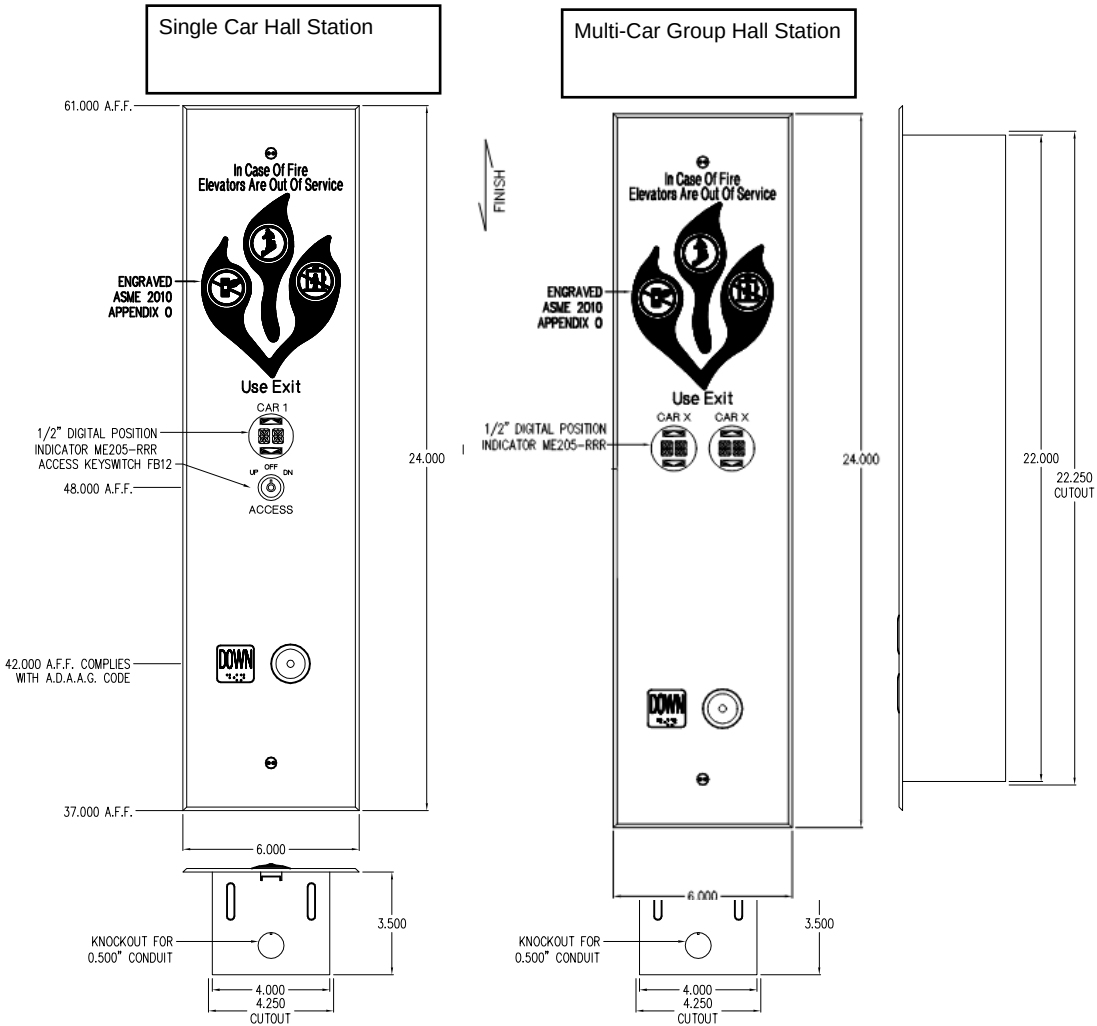
(479) 968-2232 FAX (479) 968-7986



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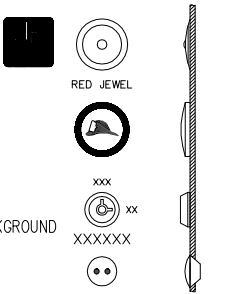
| KEYSWITCHES ON FACEPLATE |                     |                     |                      |             |       |            |
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| SWITCH IDENTIFICATION    | OPERATING POSITIONS | KEY REMOVE POSITION | MAINTAINED POSITIONS | WOMEN. POS. | MOUNT | HALO COLOR |
| FIRE RECALL              | RESET-OFF-ON        | OFF-ON              | ALL                  |             | HOR   |            |
| BUZZER RESET             | (OFF-ON)            | (OFF)               | (OFF)                | (ON)        | VER   |            |
| ACCESS                   | UP-OFF-DN           | OFF                 | OFF                  | UP-DN       | HOR   |            |



| KEYSWITCHES ON FACEPLATE |                     |                     |                      |             |       |            |
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| SWITCH IDENTIFICATION    | OPERATING POSITIONS | KEY REMOVE POSITION | MAINTAINED POSITIONS | WOMEN. POS. | MOUNT | HALO COLOR |
| ACCESS                   | UP-OFF-DN           | OFF                 | OFF                  | UP-DN       | HOR   |            |

DEVICE STYLE

PB-25 PUSHBUTTON RED LED  
PB-1 INDICATOR  
PB-13 KEYSWITCH  
TOGGLE



BRILLE ADA COMPLIANT:

1.250 [31.75 mm] SQ.  
CUSTOM FISHTAIL BRILLE  
OVAL SURROUND 2.750 X 1.500  
1.375 [34.93 mm] DIA.

STAINLESS CHARACTERS ON BLACK BACKGROUND

FASTENERS (#10-24 X 2.000) SPANNERHEAD

ELEVATOR CONTROLLER INFORMATION

MANUFACTURER: GAL  
MODEL: GALAXY  
FIXTURE VOLTAGE: 24 VDC  
POLARITY:  
PULSE WIDTH MODULATION OPTION(Y/N): NO

EXISTING FACEPLATE DIMENSIONS

HEIGHT:  
WIDTH:  
TOP AFF:  
BOTTOM AFF:  
BOX DEPTH:

LANTERN INFORMATION

UP:  
DOWN:  
HALL CHIME:  
CAR CHIME:

HALL EQUIPMENT INFORMATION

MATERIAL: 11 GA. (TYPE 304)  
STAINLESS STEEL  
FINISH: NO. 4 (150 GRIT) BRUSHED

ENGRAVING FONT: HELVETICA LIGHT  
BEVEL 15: YES  
PREWIRE: YES

ASME / STATE / FIRE CODE

FIRE YEAR CODE: 2016  
FIRE KEYCODE: FE0-K1

DIGITAL PI INFORMATION

DISPLAY COLOR: RED  
LENS COLOR: RED  
SIGNAL VOLTAGE:  
SIGNAL FORMAT:  
NO. OF INPUTS:  
SCROLLING: (IH320 ONLY)

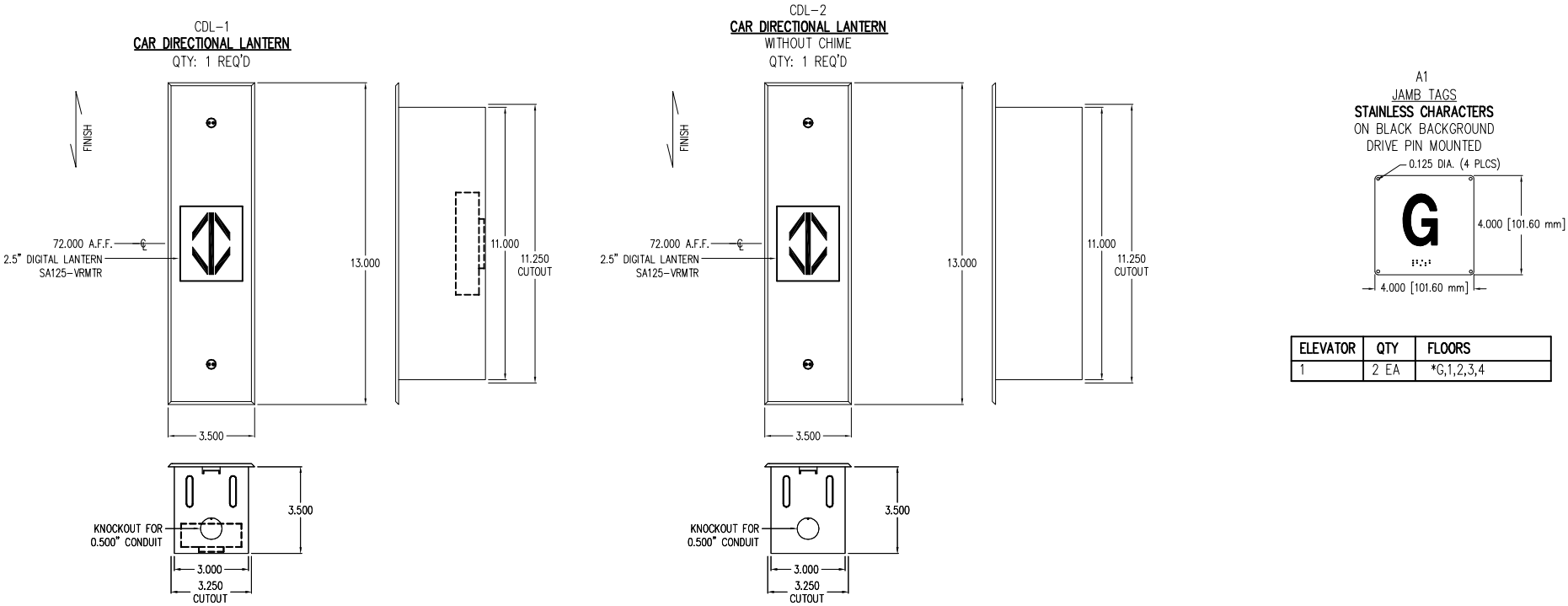
**INNOVATION  
INDUSTRIES INC**

3500 E. MAIN ST., RUSSELLVILLE, AR 72802  
(479) 968-2232 FAX (479) 968-7986



|  |                      |                                   |
|--|----------------------|-----------------------------------|
|  | APPROVED AS DRAWN:   | APPROVED BY: _____<br>DATE: _____ |
|  | APPROVED AS NOTED:   |                                   |
|  | REVISE AND RESUBMIT: |                                   |

| L<br>A<br>N<br>D<br>I<br>N<br>G | ELEVATOR 1            |                  |                  |
|---------------------------------|-----------------------|------------------|------------------|
|                                 | FLOOR MARKINGS        |                  |                  |
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DEVICE STYLE

☐ PUSHBUTTON ☐  
☐ INDICATOR ☐  
☐ KEYSWITCH ☐  
☐ TOGGLE ☐

BRaille ADA COMPLIANT:

☐ 1.250 [31.75 mm] SQ.  
☐ CUSTOM FISHTAIL BRAILLE  
☐ OVAL SURROUND 2.750 X 1.500  
☐ 1.375 [34.93 mm] DIA.  
☐ CHARACTERS ON ☐ BACKGROUND

FASTENERS (#10-24 X 2.000) ☐ SPANNERHEAD ☐



ELEVATOR CONTROLLER INFORMATION

MANUFACTURER:  GAL  
MODEL:  GALAXY  
FIXTURE VOLTAGE:  24 VDC  
POLARITY:   
PULSE WIDTH MODULATION OPTION(Y/N):  NO

EXISTING FACEPLATE DIMENSIONS

HEIGHT:   
WIDTH:   
TOP AFF:   
BOTTOM AFF:   
BOX DEPTH:

LANTERN INFORMATION

UP:  RED  
DOWN:  RED  
HALL CHIME:   
CAR CHIME:  TG024-BFM

HALL EQUIPMENT INFORMATION

MATERIAL:  11 GA. (TYPE 304)  
 STAINLESS STEEL  
FINISH:  NO. 4 (150 GRIT) BRUSHED

ENGRAVING FONT:

BEVEL 15:  YES  
PREWIRE:  NO

ASME / STATE / FIRE CODE

FIRE YEAR CODE:  2016  
FIRE KEYCODE:

DIGITAL PI INFORMATION

DISPLAY COLOR:   
LENS COLOR:   
SIGNAL VOLTAGE:   
SIGNAL FORMAT:   
NO. OF INPUTS:   
SCROLLING:  (IH320 ONLY)

 **INNOVATION  
INDUSTRIES INC**

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(479) 968-2232 FAX (479) 968-7986



|  |                      |                                   |
|--|----------------------|-----------------------------------|
|  | APPROVED AS DRAWN:   | APPROVED BY: _____<br>DATE: _____ |
|  | APPROVED AS NOTED:   |                                   |
|  | REVISE AND RESUBMIT: |                                   |

**SECTION 142713  
CUSTOM ELEVATOR CAB FINISHES**

**PART 1 GENERAL**

**1.01 RELATED REQUIREMENTS**

**1.02 REFERENCE STANDARDS**

- A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.
- B. AISC 360 - Specification for Structural Steel Buildings; 2022, with Errata (2025).
- C. ASME A17.1 - Safety Code for Elevators and Escalators Includes Requirements for Elevators, Escalators, Dumbwaiters, Moving Walks, Material Lifts, and Dumbwaiters with Automatic Transfer Devices; 2022.
- D. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.
- E. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2025.
- F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.
- H. PS 1 - Structural Plywood; 2023.

**1.03 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Samples: Submit samples illustrating car interior finishes, car and hoistway door and frame finishes, handrail material and finish, and \_\_\_\_\_ in the form of cut sheets, finish color selection brochures, or \_\_\_\_\_.

**1.04 WARRANTY**

- A. See Section 017800 - Closeout Submittals for additional warranty requirements.

**PART 2 PRODUCTS**

**2.01 HYDRAULIC ELEVATORS**

**2.02 COMPONENTS**

**2.03 PERFORMANCE REQUIREMENTS**

- A. Regulatory Requirements: Comply with ASME A17.1, applicable local codes, authorities having jurisdiction (AHJ), and \_\_\_\_\_.
- B. Accessibility Requirements: Comply with ADA Standards.
- C. Perform structural steel design, fabrication, and installation in accordance with AISC 360.
- D. Perform welding of steel in accordance with AWS D1.1/D1.1M.
- E. Fabricate and install door and frame assemblies in accordance with NFPA 80 and in compliance with requirements of authorities having jurisdiction.
- F. Perform electrical work in accordance with NFPA 70.

**2.04 OPERATION CONTROLS**

- A. Elevator Controls: Provide landing operating panels, landing indicator panels, and \_\_\_\_\_.
  - 1. Landing Operating Panels: Metallic type, one for originating "Up" and one for originating "Down" calls, one button only at terminating landings; with illuminating indicators.
  - 2. Landing Indicator Panels: Illuminating.
  - 3. Comply with ADA Standards for elevator controls.
- B. Interconnect elevator control system with building security, fire alarm, card access, smoke alarm, building management control, and \_\_\_\_\_ systems.

C. Door Operation Controls:

1. Program door control to open doors automatically when car arrives at floor landing.
2. Render "Door Close" button inoperative when car is standing at dispatch landing with doors open.
3. Door Safety Devices: Moveable, retractable safety edges, quiet in operation; equipped with photo-electric light rays.

**2.05 OPERATION CONTROL TYPE**

**2.06 MATERIALS**

- A. Stainless Steel Sheet: ASTM A666/A666M, Type 304; No. 4 Brushed finish unless otherwise indicated.

**2.07 CAR AND HOISTWAY ENTRANCES**

- A. Elevator, No. 1:
1. Car and Hoistway Entrances, Each Elevator Floor Lobby:
    - a. Framed Opening Finish and Material: Alkyd enamel on steel.
    - b. Car Door Material: Stainless steel, with rigid sandwich panel construction.
    - c. Hoistway Door Material: Stainless steel, with rigid sandwich panel construction.

**2.08 CAR EQUIPMENT AND MATERIALS**

- A. Elevator Car:
1. Car Operating Panel: Provide main and auxiliary; flush-mounted applied face plate, with illuminated call buttons corresponding to floors served with "Door Open/Door Close" buttons and floor indicators.
    - a. Panel Material: Integral with front return; one per car.
    - b. Car Floor Position Indicator: Above car operating panel with illuminating position indicators.
  2. Flooring: Resilient sheet flooring.
  3. Front Return Panel: Stainless steel.
  4. Door Wall: Stainless steel.
  5. Side Walls: Stainless steel.
  6. Rear Wall: Stainless steel.
  7. Hand Rail: Stainless steel, at all three sides. Provide open clearance space 1-1/2 inch (38 mm) wide to face of wall.
    - a. Stainless Steel Finish: No. 4 Brushed.
  8. Ceiling:
    - a. Canopy Ceiling: Stainless steel.

**2.09 FINISHES**

- A. Finish Paint for Metal Surfaces: Alkyd enamel, semi-gloss, color as selected, complying with VOC limitations of authorities having jurisdiction (AHJ).

**END OF SECTION**

SECTION 20 05 01  
INTRODUCTORY STATEMENT

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

- A. The requirements of Instructions to Bidders, General Conditions, and Division 1 apply to all work herein.
- B. In addition to conforming to the documents listed in Paragraph A above, the work performed by the Plumbing, Fire Protection, and Heating, Ventilating and Air Conditioning (HVAC) Contractors shall conform to all provisions of Sections 20 00 00 through 20 99 99 as included in this Specification. The Plumbing, Fire Protection, and Heating, Ventilating and Air Conditioning Contractors are each to consider the word "Contractor" when used in these Sections to mean themselves.
- C. All Plumbing and Heating, Ventilating and Air Conditioning Contractors must read the entire Specification and all divisions therein because they will be responsible for Work described in other Sections where reference is made to "Mechanical Contractor" or other commonly used terminology that implies the Plumbing Contractor or Heating, Ventilating and Air Conditioning Contractor.
- D. All work included under this heading is subject to the Bidding Requirements, General Conditions, and Division 1 General Requirements written for this entire Specification, whether attached to this Part or not, and the Contractor is notified to refer thereto as an integral part of the work.

1.02 APPLICABLE SECTIONS

- A. Contractors shall perform work described in the preceding paragraphs, the General Conditions, Division 1 and in the following Sections (as included):
  - 1. Plumbing: Sections 20 00 00 through 20 99 99  
Sections 22 00 00 through 22 99 99
  - 2. HVAC: Sections 20 00 00 through 20 99 99  
Sections 23 00 00 through 23 99 99
- B. Contractors are required to coordinate their work with that described in other Sections, and therefore, must familiarize themselves with the entire set of Specifications.

1.03 RESPONSIBILITY

- A. The Engineer's efforts under this contract are aimed at designing a project that will be safe after full completion. The Engineer has no expertise in, and assumes no responsibility for, construction means and methods, nor job site safety during construction. These are exclusively the Contractor's responsibility. The Engineer may process or approve Contractor submitted means or methods that may contain information related to construction methods or safety issues. The Engineer may also participate in meetings where such issues might be discussed. Such processing or participation shall not be construed as voluntary assumption by the Engineer of any responsibility for safety procedures.

END OF SECTION

SECTION 20 05 05  
HVAC GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish all materials, labor, tools, and equipment to complete and leave ready for operation all Heating, Ventilating and Air Conditioning (HVAC) systems.
- B. By submitting a Bid, the Contractor certifies that:
  - 1. The Contractor has visited the site and is satisfied that he/she understands all site conditions that may affect his/her Bid price, with the sole exception of those items which he/she specifically is taking exception to in writing in his/her Bid.
  - 2. The Contractor fully understands the make-up, construction, and operation of all systems and equipment he/she is bidding on and has included in his/her price all materials, supplies, accessories, and services necessary to make these systems complete and operational, whether such materials, supplies, and services are explicitly shown on the Drawings or included in these Specifications or only implied by the clear intent of these Documents that the Contractor provide a complete and fully operational system as part of the scope of work undertaken by this Contractor.
- C. These General Requirements are in addition to the other requirements referenced elsewhere within these Specifications.

1.02 ENVIRONMENTAL GUIDELINES

- A. Comply with all Project Requirements in Division 01 for Construction Waste Management.
- B. Minimize the use of virgin materials and minimize waste during construction.
- C. Use low-VOC mastics and sealants.

1.03 STANDARDS OF QUALITY

- A. Provide quality work conforming to the best accepted practice and standards of the trade. Further definition of quality is given by reference to various laws, codes, standards, and regulations.
- B. All laws and codes having jurisdiction over this project are deemed to be included in their entirety as a part of these Specifications. Also, any other laws, codes, standards, or regulations referenced herein are deemed to be included in their entirety.
- C. If a conflict occurs between the Drawings, the Specifications, and the applicable codes, immediately call the conflict to the attention of the Architect before bids are submitted. The Architect will determine which interpretation shall take precedence. Conflicts not brought to the Architect's attention before bids are due shall be priced by the Contractor to include the most expensive, highest quality alternative.

- D. Material and equipment installed under this Contract shall be new, undeteriorated, and of a quality not less than the minimum specified. All equipment shall be certified, listed, and labeled by UL. If UL does not certify an associated piece of equipment, then certification by another nationally recognized testing laboratory such as CTL shall be permissible. If equipment is of a type that no testing lab lists nor labels, then a safety evaluation must be performed at the supplier's expense by the inspecting authority or another federal, state, or municipal agency.
- E. The following codes apply to this work (as approved and amended by the Authority Having Jurisdiction including all applicable sections of interim agreements in effect at the time of permit issuance):
  - 1. Local
    - a. Building Code
    - b. Fire Code
  - 2. State of Ohio
    - a. Ohio Building Code
    - b. Energy Conservation Code
    - c. Mechanical Code
    - d. Boiler Code including ASME Boiler and Pressure Vessel Code Section I, "Power Boilers," and Section IV, "Heating Boilers"
    - e. Elevator Code
    - f. Fire Code
  - 3. National
    - a. National Fire Protection Association (NFPA) Codes as listed in subsequent Sections and Article 101
    - b. Power Piping ASME B31.1
    - c. Refrigeration Piping ASME B31.1
    - d. International Fuel Gas Code (IFGC)
    - e. All applicable OSHA Requirements
    - f. All applicable EPA Requirements
    - g. Industrial Risk Insurers (IRI)
- F. Work must be performed by licensed Contractors as required by Local and State Codes.
- G. Methods and materials must be certified where noted in the individual Specification Sections.
- H. All equipment and appliances must bear a tag or label of an Approved Testing Agency. Review Local Code requirements.
- I. Work must comply with City of Marion, Ohio; Ohio Building, Mechanical, Plumbing, and Fire Codes. Unless otherwise noted, the latest enforced code edition shall apply to this work.

#### 1.04 CONTRACT DRAWINGS

- A. Only the printed, stamped, AHJ approved, 2-dimensional documents shall be used and relied upon for construction purposes. 3-dimensional models are not a part of the contract drawings.



- B. Drawings are schematic and show approximate locations and extent of work. Exact locations and extents must be coordinated with other Contractors and verified in the field. Coordination of the final fabrication drawings and final coordination of the installation in the field is the Contractor's responsibility. The Contractor is to take the design to the next level of detail, knowing exactly what equipment and materials he/she is going to provide, and build the project on the basis of that equipment and other approved Shop Drawings.
- C. The Drawings indicate required size and points of termination of pipes and ducts and suggests proper routes to conform to structure, avoid obstructions, and preserve clearances. However, it is not intended that Drawings indicate all necessary offsets, and the Contractor shall, without further instructions or additional cost to the University, make the installation in such a manner as to conform to structure, avoid obstructions, preserve headroom, and keep openings and passageways clear.
- D. When the work as indicated on the Contract Drawings exceeds the minimum required by any code, standard, requirement, rule, or regulation, the Contract Drawings shall govern the design and installation of the work.
- E. Significant deviations from Drawings must be approved by the Architect.
- F. Up to the time of roughing in, the Architect reserves the right to make minor changes in location that do not require additional labor or material. No cost shall be added to the Contract for a minor change. The Architect shall determine what is a "significant" and what is a "minor" change.

#### 1.05 BIM MODELS

- A. The Engineer has created a Building Information Model (BIM) using Revit software to produce two-dimensional Construction Documents. The BIM Level of Development (LOD) for the Engineer's purposes varies by system and components and may include LOD 200 and 300 elements in accordance with industry standards and the Standard of Care for design professionals.
- B. The Contractor is required to develop BIM documentation for collaboration, clash detection, fabrication and record drawings tasks. BIM documentation for the Contractor's use and for coordination purposes shall be further developed from the two-dimensional Contract Drawings in accordance with the Contractor's means and methods. If the Engineer's model is used as a basis for the Contractor's effort, the Contractor shall recognize that the Contractor is responsible for developing the BIM further, in accordance with the requirements of the Contract Documents.
- C. Some components may be required by the Contract Documents that are not represented in the BIM. Such components include, but are not limited to, steam traps, water hammer arrestors, trap primers (including piping from the trap primer to the floor drains), final connections to plumbing fixtures and equipment (including all required valves and accessories), etc. Piping required to be sloped may not be shown in the model as sloped. The contractor is required to slope the piping in accordance with the Construction Documents and the building code.

- D. If there is a conflict between what appears to be indicated in the BIM and what is represented on the 2-dimensional drawings, the 2-dimensional drawings shall take precedence.

#### 1.06 ABBREVIATIONS AND SYMBOLS

- A. Listed below are titles and abbreviations used in the Specification. Not all may necessarily apply to this work.
- |            |                                                                                |
|------------|--------------------------------------------------------------------------------|
| 1. AABC    | Associated Air Balance Council                                                 |
| 2. ADA     | Americans with Disabilities Act                                                |
| 3. ADC     | Air Diffusion Council                                                          |
| 4. AGA     | American Gas Association                                                       |
| 5. AMCA    | Air Movement and Control Association                                           |
| 6. ANSI    | American National Standards Institute                                          |
| 7. ARI     | Air Conditioning and Refrigeration Institute                                   |
| 8. ASA     | Acoustical Society of America                                                  |
| 9. ASHRAE  | American Society of Heating, Refrigerating, and Air Conditioning Engineers     |
| 10. ASME   | American Society of Mechanical Engineers                                       |
| 11. ASSE   | American Society of Sanitary Engineers                                         |
| 12. ASTM   | American Society for Testing and Materials                                     |
| 13. AWWA   | American Water Works Association                                               |
| 14. BAS    | Building Automation System                                                     |
| 15. CGA    | Compressed Gas Association                                                     |
| 16. CISPI  | Cast Iron Soil Pipe Institute                                                  |
| 17. EJMA   | Expansion Joint Manufacturers Association, Inc.                                |
| 18. EPA    | Environmental Protection Agency                                                |
| 19. FM     | Factory Mutual                                                                 |
| 20. HVAC   | Heating, Ventilating, and Air Conditioning                                     |
| 21. MSS    | Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. |
| 22. NEBB   | National Environmental Balancing Bureau                                        |
| 23. NEC    | National Electrical Code                                                       |
| 24. NEMA   | National Electrical Manufacturers Association                                  |
| 25. NFPA   | National Fire Protection Association                                           |
| 26. NSF    | National Sanitary Foundation                                                   |
| 27. OAC    | Ohio Administrative Code                                                       |
| 28. OBC    | Ohio Building Code                                                             |
| 29. ODH    | Ohio Department of Health                                                      |
| 30. ODMH   | Ohio Department of Mental Health                                               |
| 31. ODOE   | Ohio Department of Energy                                                      |
| 32. ODOT   | Ohio Department of Transportation                                              |
| 33. OSHA   | Occupational Safety and Health Administration                                  |
| 34. PDI    | Plumbing and Drainage Institute                                                |
| 35. SMACNA | Sheet Metal and Air Conditioning Contractors National Association              |
| 36. TAB    | Testing, Adjusting, and Balancing                                              |
| 37. UL     | Underwriters' Laboratories                                                     |
- B. The abbreviations are shown on Drawings. For further abbreviations, Contractor shall refer to the symbols list shown in the latest ASHRAE Fundamentals Handbook.

## 1.07 DEFINITIONS

- A. Applicable definitions listed by Ohio Building Codes apply to this work.
- B. "The Authority Having Jurisdiction" shall refer to any duly authorized governmental body or public utility and/or their agents having jurisdiction over the work as provided under this Contract.
- C. "Concealed": Embedded in or installed behind walls, within partitions, above suspended ceilings, in trenches, in tunnels, below floor slabs, and within crawl spaces. Items within mechanical rooms are not considered "concealed."
- D. "Contractor": Means the Contractor whose scope of work is described within Divisions 20, 21, 22, or 23.
- E. "Ductwork": Duct and fittings, dampers, vanes, controls, hangers, bracing, insulation and other items required or necessary.
- F. "Exposed": Not installed underground or "concealed," as defined previously. In full view, all items within a mechanical room are considered "exposed."
- G. "Furnish": To purchase and deliver products to the project site and make ready for installation.
- H. "Install": To take furnished products, assemble, erect, secure, connect, and place into operation.
- I. "Piping": Pipe, fitting, flanges, valves, controls, specialties, hangers, concrete inserts, bracing, insulation, and other items required or necessary.
- J. "Products": Includes materials, systems, and equipment.
- K. "Provide": To furnish, erect, install, and connect to make completely ready for regular operation.
- L. "Work": The providing of products for entire Contract.

## 1.08 PERMITS, FEES, AND NOTICES

- A. Secure and pay for all permits and governmental fees, bonds, licenses, and inspections necessary for the proper execution and completion of the work. Refer also to specific permit requirements in other Sections of Divisions 20, 21, and 22 (as included) and in Division 1.
- B. Give notice and comply with all laws, ordinances, rules, regulations, and lawful orders of any public authority bearing on the performance of the work.
- C. The HVAC Contractor shall arrange for inspection of the work by the Code Authority having jurisdiction.

- D. If the Contractor performs any work knowing that work to be contrary to such Laws, Ordinances, Rules and Regulations, and without notice to the Architect, the Contractor shall assume full responsibility for and shall bear all costs associated with such work.

#### 1.09 EXAMINATION OF SITE

- A. Certain existing conditions affect the manner or sequence of work performance. Review existing services, structures, and operating schedules to facilitate installation of the Work. Coordinate scheduling of the work with existing operations.
- B. Visit the site of the proposed project and familiarize yourself with all the conditions which might affect the work. After the Contract is signed, no allowance will be made for lack of knowledge of project conditions.
- C. Prior to bidding the project, verify and reconcile work required by the Contract Documents with conditions at the Site.
- D. Should any discrepancies be noted during the Bidding Period, notify the Architect immediately, in writing, to permit the issuance of an addendum to prevent misunderstandings at a later date.

#### 1.10 UTILITIES

- A. Prior to construction, locate any existing utilities within the project limits. Make minor relocations to permit installation of work. Advise the Architect immediately of major conflicts on a site plan layout to permit modifications of the Contract Documents and submit to the Architect for review prior to any excavation. Where existing utilities conflict with new work, mark and identify proposed modifications on the site plan layout.
- B. Record locations of all concealed utilities on the Record Drawings.
- C. Coordinate any utility service shutdown or outages with the Architect and the University. Shutdowns shall conform to all utility company requirements. Avoid inconveniencing the University, and provide temporary service during the curtailment, as required by the Architect or University. Provide five (5) working days (minimum) advanced notice to the University for any required utility outages.

#### 1.11 CONTRACTOR DESIGN/DETAILING

- A. The Contractor is required to include the design of component parts, subsystems, and installation details as required by the Specifications, as indicated on the Drawings, and as required for a complete and operating installation. This design work shall be done after all equipment manufacturers and material types have been selected from those allowed by the Specifications. If required by the Specifications, submit design calculations for review. Obtain the services of qualified personnel to perform this design and detailing. The Contractor's design and detailing does not relieve the Contractor from complying with the Contract Documents.

#### 1.12 RECORD DRAWINGS

- A. Maintain at the job site one (1) copy of Drawings, which shall be used exclusively for recording the location of all installed work.
- B. Record deviations in locations of concealed piping, valves, all buried or concealed utility services (water, gas, fire, manholes, etc.), dimensioned from a fixed control point, including depth of bury at start of gas line, at each change of direction as required for further reference. Minor piping variations need not be recorded. Record Addendum and Change Order Items.
- C. Record deviations necessary to incorporate equipment different from the Design Base equipment.
- D. At completion of the project, deliver Record Drawings and Coordination Drawings to the Architect.
- E. Diagrams and Operating Instructions: Post complete diagrams and operating instructions for all control systems near the related equipment. Provide framed glass or plastic protection for the Drawings and operating instructions. When multiple equipment rooms exist in a building, these diagrams shall be required at each piece of equipment. Additionally, post or make available in the main equipment room a complete set of diagrams.
- F. Refer to Division 1, Section 01 74 01, "Execution Requirements," for additional requirements.

#### 1.13 WARRANTY

- A. Contractor shall warranty equipment, workmanship, and materials for one (1) year from date of Substantial Completion. If defects develop within this warranty period, and upon receiving written notice from the Architect or University, Contractor shall remedy the defects and reimburse the University for all damage to other work caused either by the defects or during the work of correcting the defects.
- B. Refer also to Division 1 and any individual Sections that define the starting date of the warranty period or discuss either additional warranty requirements or extended warranties beyond the standard period. At the contractor's expense, any typical manufacturer's warranty period for equipment shall be extended as required to begin the specified time frame at the actual Substantial Completion date.

#### 1.14 COORDINATION

- A. Coordinate work carefully with the work of all other Contractors.
- B. Consult all contract documents that may affect the locations of any piping and make minor adjustments in location to secure coordination.
- C. Before proceeding, coordinate drilling, welding, etc., and method of attachment to columns, joists, beams, girders, etc., with Structural Engineer and General Trades Contractor.

### 1.15 TEMPORARY UTILITIES

- A. Refer to Division 1, General Requirements.
- B. Any and all equipment used for temporary building operation during construction shall be contingent on a plan submitted by the Contractor and approved by the Construction Manager and the Engineer. The criteria shall include, but not be limited to, the following:
  - 1. All necessary controls shall be in place and functional.
  - 2. All equipment safeties shall be functional.
  - 3. The equipment shall not be operated without the design filters in place and the filters shall be changed in accordance with the criteria on the Air Filter Schedule. Refer to Section 23 41 05 Filters for more information.
  - 4. Maintenance of the equipment shall be as recommended by the manufacturer and shall be the responsibility of the Contractor.
  - 5. The operation of the units for construction shall not affect the required warranty terms and times at the completion of the building.

## PART 2 PRODUCTS

### 2.01 DESIGN-BASE MANUFACTURERS

- A. The Drawings and Specifications are based on the requirements and layouts of the equipment of the Design-Base Manufacturers. Design of equipment has been coordinated with the building and other Trades for these specific models and manufacturers of equipment. Where several manufacturers are listed, the first named is the Design-Base Manufacturer, unless specifically noted otherwise. Submit for final approval products of the listed manufacturers that are of performance and quality comparable to the Design-Base Manufacturer's products.
- B. Where necessary, prepare new layouts to be used for other equipment listed. Adjust and coordinate the layouts with the equipment and service requirements and with Code-required working clearances that may have different dimensions or service requirements from the Design-Base Manufacturer's equipment. Verify that this equipment will fit and function in the indicated application and will coordinate with adjacent equipment for fit and clearances. Submit all new layouts as part of the shop drawing review.
- C. Whenever the Contractor furnishes equipment or material other than that of the Design-Base Manufacturer, he/she is responsible for the cost and coordination of all modifications required not only for his/her work, but also for the work of all other Trades affected. Where changes to other Trades' work are required, the Contractor furnishing the equipment or material must include the additional costs of all such changes in his/her Bid, arrange with these other Trades for the changes, and compensate them accordingly.

### 2.02 APPROVED EQUALS

- A. Equal (equivalent) components (articles, materials, forms of construction, equipment, fixtures, etc.) by manufacturers not listed but meeting the Specifications may be submitted to the Architect for approval and subsequent inclusion into the bidding documents. Submittal must be received no later than ten (10) working days before the bid date. If approved, such manufacturers will be listed in an addendum.

- B. Submittals must include all of the following:
  - 1. Cover Letter: Company letterhead addressed to Architect. Indicate the following:
    - a. Project name, project building name, project number, and phase or bid package if applicable
    - b. Specification Section by number and title
    - c. Specified Product
    - d. Proposed Product
    - e. Deviations, if any, from Specified Product
    - f. List of attachments
  - 2. Product Data: Manufacturer's literature, fully describing proposed product with exact item highlighted or clearly indicated.
  - 3. Specifications: Manufacturer's Specifications with all modifications noted as required to show compliance with Bidding Documents.
  - 4. Test Data: Where performance requirements are specified, submit laboratory tests to indicate compliance.
  - 5. Samples: When required by Architect, submit appropriate samples of proposed product showing color, texture, construction and other attributes necessary for evaluation.
- C. If the Contractor fails to comply with all of the preceding requirements and fails to provide all of the requested information, the submittal will not be reviewed.

## 2.03 SUBSTITUTIONS

- A. Contractor may submit equipment and material substitutions of his/her choice, without prior approval, on the "Substitution Sheet" included in the Bid Schedule. Such substitutions will not form the basis of the award and may be considered only after selection of the lowest bidder furnishing "Standards" as specified.

## 2.04 MANUFACTURER'S DECLARATION

- A. Submit a list of the suppliers to be used on this project within thirty (30) days of award of contract. Type this list on company letterhead and include the project title. Include all equipment listed in Section 20 05 15, "Submittals." Adjacent to each Specification Section number and product description, list the manufacturer and catalog number/type.

## 2.05 QUANTITIES

- A. Equipment may be referred to either in these Specifications or on the Drawings, as singular or plural; Contractor is responsible for verifying the exact number of items required to complete his/her work.

## PART 3 EXECUTION

### 3.01 CUTTING AND PATCHING

- A. Unless otherwise required in the General Conditions and other Specification Sections, the Contractor shall include in his/her Bid the cost of all cutting and patching required for his/her work. Work must be accomplished in a neat and workmanlike manner that is acceptable to the Architect.

- B. If necessary to cut into the work of other Trades, the other Trades shall do the cutting in at this Contractor's expense. Patching shall be done in the same fashion.
- C. Cutting of structural support beams, joists, plates, precast, or other structural members is strictly prohibited without the specific written consent of the Architect and Structural Engineer. Use rotary drills where cutting holes through concrete, brick, plaster, or tile is necessary. Obtain approval of the Architect before proceeding with work.
- D. All cutting and patching shall be done promptly, and all repairs shall be made as necessary to leave the entire work in good condition, including all cutting, fitting, and drilling of masonry, concrete, metal, wood, plaster, and other materials as specified or required for proper assembly, fabrication, installation, and completion of all work of the Contract.
- E. Patching shall match adjacent materials and shall be accomplished only by tradesmen skilled in the respective craft required. Materials and equipment used in the patching work shall comply with the requirements of those Sections of the Specifications relating to material to be used in new construction. Contractor is not necessarily obliged to employ the General Trades Contractor to do patching. The HVAC Contractor shall incur all costs for cutting and patching necessary for their installation of their respective work.
- F. Patch to match adjacent surface construction.
- G. Patch and repair holes in walls, ceilings and floors that are left as a result of removing ductwork, piping, or other mechanical elements or as necessary to install the work related to this project. Match adjacent surface conditions. Coordinate patching with architect and work of other trades.
- H. Refer to Division 1 and Division 2 for additional requirements.

### 3.02 PAINTING AND RELATED WORK

- A. Finish painting in areas of new construction and remodeled areas is the responsibility of the General Trades Contractor and is specified in Division 9.
- B. Any other painting required by Sections of Division 20 or 23 is the responsibility of the respective HVAC Contractor. Such painting shall be done by a qualified tradesman skilled in the craft and shall meet the requirements of Division 9. Each Contractor is responsible for repainting of finished areas disturbed by his/her own cutting and patching. Finishes shall match existing conditions.
- C. If factory-finished equipment has rusted or has been damaged, clean the equipment, spot prime it with zinc chromate, and finish it to the original quality and color.
- D. Clean HVAC support steel and bare ferrous metal, remove all rust, apply primer, and paint in accordance with Division 9 Specifications.
- E. Prime and finish all plywood mounting boards in accordance with Division 9 Specifications.



### 3.03 CLEANING

- A. Upon completion of work, thoroughly clean of dirt, stickers, grease, rust, oil and other foreign matter, all material, fixtures and equipment furnished in this Contract. Prepare for finish painting, where painting is specified.
- B. Clean galvanized piping and ductwork in exposed areas with diluted acetic acid.
- C. Clean copper piping in exposed areas with fine emery cloth and solvent.
- D. Clean all gauges, thermometers, traps, dirt legs, strainers and fittings.
- E. Clean all insulation coverings.
- F. Keep all areas as clean as possible during construction. Refer to Division 1 regarding additional requirements.

### 3.04 SCAFFOLDING, RIGGING, HOISTS, AND TRANSPORTATION

- A. The Contractor shall provide scaffolding, staging, cribbing, tackle, hoists, and rigging necessary for placing his/her materials and equipment in their proper places in the Project.
- B. The Contractor shall pay costs for transportation of materials and equipment to the job site and shall include such costs in his/her proposal. The Contractor shall pay costs for storage of materials and equipment if space is not available at the site and shall include such costs in his/her proposal.
- C. Scaffolding and hoisting equipment shall comply with the requirements of applicable Federal, State, and Local Laws and Codes.

### 3.05 TESTS

- A. The Contract Documents, laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction may require portions of the work to be inspected, tested, or approved. These services shall be performed by approved agencies.
- B. The Architect must receive notification of all scheduled tests and adjustments at least 72 hours before they are scheduled so he/she may witness the tests and adjustments. If the Contractor performs any test or adjustment without the Architect present or without proper notification, the Contractor may be required to perform the test or adjustment a second time at the Contractor's expense. To minimize inconvenience, all test schedules shall be coordinated with the University.
- C. Secure required certifications of inspection, testing, or approval and include those in the Service Manuals. See Section 20 05 20, "Record and Information Manuals."

- D. Test and secure approval after the piping installation has been completed, but before the piping has been concealed and before the pipe covering has been applied. Each system shall be tested as required by other Sections of this Specification. The piping shall be free of leaks at test pressure. If a leak appears, repair the line and any damage resulting from the leak at no additional cost to the University. The test shall be repeated until the system is proven to be free of leaks and properly anchored.
- E. Should any of the work be covered up or enclosed before all required inspections are completed and approvals obtained, uncover the work as required and, after the work has been completely inspected and approved, make all repairs and replacements, with such materials and workmanship as are necessary for the approval of the Architect. Do so at no additional cost to the University.

### 3.06 TESTING PROCEDURES

- A. Provide all tools, instruments, personnel, and equipment required to perform tests. Make all required temporary connections. Properly repair defects that develop under tests and repeat the tests. Do not caulk threaded joints, cracks, or holes. Repair leaks by tightening threaded joints or by replacing pipe, fittings, or equipment with new materials. Minor leaks in welded joints may be chipped out and rewelded.
- B. Perform hydrostatic and air tests before piping is concealed or covered. Completely drain all systems after hydrostatic tests are performed.
- C. Testing of service lines shall follow recommended practices. Remove all air from lines when testing with water pressure, to avoid false pressure readings.

### 3.07 INSPECTION

- A. Check each piece of equipment in the system for defects. Verify that all parts are properly furnished and installed, that all items function properly, and that all adjustments have been made.

### 3.08 PROTECTION

- A. Do not deliver equipment and material to the site until the work is ready to receive it, unless it can be protectively stored in a manner acceptable to the Architect.
- B. During construction, protect all equipment and materials during construction from damage by weather, water, dirt, paint droppings, welding and cutting spatters, and other construction activities.
- C. Elevate and protectively cover all materials or equipment stored outside.
- D. Store inside all materials and equipment sensitive to weather or construction conditions. Where necessary, store sensitive equipment in a heated area.
- E. During construction, cover all non-operating motors, bearings, and controls that are stored or installed in place.
- F. Refer also to individual Specification Sections for specialized protection.

- G. Immediately repair or replace damaged equipment or materials to the satisfaction of the Architect and at no additional cost to the University.
- H. Protect the building and other Contractor's material and equipment from damage caused by your work. Protect floors from cutting oil and chips.
- I. Use all necessary means to protect materials before, during, and after installation.

3.09 NOTIFICATION OF START-UP

- A. Notify the Architect of the start-up schedule for all equipment. The Architect shall then notify the University.

3.10 PROTECTION FOR PUBLIC AND EMPLOYEES

- A. Refer to Division 1, General Requirements.

3.11 TEMPORARY FIELD OFFICE AND MATERIALS STORAGE

- A. Refer to Division 1, General Requirements.

3.12 USE OF EXISTING FACILITIES

- A. Refer to Division 1, General Requirements.

3.13 DEMOLITION AND REMOVAL

- A. Refer to Division 1, General Requirements.

END OF SECTION

SECTION 20 05 10  
COORDINATION BETWEEN TRADES

PART 1 GENERAL

1.01 DESCRIPTION

- A. HVAC, and Electrical Contractors shall coordinate their rough-in, service, and control wiring requirements with each other. Electrical Contractor shall review all control Drawings to coordinate exact number of temperature control panels, as well as to provide proper starters (including necessary time delays, auxiliary contacts, etc.).
- B. Equipment drawing 1,000 watts or more, before power factor correction, must have a power factor of 85% or greater at rated load conditions. Equipment with an operating power factor of less than 85% shall be corrected to at least 90% under rated load-operating conditions. The Contractor furnishing the equipment shall be responsible for power factor correction devices.
- C. The Electrical Contractor shall install all wiring required to power HVAC equipment, including 120 volt to control panels as shown. The Contractor furnishing the control device is responsible for all control and interlock wiring, regardless of voltage, except if the control device actuates or is actuated by the fire alarm control panel. The Electrical Contractor shall be responsible for this wiring from the fire alarm control panel to the control device. The Contractor providing a control panel shall extend control power for temperature control panels required, but not shown on the Drawings from the nearest available breaker to the control panel.
- D. Each Contractor furnishing equipment requiring electrical power is responsible for advising Electrical Contractor of the exact function of the systems to assure proper electrical circuits and type of starter (including necessary time delays, etc.) with correct number of auxiliary contacts required for proper system operation. If motors that require larger starters, safety switches, circuit breakers, fuses, or branch circuit conductors than indicated are furnished, the Contractor furnishing the equipment shall reimburse the Electrical Contractor for any cost differential.
- E. All electrical devices furnished as part of HVAC equipment, and the installation requirements for all electrical work included in the project, shall conform to all other applicable Sections of these Specifications.
- F. Short Circuit Current Rating (SCCR): Unless noted otherwise, any HVAC equipment with an integral control panel that requires a circuit of 30 amps or greater shall have an SCCR rating of 65,000 amps.
- G. The HVAC Contractor shall be responsible for start-up, commissioning, and final operation of equipment provided under their respective contracts and shall demonstrate the operation of all systems to the University. Provide the appropriate personnel for the checkout of the building life safety systems and for the life safety system demonstration to the Authorities having jurisdiction.

1.02 COORDINATION

- A. The HVAC and Electrical items are listed in the Drawing Schedules with key letters to identify the responsibility of each Contractor.

1.03 BUILDING AUTOMATION AND TEMPERATURE CONTROL

- A. Coordinate all Building Automation System and Temperature Control System components and installation as noted in Specification Sections governing that work.

END OF SECTION

SECTION 20 05 15  
SUBMITTALS

PART 1 GENERAL

1.01 DESCRIPTION

- A. For general requirements, refer to the GENERAL CONDITIONS and Division 1.
- B. Materials and equipment installed in this work shall meet all the requirements of the Contract Documents and no materials or equipment shall be ordered until submittals are reviewed and approved by the Contractor, Architect, and Engineer.
- C. Contractors assume all responsibility for changes required as a result of work performed, or equipment ordered, by the Contractor prior to submittal approval.
- D. Submit complete copies of the catalog data or Drawings for each manufactured item of equipment and each component to be used in the work as required in the table below. Catalog data shall include specific performance data, utility requirements, service area required, material description, rating, capacity, working pressure, dimensional data, material gauge or thickness, wiring diagrams, brand name, catalog number, and general type.
- E. Submittals reviewed by the Engineer shall not take precedence over the Contract Documents, and the Engineer's review shall not relieve the Contractor from the responsibility for complying with the Drawings or Specifications, nor from the responsibility for providing proper clearance and coordination with other Trades.
- F. When submitted for review, all shop Drawings shall bear the Contractor's certification that he/she has reviewed, checked, and approved the shop drawings, that they have been coordinated with the requirements of the project and the provisions of the Contract Documents, and that he/she has verified all field measurements and construction criteria, materials, catalog numbers, and similar data. Submittals without a Contractor's approval will not be reviewed and will be returned.
- G. Submittals shall include the complete package of equipment materials, piping, and insulation pertaining to that piece of equipment. A package of equipment requiring long lead times may be submitted earlier.
- H. The Engineer's review and approval does not extend to means, methods, manners, techniques, sequences, procedure of construction or to safety precautions or programs incident thereto. This is solely the Contractor's responsibility.
- I. Shop Drawings that are submitted, but are not required by the table below, will not be reviewed, and they will not be returned.
- J. Shop Drawings that are indicated to be provided for Record Purposes only will not be reviewed, and they will not be returned.

## 1.02 CONTRACTOR'S RESPONSIBILITIES

- A. Completely review and approve shop Drawings, product data, and samples prior to submittal.
- B. Determine and verify:
  - 1. Field measurements
  - 2. Field construction criteria
  - 3. Catalog numbers and similar data
  - 4. Conformance with Specifications
  - 5. Quantities
- C. Coordinate each submittal with requirements of the work and the Contract Documents and other Trades.
- D. Notify the Architect in writing, at the time of submittal, of any deviations in the submittals from the requirements of the Contract Documents. The Contractor must boldly note all deviations on the submittal.
- E. Make submittals promptly in accordance with the approved schedule and in such sequence as to cause no delay in the work of the Contractor or any other Contractor.
- F. Correct or change and then resubmit rejected submittals as required until approved. The Contractor must clearly note all revisions on resubmitted submittals. Resubmittals without the revisions noted may be returned without review.
- G. Do not begin fabrication or work that requires submittals until approved submittals are returned.

## 1.03 CERTIFICATIONS

- A. Provide:
  - 1. Test Agency results verifying capacities, operating conditions and power requirements at design conditions. Test Agencies are to be hired by the Contractor at the Contractor's expense.
  - 2. Manufacturer's Statement of Compliance with Standards discussed in individual Specification Sections.
  - 3. Equipment labels indicating Certification requirements.
  - 4. Quality standard designations on each unit piece, for example, each pipe length, pressure vessel, or valve.
  - 5. Typed verification that noted mixes, chemical compositions, and testing procedures were complied with.
  - 6. Other Certifications listed in other Sections of the Specifications.

## 1.04 REQUIRED SUBMITTAL INFORMATION (ALSO REFER TO DIVISION 1)

- A. Submittal Transmittal
  - 1. Provide the following information on the Transmittal Form for each submittal:
    - a. Project name
    - b. Specification number for each submittal item required in table below

- c. Item description, as listed for each submittal item required in table below. Where equipment is identified by number or tag on the documents, use the same identification on the submittal.
  - d. Specification number and item description (b and c, preceding) for each submittal if more than one (1) submittal is sent under one (1) transmittal form.
  - e. Name, address, and telephone number of Contractor.
  - f. Bid package number.
  - 2. Submittal transmittal forms not properly identified with the preceding information will be returned (without review) to the Contractor.
- B. Shop Drawing Requirements
- 1. Shop Drawings – Provide catalog cuts, Drawings, warranties, motor efficiencies and power factor information (where applicable), wiring diagrams (where applicable), performance curves and characteristics. Shop drawings shall be submitted electronically in PDF file format and as described in Division 1. The submittals will be returned to the Contractor, who will make and distribute as many copies as needed. Only submittals with the approved stamp printed on them shall be permitted on the site.
- C. Each Contractor shall submit information on the equipment items as listed in the following table. Identify each item with Specification numbers.

| Section #                                                    | Item                                         | Provide for Approval | Provide for Record Purposes Only |
|--------------------------------------------------------------|----------------------------------------------|----------------------|----------------------------------|
| <b>General Items for Plumbing, Fire Protection, and HVAC</b> |                                              |                      |                                  |
| 20 05 05                                                     | Suppliers and manufacturers list             | X                    |                                  |
| 20 05 20                                                     | Record and information manuals               | X                    |                                  |
| 20 05 35                                                     | Fire stops through floors and walls          |                      | X                                |
| 20 05 45                                                     | Hangers, supports, and inserts (Non-Seismic) | X                    |                                  |
| 20 05 80                                                     | Vibration Isolators                          | X                    |                                  |
| <b>HVAC Contract Items</b>                                   |                                              |                      |                                  |
| 23 05 93                                                     | HVAC systems balancing                       | X                    |                                  |
| 23 07 05                                                     | HVAC Insulation                              | X                    |                                  |
| 23 09 23                                                     | Temperature control systems                  | X                    |                                  |
| 23 21 16                                                     | Pressed fittings                             | X                    |                                  |
| 23 81 27                                                     | Ductless split-system air conditioners       | X                    |                                  |

END OF SECTION



SECTION 20 05 35  
SLEEVES, SEALS AND FIRESTOPS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish sleeves for pipe and duct penetrations through precast concrete, masonry, and concrete construction or where piping or ductwork passes through floors and two hour fire-rated separations, and equipment room floors.
- B. Provide watertight, corrosive service, oil-resistant service, and fire rated seals and firestops as specified herein.
- C. Use sleeving with absolutely watertight seal for piping passing through all foundation walls, floor slabs on grade, other below grade penetrations into building and elevated mechanical room floors.
- D. Provide dimensions and locations of openings for sleeves, piping, ducts, louvers, grilles, and similar items to the Contractor requiring the information.
- E. Carefully coordinate and check locations of sleeves immediately before and after each concrete pour and masonry installation.
- F. Provide approved firestop materials around all penetrations through fire-rated construction walls and floors per ASTM E814 and ASTM E119, including but not limited to pipes, ducts, drains, closet flanges, conduits, and raceways.
- G. At no additional cost to the University, correct unacceptable seals and firestops, and provide additional inspection as necessary to verify compliance with this Specification.

1.02 QUALITY ASSURANCE

- A. Firestop materials shall be classified by UL as "fill, void, or cavity materials" and "through penetration firestop systems."
- B. Firestop materials shall conform to both Flame (F) and Temperature (T) ratings as tested by nationally accepted test agencies per ASTM E814 or UL 1479 Fire Tests of Through-Penetration Firestops.
  - 1. The F rating shall be a minimum of one (1) hour but not less than the fire-resistance rating of the assembly being penetrated.
  - 2. Conduct the fire test with a minimum positive pressure differential of 0.01 inches of water column.
- C. Firestop materials and equipment used shall be in accordance with the manufacturer's written installation instructions. Installer shall be experienced, certified, licensed, or otherwise qualified by the firestopping manufacturer as having been provided the necessary training to install manufacturer's products per specified requirements. Note that a manufacturer's willingness to sell its firestopping products to the Contractor or to an Installer engaged by the Contractor does not in itself confer qualification on the buyer.

- D. Firestop materials shall be expanded to fill cavities or provide adhesion to substrates that will maintain seal under normal expected movements of substrates.
- E. For those firestop applications that exist for which no UL-tested system is available through a manufacturer, a manufacturer's engineering judgment derived from similar UL system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineering judgment Drawings must follow requirements set forth by the International Firestop Council.

#### 1.03 SUBMITTALS

- A. Submit the following in accordance with Section 20 05 15, "Submittals":
  - 1. Manufacturer's product data sheets indicating product characteristics, performance, and limiting criteria.
  - 2. Manufacturer's installation instruction for each type of seal or firestop required by the project.
  - 3. Written certification that firestop systems meet firestop requirements specified herein.
- B. To be included in Record and Information Manuals:
  - 1. One (1) copy of each approved submittal.

#### 1.04 MANUFACTURERS

- A. Seals:
  - 1. "Link-Seal" by Thunderline Corporation
  - 2. CSD Sealing Systems
  - 3. Calpico
  - 4. Wayne
  - 5. Michigan
  - 6. Metraflex
- B. Firestop materials:
  - 1. Hilti
  - 2. 3M
  - 3. CSD Sealing Systems
  - 4. Johns-Manville
  - 5. Tremco
  - 6. Rectorseal
  - 7. Proset Systems
  - 8. Nelson
  - 9. Firestop "Flame Safe"
  - 10. STI

### PART 2 PRODUCTS

#### 2.01 SLEEVE MATERIAL

- A. For sleeves less than 8 inches in diameter, use machine cut, standard weight, black steel pipe. Fabricate sleeves 8 inches in diameter and larger from 12 gauge galvanized steel sheet.

- B. Use copper sleeves for bare copper piping.
- C. Sleeves to be large enough for insulation to be continuous or for seals to be installed, but clearance all around to be less than 1/4 inch for both insulated and uninsulated pipes that penetrate walls and slabs.
- D. Proset system prefabricated fire-rated sleeves may be installed as an option for poured-in-place concrete or through cored holes in floors or masonry walls.
- E. Provide with waterstop anchor flange at midpoint where penetrating below grade floor slab or exterior structure at or below grade. Sleeves shall have a full-length welded intermediate flange and be imbedded in masonry. The Contractor may provide steel wall sleeves by Link-Seal or Proset Systems Prefabricated Sleeve System.

## 2.02 SEALS

- A. Modular Mechanical Type:
  - 1. Seals shall consist of interlocking synthetic rubber links shaped to continuously fill the annular space between conduit and sleeve.
  - 2. Seal assembly shall have steel bolts and nuts and rubber sealing element for service and environment under which assembly will be used. Seal shall have a pressure resistance rating of 20 psig.
- B. Sealing Plug Type:
  - 1. Seals shall consist of two (2) identical piece plugs made of synthetic rubber with one edge flanged, serrated profile on the outside, and on the inside a series of ridges that compress and assure a tight seal. Seal shall have a pressure resistance of 15 psig at the plug base and 30 psig at the flange. Rubber grade shall be suitable for the service and environment under which sealing plug will be used.

## 2.03 WATERTIGHT SEALS

- A. Modular, mechanical-type watertight seals shall have zinc galvanized bolts and nuts with EPDM rubber sealing element. Seals shall be Link-Seal, Type C.
- B. Sealing-plug-type watertight seals shall be made of EPDM rubber. Seals shall be by CSD Sealing Systems. OPTION: Proset System Elastomeric Seals.

## 2.04 FIRE-RATED SEALS

- A. Sealing-plug-type fire-rated seals shall be made of fire resistance rated rubber for three (3) hour fire resistance rating. OPTION: Proset System Elastomeric Seals.

## 2.05 FIRESTOPPING MATERIALS

- A. Penetration sealants:
  - 1. 3M Brand "Fire Barrier" caulk, putty or penetrating sealing systems
  - 2. CSD Sealing Systems CSD-FW and CSD-F caulk and putty
  - 3. Johns-Manville "Cerafiber"
  - 4. Rectorseal "Metacaulk"
  - 5. Tremco

6. Hilti
  7. Firestop "Flame Safe"
  8. Spec Seal
- B. Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience. Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire resistance-rated systems. Contractor shall be responsible for using the correct method and type of fire sealant and fire-rated seals in each type of installation.
- C. All firestop installations shall be UL rated.

### PART 3 EXECUTION

#### 3.01 CUTTING

- A. Cut sleeves through walls flush with each surface. Unused sleeves shall extend beyond wall surface and be capped on each end.
- B. Cut sleeves 3/4 inch above finished floors or concrete curbs and 4 inches above floors in equipment rooms, rooms with floor drains, and shafts. Sleeves through waterproof floors shall project a minimum of 4 inches above the floor. Cut bottom of sleeve flush with bottom of floor.
- C. Core drill holes for sleeves in existing construction.
- D. Patching shall be by others at this Contractor's expense.

#### 3.02 INSTALLATION OF SLEEVES

- A. Carefully coordinate and check locations of sleeves immediately before and after each concrete pour and masonry installation. Install cast-in-place sleeves subject to the following limitations:
1. Do not embed aluminum without prior approval of coating material.
  2. Do not displace reinforcing steel.
  3. Maintain a center-to-center spacing of at least 3 diameters of sleeve.
  4. Do not install sleeves in any concrete beam, unless specifically shown on the structural Drawings.
- B. Give other Contractors as appropriate locations and sizes of all openings required for sleeve installation before construction of masonry or concrete walls and floors is started. If it is necessary to cut into the new work of other Trades due to the failure of this Contractor to provide proper notification, the other Trades shall do the cutting in at this Contractor's expense. Patching shall be done in the same fashion.
- C. Core drill hole for sleeves in existing construction after locations have been approved by the Structural Engineer and General Contractor.

- D. Size sleeves with 1/4 inch minimum and 1 inch maximum clearance all around pipe or pipe insulation.
- E. Piping is not to bear on sleeves. Install sleeves plumb with respect to wall.
- F. During installation, minimize gaps between sleeve, ducts, and pipes passing through walls and floors. Seal any gaps around sleeves and around ducts and pipes, whether to sleeve or wall or floor construction. Seal space up to a 1/2 inch gap with sealant or caulking. Close off space greater than 1/2 inch gap with sheet metal and seal airtight. To maintain fire rating of structure, pack all fire-rated separation sleeves with fire retardant or other noncombustible material. To fill space around all sleeves leading into exposed areas, use material compatible with adjacent construction and finish.
- G. Plug, pack, and finish unused sleeves to match adjacent surface and be compatible with their ratings.
- H. Provide chrome plated wall or floor escutcheons, sized to cover opening and seal, for all exposed conduit, piping and duct installations.

### 3.03 INSTALLATION OF SEALS AND FIRESTOPS

- A. Clean surfaces and substrates of dirt, oil, loose materials, and other foreign materials that may affect the proper bond or installation of seals and firestopping.
- B. Do not apply seals and firestopping to surfaces previously painted or treated with a sealer curing compound or similar product. Remove coatings as required in compliance with manufacturer's instructions. Provide primers, as required, that conform to manufacturer's recommendations for various substrates and conditions.
- C. Follow manufacturer's written instructions for installation of seals and firestopping.
- D. To ensure an effective smoke seal and to maintain the assembly's fire-resistance rating, install firestops with sufficient pressure to fill seal holes, voids, and openings.
- E. Tool or trowel exposed surfaces. Remove excess firestop material promptly as work progresses and upon completion.
- F. Fill and surround unused sleeves with firestop material. Sleeve ends. Contractor may use blind sealing plugs.
- G. Install watertight seals for all below grade penetrations of piping into the building.
- H. To maintain the fire-rating of the structure, pack all openings in fire-rated walls and floors and between sleeves and pipes with noncombustible material. Pipe insulation shall not be continued through a rated partition, unless sealant assembly is listed for use with continuous insulation. Maintain vapor barriers at all penetrations.
- I. Install oil-resistant-service seals in environment where oils, fuels, solvents, and other petroleum-base products are used.

- J. Install corrosive-service seals in environments where organic materials, acids, alkalis, and related chemicals are used.

3.04 INSPECTION

- A. Examine seals and firestops to ensure proper installation and full compliance with this Specification. Work shall be accessible until inspection and approval by the applicable Code authorities.
- B. At no additional cost to the University, correct unacceptable seals and firestops, and provide additional inspection to verify compliance with this Specification.
- C. Maintain a current, legible copy of the manufacturer's written instructions for installation of seals and firestopping at the project site, for all products being used on the Project. Make installation instructions available on request for all Inspecting Authorities, the Architect, and the Engineer.

END OF SECTION

SECTION 20 05 45  
HANGERS, SUPPORTS AND INSERTS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Provide hangers, supports, concrete inserts, threaded rods, framing steel, and hardware required for piping, ductwork, and equipment installed under this Division.
- B. Install all necessary inserts, expansion shields, beam clamps, floor supports, and auxiliary steel.
- C. For new concrete installations, furnish and install concrete inserts (when used or required) for the work. Coordinate with other Contractors as appropriate.
- D. So as not to delay construction, the Plumbing, Fire Protection, and HVAC Contractors are responsible for correct locations, size, type, and installation of the concrete inserts for their work. Coordinate work with other Contractors as appropriate.
- E. Install wall brackets where required.

1.02 QUALITY ASSURANCE

- A. All piping supports and parts shall conform to the latest requirements of the Code for Power Piping (ANSI B31.1) and MSS Standard Practice SP-58 and SP-69, except as supplemented or modified by the requirements of this Specification.
- B. Components shall be selected and matched to the load imposed on them.
- C. For ductwork supports, refer to SMACNA's "HVAC Duct Construction Standards Metal and Flexible" (latest edition).
- D. Items specified in this Section that are used for fire suppression systems shall be UL listed, FM approved and NFPA approved for the usage.

1.03 MANUFACTURERS

- A. Pipe Hangers: PHD, PHP, Michigan Hanger (Erico), Hilti, Kinetics, B-Line, Anvil, or Modern.

PART 2 PRODUCTS

2.01 HANGERS

- A. Uninsulated Piping:
  - 1. Steel or Plastic:
    - a. 1/2 Inch to 6 Inches: PHD Fig. 151, adjustable swivel ring, steel band, adjusting nut or Fig. 450 adjustable clevis, carbon steel yoke, U-strap, bolt and hex nuts.

2. Copper:
  - a. Use copper-plated hangers as specified previously for sizes up to 6 inches.
- B. Insulated Piping:
  1. Cast Iron (Storm), Steel, Plastic or Copper:
    - a. All piping except steam and hot water piping, all sizes: PHD Fig. 450, adjustable clevis, carbon steel yoke, U-strap, bolt, and hex nuts. Provide thermal protector.
    - b. Hot Water Piping:
      - 1) 1/2 Inch to 1 1/2 Inches: PHD Fig. 450, adjustable clevis, carbon steel yoke, U-strap, bolt, and hex nuts. Provide thermal protector.
      - 2) 2 Inches to 16 Inches: PHD Fig. 475, adjustable roller, carbon steel yoke, cast iron roll, rod and hex nuts.
    - c. Hanger size must be sufficient to accommodate pipe and insulation without compressing insulation.
  2. Thermal Protector:
    - a. Insulated saddle system consisting of a factory-assembled glass-reinforced polypropylene saddle and steel pipe spacer. Assembly conductivity must be less than 0.77 btuh-in./sf-hr°F, and shall be rated for at least 40 degrees F to 200 degrees F service. Anvil Figure 260 ISS, or equal by approved manufacturer.
    - b. 6 inch long segments of 20 pcf molded fiberglass blocks Hamfab "H-block" or hardwood (oak) blocks supported by PHD Fig. 170, galvanized steel protection shield. Outdoor installations to be hardwood inserts, paraffin-coated. No softwood (pine) wood blocks or wooden dowels will be permitted. Provide a vapor barrier cover over inserts so that the insulation vapor barrier will not be broken.
- C. Sanitary and Vent Piping:
  1. Cast Iron: PHD Fig. 450, adjustable clevis, carbon steel yoke, U-strap, bolt, and hex nuts.
  2. Plastic: PHD Fig. 440, lightweight, adjustable clevis, carbon steel yoke, U-strap and bolt.
- D. Vertical Piping:
  1. Cast Iron, Plastic, or Steel Piping:
    - a. 1/2 Inch to 10 Inches: Friction clamp with two point bearing, PHD Fig. 550 series at each floor level.
  2. Copper Piping: Copper-plated friction clamp with two point bearing for sizes up to 6 inches, PHD Fig. 552.

## 2.02 SPRING HANGERS

- A. Refer to Section 20 05 80, "Vibration Isolators."

## 2.03 TRAPEZE HANGERS

- A. Pre-engineered strut or angle iron of sufficient length to support pipes and insulation on individual hangers, roller supports, or saddles with insulation protectors as specified for hangers above; trapeze hanger rod diameter and quantity as required to support total piping load. Loading on any attachment point to the structure shall not exceed 1,000 lbs. Trapeze hangers are to be spaced to not exceed this maximum structural load.



## 2.04 SUPPORTS

### A. Hanger for Individual Pipes:

| Pipe Size      | Max Pipe Support Spacing<br>Copper Tube or Plastic Pipe | Max Pipe Support Spacing Steel Pipe | Structural Attachment Based on PHD Manufacturer                                     | PHD Hanger Figure               | Rod Size based on Hanger (Larger rods may be used) |
|----------------|---------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------|---------------------------------|----------------------------------------------------|
| Inches         | Feet                                                    | Feet                                |                                                                                     |                                 | Inch                                               |
| 3/4 or smaller | 5 - copper<br>3 - plastic                               | 6                                   | Concrete insert Fig 951 or 950 Beam Clamp Fig 270 w/Fig 259                         | 151 or 450                      | 3/8                                                |
| 1              | 6 - copper<br>3 - plastic                               | 7                                   | Concrete insert Fig 951 or 950 Beam Clamp Fig 270 w/Fig 259                         | 151 or 450                      | 3/8                                                |
| 1 1/4          | 6 - copper<br>4 - plastic                               | 9                                   | Concrete insert Fig 951 or 950 Beam Clamp Fig 270 w/Fig 259                         | 151 or 450                      | 3/8                                                |
| 1 1/2          | 8 - copper<br>4 - plastic                               | 9                                   | Concrete insert Fig 951 or 950 Beam Clamp Fig 270 w/Fig 259                         | 151 or 450                      | 3/8                                                |
| 2              | 8 - copper<br>4 - plastic                               | 10                                  | Concrete insert Fig 951 or 950 Beam Clamp Fig 270 w/Fig 259                         | 151 or 450 or 470 or 475        | 3/8                                                |
| 2 1/2          | 9 - copper<br>4 - plastic                               | 10                                  | Concrete insert Fig 951 or 950 Beam Clamp Fig 270 w/Fig 259                         | 151 or 450 or 470 or 475        | 1/2                                                |
| 3              | 10 - copper<br>4 - plastic                              | 10                                  | Concrete insert Fig 951 or 950 Beam Clamp Fig 270 w/Fig 259                         | 151 or 450 or 470 or 475        | 1/2                                                |
| 4              | 10 - copper<br>4 - plastic                              | 10                                  | Concrete attachment plate Fig 903 Beam clamp fig 350 w/Fig 359 or Fig 360 w/Fig 359 | 151 or 450 or 470 or 475 or 505 | 5/8                                                |
| 5              | 10 - copper<br>4 - plastic                              | 10                                  | Concrete attachment plate Fig 903 Beam clamp fig 350 w/Fig 359 or Fig 360 w/Fig 359 | 151 or 450 or 470 or 475 or 505 | 5/8 or 3/4                                         |
| 6              | 10 - copper<br>4 - plastic                              | 10                                  | Concrete attachment plate Fig 903 Beam clamp fig 350 w/Fig 359 or Fig 360 w/Fig 359 | 151 or 450 or 470 or 475 or 505 | 5/8 or 3/4                                         |

### B. Beam Clamps:

- "C" Clamps: PHD Figs. 270 w/259, 350 w/359, 360 w/359, malleable iron body, steel pointed set screw with lock nut and a minimum of 11 gauge steel retainer strap. Beam clamps by themselves (C-clamps) are expressly prohibited. Provide retainer straps with all beam (C-Clamps). Consult with MSS SP-58 and SP-69 for C-Clamp identification.
- PHD Fig. 930 steel washer plate, double nutted with threaded rod.

- C. Wall Brackets: PHD Fig. 850 (lightweight 750 lbs. load) or Fig. 855 (medium weight 1,500 lb. load), carbon steel, back plates and bolts. Wall brackets for horizontal piping runs are limited to 10 inch pipe size and smaller.
- D. Attachment to Concrete Structures: PHD, Fig. 903 concrete rod attachment plate.
- E. Welded Beam Attachment: PHD, Fig. 900 concrete rod attachment plate.

## 2.05 INSERTS

- A. In Concrete: PHD, Fig. 950 type insert, low carbon steel, for up to 600 lb. load.
- B. In precast or already poured concrete: Hilti "Kwik Bolt TZ" concrete fasteners, or approved equal by ITW/Redhead. "Drop-in" type fasteners are not acceptable without written evidence of third-party testing indicating there is no measurable loss of an insert's tensile capacity when concrete cracking occurs where the insert is installed.
- C. In hollow core concrete panels: Hilti "KWIK HUS-EZ" screw type anchor. Fastener shall be located only within the admissible zone location in accordance with the panel manufacturer's recommendations.

## 2.06 FINISH

- A. Unless otherwise noted, all hangers and supports to be standard black, except that hangers and supports for exposed exterior applications and applications subject to high humidity shall be hot-dipped galvanized.

# PART 3 EXECUTION

## 3.01 PIPING INSTALLATION

- A. Install necessary pipe hangers and supports to properly support all piping and to maintain piping uniformly level or vertical (3/4 inch maximum deflection). Hangers to be double-nutted.
- B. Maximum spacing of piping supports shall be per Hanger Table included in this Specification. Provide additional hangers as follows:
  - 1. On both sides of steel or brass, or cast metal valves for pipe sizes 6 inches and larger.
  - 2. Horizontal DWV Plastic Piping: At branch connections and at each change of direction.
  - 3. Vertical DWV Piping: At branch connections, at each change of direction, at each floor, and mid-story, for no more than a 10 foot vertical spacing. Provide additional supports as necessary to maintain piping alignment at the base.
  - 4. Cast Iron Piping: Horizontal at intervals not in excess of the standard lengths of pipe used; vertical 15 foot maximum intervals, at base, and at each floor.
  - 5. At each drop at a pump boiler, chiller or other major equipment item.
  - 6. Fire Protection Piping: Locate and space per NFPA requirements.

### 3.02 GENERAL INSTALLATION

- A. Mechanical ducts and piping shall be supported directly to the building structure. The mechanical systems shall not utilize the ceiling grid system, nor shall the ceiling grid use the mechanical hanger system for support. Likewise, electrical devices such as lights, cameras, and the like shall be supported directly to building structure and shall not use the mechanical hanger system for support. The Contractor shall install hangers and supports located where they do not interfere with access to fire dampers, valves, and other mechanical equipment items.
- B. Where necessary, the Contractor shall furnish and install proper angles or channels for hanger supports between joists. Weld to steel structural members.
- C. Do not support hangers from roof deck.
- D. Use inserts to avoid cutting concrete or masonry. To avoid burning metal deck, use top flange beam clips.
- E. Vertical storm and waste stacks to rest firmly on masonry footings and be firmly supported at each floor.
- F. The following hanger methods are not permitted:
  - 1. Wood, lead, or plastic plugs
  - 2. Perforated band iron
  - 3. Hook chain supports
  - 4. Baling wire, etc.
  - 5. Powder-actuated anchors
- G. Whenever possible, use supports, clamps, hangers, etc., designed especially for the equipment to be installed.
- H. Where necessary, furnish and install proper angles or channels or support steel to reinforce the building structure or to spread out the load on the building structure. Weld to steel structural members or attach to concrete structures using inserts or concrete fasteners.

### 3.03 COORDINATION

- A. Coordinate drilling, welding, etc., and method of attachment to columns, joists, beams, girts, etc., with Structural Engineer and other Contractors as appropriate before proceeding.

END OF SECTION

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## Hangers for Individual Pipes ( Not SEISMIC )

| Pipe Size      | Pipe Material | Weight of Pipe per Foot | Weight of Water in Pipe per Foot | Total Weight per Foot | Pipe Support Spacing Copper and plastic Pipe | Pipe Support Spacing Steel Pipe | Weight on Each Support (Max 1500 lbs) | Structural Attachment PHD Manufacturing.                                            | Based on | Load Capacity of Attachment | Hanger PHD Fig Number           | Rod Size based on Hanger (Larger rods may be used) | Load Capacity of Hanger and Rod |
|----------------|---------------|-------------------------|----------------------------------|-----------------------|----------------------------------------------|---------------------------------|---------------------------------------|-------------------------------------------------------------------------------------|----------|-----------------------------|---------------------------------|----------------------------------------------------|---------------------------------|
| inches         |               | lbs/LF                  | lbs/LF                           | lbs/LF                | ft                                           | ft                              | lbs                                   |                                                                                     |          | lbs                         |                                 | inch                                               | lbs                             |
| 3/4 or smaller | Sch 40 Steel  | 1.13                    | 0.232                            | 1.362                 | 5                                            | 7                               | 9.53                                  | Concrete insert Beam Clamp Fig 951 or 950 w/Fig 270                                 |          | 400                         | 151 or 450                      | 3/8                                                | 300                             |
| 1              | Sch 40 Steel  | 1.68                    | 0.375                            | 2.055                 | 6                                            | 7                               | 14.39                                 | Concrete insert Beam Clamp Fig 951 or 950 w/Fig 270                                 |          | 400                         | 151 or 450                      | 3/8                                                | 300                             |
| 1-1/4          | Sch 40 Steel  | 2.27                    | 0.649                            | 2.919                 | 7                                            | 9                               | 26.27                                 | Concrete insert Beam Clamp Fig 951 or 950 w/Fig 270                                 |          | 400                         | 151 or 450                      | 3/8                                                | 300                             |
| 1-1/2          | Sch 40 Steel  | 2.72                    | 0.882                            | 3.602                 | 8                                            | 9                               | 32.42                                 | Concrete insert Beam Clamp Fig 951 or 950 w/Fig 270                                 |          | 400                         | 151 or 450                      | 3/8                                                | 300                             |
| 2              | Sch 40 Steel  | 3.65                    | 1.454                            | 5.104                 | 8                                            | 10                              | 51.04                                 | Concrete insert Beam Clamp Fig 951 or 950 w/Fig 270                                 |          | 400                         | 151 or 450 or 470 or 475        | 3/8                                                | 150                             |
| 2-1/2          | Sch 40 Steel  | 5.79                    | 2.073                            | 7.863                 | 9                                            | 11                              | 86.49                                 | Concrete insert Beam Clamp Fig 951 or 950 w/Fig 270                                 |          | 400                         | 151 or 450 or 470 or 475        | 1/2                                                | 225                             |
| 3              | Sch 40 Steel  | 7.58                    | 3.201                            | 10.781                | 10                                           | 12                              | 129.37                                | Concrete insert Beam Clamp Fig 951 or 950 w/Fig 270                                 |          | 400                         | 151 or 450 or 470 or 475 or 505 | 1/2                                                | 310                             |
| 3-1/2          | Sch 40 Steel  | 9.11                    | 4.287                            | 13.397                | 12                                           | 12                              | 160.76                                | Concrete insert Beam Clamp Fig 951 or 950 w/Fig 270                                 |          | 400                         | 151 or 450 or 470 or 475 or 505 | 1/2                                                | 390                             |
| 4              | Sch 40 Steel  | 10.79                   | 5.516                            | 16.306                | 12                                           | 12                              | 195.67                                | Concrete Attachment plate Fig 903 Beam Clamp Fig 350 w/Fig359 or Ffig 360 w/Fig 359 |          | 600                         | 151 or 450 or 470 or 475 or 505 | 5/8                                                | 475                             |
| 5              | Sch 40 Steel  | 14.62                   | 8.674                            | 23.294                | 12                                           | 12                              | 279.53                                | Concrete Attachment plate Fig 903 Beam Clamp Fig 350 w/Fig359 or Ffig 360 w/Fig 359 |          | 800                         | 151 or 450 or 470 or 475 or 505 | 5/8 or 3/4                                         | 685                             |
| 6              | Sch 40 Steel  | 18.97                   | 12.520                           | 31.490                | 12                                           | 12                              | 377.88                                | Concrete Attachment plate Fig 903 Beam Clamp Fig 350 w/Fig359 or Ffig 360 w/Fig 359 |          | 2710                        | 151 or 450 or 470 or 475 or 505 | 5/8 or 3/4                                         | 780                             |
| 8              | Sch 40 Steel  | 28.55                   | 21.680                           | 50.230                | 12                                           | 12                              | 602.76                                | Concrete Attachment plate Fig 903 Beam Welded Attachment Fig 900                    |          | 3770                        | 151 or 450 or 470 or 475 or 505 | 7/8                                                | 780                             |
| 10             | Sch 40 Steel  | 40.48                   | 34.160                           | 74.640                | 12                                           | 12                              | 895.68                                | Concrete Attachment plate Fig 903 Beam Welded Attachment Fig 900                    |          | 3770                        | 151 or 450 or 470 or 475 or 505 | 7/8                                                | 965                             |
| 12             | Sch 40 Steel  | 53.52                   | 48.500                           | 102.02                | 12                                           | 10                              | 1020.20                               | Concrete Attachment plate Fig 903 Beam Welded Attachment Fig 900                    |          | 3770                        | 151 or 450 or 470 or 475 or 505 | 7/8                                                | 1200                            |

**Hangers for Individual Pipes ( Not SEISMIC )**

| Pipe Size | Pipe Material | Weight of Pipe per Foot | Weight of Water in Pipe per Foot | Total Weight per Foot | Pipe Support Spacing Copper and plastic Pipe | Pipe Support Spacing Steel Pipe | Weight on Each Support (Max 1500 lbs) | Structural Attachment PHD Manufacturing.                            | Based on | Load Capacity of Attachment | Hanger PHD Fig Number | Rod Size based on Hanger (Larger rods may be used) | Load Capacity of Hanger and Rod |
|-----------|---------------|-------------------------|----------------------------------|-----------------------|----------------------------------------------|---------------------------------|---------------------------------------|---------------------------------------------------------------------|----------|-----------------------------|-----------------------|----------------------------------------------------|---------------------------------|
| inches    |               | lbs/LF                  | lbs/LF                           | lbs/LF                | ft                                           | ft                              | lbs                                   |                                                                     |          | lbs                         |                       | inch                                               | lbs                             |
| 14        | Sch 40 Steel  | 63.44                   | 58.640                           | 122.08                | 12                                           | 9                               | 1098.72                               | Concrete Attachment plate Fig 903<br>Beam Welded Attachment Fig 900 |          | 4960                        | 450 or 470 or 475     | 1                                                  | 1200                            |
| 16        | Sch 40 Steel  | 82.77                   | 76.580                           | 159.36                | 12                                           | 7                               | 1115.45                               | Concrete Attachment plate Fig 903<br>Beam Welded Attachment Fig 900 |          | 4960                        | 450 or 470 or 475     | 1                                                  | 1200                            |
| 18        | Sch 40 Steel  | 104.67                  | 96.930                           | 102.6                 | 8                                            | 6                               | 1209.60                               | Concrete Attachment plate Fig 903<br>Beam Welded Attachment Fig 900 |          | 6230                        | 450 or 470 or 475     | 1 or 1-1/8                                         | 1400                            |
| 20        | Sch 40 Steel  | 123.11                  | 120.46                           | 243.57                | 8                                            | 6                               | 1461.42                               | Concrete Attachment plate Fig 903<br>Beam Welded Attachment Fig 900 |          | 8000                        | 450 or 470 or 475     | 1-1/4                                              | 1600                            |
| 24        | Sch 40 Steel  | 171.29                  | 174.23                           | 345.52                |                                              | 4                               | 1382.08                               | Concrete Attachment plate Fig 903<br>Beam Welded Attachment Fig 900 |          | 8000                        | 450 or 470 or 475     | 1-1/4 or 1-1/2                                     | 1600                            |
| 30        | Sch 30 Steel  | 196.08                  | 281.4                            | 477.48                |                                              | 8                               | 3819.84                               | Concrete Attachment plate Fig 903<br>Beam Welded Attachment Fig 900 |          | 8000                        | 450 or 480            | 1-1/4 or 1-1/2                                     | 6000                            |
| 36        | Sch 40 Steel  | 282.35                  | 405.24                           | 687.59                |                                              | 8                               | 5500.72                               | Concrete Attachment plate Fig 903<br>Beam Welded Attachment Fig 900 |          | 11630                       | 450                   | 1-1/2                                              | 9500                            |

SECTION 20 05 50  
GENERAL PIPING REQUIREMENTS

PART 1 GENERAL

1.01 PIPING SYSTEMS - GENERAL

- A. The following instructions apply to all piping systems, except where otherwise noted:
  - 1. Provide unions or flanges at each final connection and at each piece of equipment. Arrange piping and locate unions and flanges to permit easy removal of parts and equipment for inspection and cleaning. Welded connections to equipment are prohibited.
  - 2. Make connections to equipment as detailed on the Drawings and according to the manufacturer's installation instructions.
  - 3. Where connection size is smaller than piping make reduction at final connection only (do not reduce size of pipe drop).
  - 4. Provide valves and specialties as required to complete installation of each piece of equipment for proper operation.
  - 5. Install all piping parallel to building lines, level and plumb unless required to slope.
- B. Cleanout and flush water piping systems.
- C. If other means of draining are not provided, install drain valves at all low points to permit complete draining of each of the following:
  - 1. All water systems
- D. Contractor to provide information on chases, sleeves, and openings required for his/her work to other Contractors. This Contractor to assume cost and responsibility for all cutting and patching resulting from improper coordination of the work.
- E. Certified Pipe Welding Bureau. Welds to be stamped at each joint or fitting.
- F. Install dielectric unions at all connections of dissimilar metals.

PART 2 PRODUCTS

2.01 UNIONS

- A. Unions in Copper Pipe: Bronze 150 lb. ground joint, cast body, solder end (do not use wrought copper unions). Mueller, Chase, Crane, or Northern Indiana Brass Company.
- B. Unions in Steel Pipe: Black malleable iron, bronze ground ball joint. Mueller, Chase, Crane, or Northern Indiana Brass Company.
- C. Dielectric unions when connecting steel to copper pipe: 250 lb. W.P., insulating gasket, and dielectric insulators. Epco, Dart, Capital, or Watts.
- D. Dielectric fittings on flanges when connecting flanges on piping of dissimilar metals: 175 psig W.P., insulating gaskets, dielectric insulators including bolt isolators.

## 2.02 JOINTS

- A. Flanges:
  - 1. Through 2 1/2 Inches: Cast iron screwed, 125 lb. or higher as required.
  - 2. 3 Inches and Larger: Steel welding neck, 150 lb. or higher as required.
- B. Gaskets: Asbestos-free, suitable for the intended service. Use dielectric gaskets where joining dissimilar piping material.
- C. Bolts for steel, cast iron, brass, and bronze, for 250 lb. SWP and 450 degrees F or below to be carbon steel, with American Standard, regular, square heads and American Standard, heavy, hexagon grade or better semi-finished nuts.
- D. ASTM A307, Grade B, Tee head, high-tensile steel bolts and nuts may be used in mechanical joint pipelines. (Mechanical joints are not to be used with tubing of copper or aluminum alloys.)
- E. Screwed Piping: Use NPT tapered threads.

## 2.03 COPPER PRESS JOINT JOINING SYSTEM

- A. Where such copper press joint piping systems are allowed by reference in other Sections within this Specification, and if permitted by local authorities, the installing Contractor must have installed at least five of such mechanical piping systems.
  - 1. Copper and copper alloy press connections shall be made in accordance with the manufacturer's installation instructions. The tubing shall be fully inserted into the fitting and the tubing marked at the shoulder of the fitting. The fitting alignment shall be checked against the mark on the tubing to assure the tubing is fully engaged (inserted) in the fitting. The joints shall be pressed using the tool(s) approved by the manufacturer.
  - 2. All piping shall be Type "L" copper. Fittings 1/2 inch to 4 inches shall be crimped on both sides of an integral bead containing an EPDM seal. Fittings 2 1/2 inches through 4 inches shall be double crimped, and be fitted with a stainless steel grip ring.
  - 3. The Contractor shall be trained on the installation of the product by the manufacturer and shall follow the manufacturer's installation instructions.
  - 4. The copper tubing system shall be water tested for joint tightness. The piping system shall be filled with water. The system shall be pressurized to the maximum pressure and length of time required by the code or standard. The system shall have no leaks at the rated pressure.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Install each union or flange to permit removal of parts, valves, and equipment and in a position permitting the device or equipment to be removed without disconnecting piping. Use flanged equipment connections exclusively on all steam and condensate systems.
- B. Make reductions in piping lines with reducing coupling or weld fitting reducer. No bushings will be permitted.

- C. Install piping to provide clearance for personnel passage, headroom, operation of doors or windows, equipment, lighting outlets, and for the University's apparatus and equipment. Coordinate pipe runs and elevations with other Contractors before installation. Where interferences develop in the field, pipes may need to be offset or rerouted, at no additional cost to the University, as required to resolve interferences.
- D. In pipe spaces to be entered for servicing, offset piping so that all lateral runs are located either near the floor or at least 6 feet above the floor, and all vertical piping is held close to the wall through that height. Keep all piping to the side of the chase wherever possible. Offset vents immediately above the connection to the waste line.
- E. Piping shall not be installed over electrical equipment, motor control centers, or transformers and shall not be installed within elevator shafts or elevator equipment rooms.
- F. Install pipes, valves, fittings, etc. with a minimum of 1/2 inch clearance between the finished covering and other work and between the finished covering of parallel, adjacent pipes.
- G. Use fittings to make changes in pipeline direction. Do not bend or spring piping.
- H. Offset lines around columns, beams, and other obstructions as required. Where special conditions are encountered in the field, arrangement and alignment of piping shall be decided by the Architect and Engineer.
- I. At time of assembly, clean piping components of loose material. After assembly and before putting in service, blow or flush lines free of loose materials. Clean strainer screens and sediment pockets prior to putting the lines in service.
- J. Use dielectric unions, shims, gaskets, or coatings to insulate direct contact between pipe, fittings, and hangers of dissimilar metal
- K. Install thermometers and gauges to permit them to be read from floor level.
- L. Securely support all piping from structure with approved hangers, rods, brackets, and accessories.
- M. Where piping is installed in new masonry block walls, coordinate other Contractors as appropriate so that piping extends out through a masonry joint where possible.
- N. Bullhead connections are not allowed.
- O. Where exposed pipes pass through walls, floors, or ceilings of finished rooms, provide chrome-plated escutcheons. Prime-coated black iron escutcheons may be used in unfinished rooms. Protect escutcheons from tool marks.
- P. Keep pipe level except where a slope is required. Use eccentric reducers to keep bottom of pipe level.
- Q. Avoid trapping of piping.
- R. Provide a union or bolted flange fitting downstream and within approximately 12 inches of each valve and adjacent to both inlet and outlet of pumps and other equipment.



- S. When copper lines are supplied, install dielectric unions or flanges on water line connections to water heaters and equipment with steel pipe connections.
- T. Provide unions or flanged connections where required for construction or assembling purposes.
- U. All piping shall be tested prior to concealment. Any piping needing repair after it is concealed will be exposed, repaired and restored by the respective Division Contractor, at that Contractor's expense.

### 3.02 WELDED CONNECTIONS

- A. Welded joints to be fabricated and stamped by welders qualified and certified for the positions, materials, methods, and equipment being used and as required by enforcing bodies.
- B. Buttweld joints shall have substantially full penetration and recommended bead reinforcement.
- C. Slip-on, socket, and fillet welds to have geometry indicated in the "Code for Power Piping" (ANSI B31.1).
- D. Remove weld scale from joints as work proceeds and at completion.

### 3.03 SOLDERED AND BRAZED CONNECTIONS

- A. Joints to have pipe or tubing end reamed to full I.D. after cutting.
- B. Exterior of joint shall be smooth.
- C. Clean with steel wool.
- D. Apply flux to prevent oxidation.
- E. Apply solder or brazing filler material and thoroughly heat to completely melt material and cause it to migrate completely over the mating surfaces.
- F. Solder and brazing work shall comply with ANSI Standard B31.1.

### 3.04 THREADED CONNECTIONS

- A. Ream pipe ends of threads to full cross sectional area after cutting. Threads shall conform to ANSI Standard B2.1.
- B. Joints shall be made with TFE tape, applied to male threads only. Option: Use Permatex pipe dope.

### 3.05 FLANGED CONNECTIONS

- A. Face flanged joints square and true. Install gaskets suitable for the operating temperature and pressure of the fluid or gaseous medium being piped.

### 3.06 PIPE CLEANING

- A. Before systems are placed in operation, flush out all water piping systems to remove dirt and grease from pipes and equipment. Clean strainers after each flushing until they remain clean.
- B. For heating and cooling water piping systems, flush and clean the system as follows:
  - 1. Flush the piping with water with the return piping draining to the nearest floor drain until the water runs clear and free of all debris, then completely drain the system.
  - 2. Completely fill the system with a cleaning solution that is approved by the piping manufacturer, equal to Savogran Liquid TSP or ADEY MC3. The rate of concentration shall be as recommended by the detergent manufacturer. Circulate through the system at design temperature at a velocity of 3-4 FPS for at least four (4) hours. Continue to flush the system until it is free of all foreign materials.
  - 3. Completely drain and refill system with fresh clean water to remove all detergent.
  - 4. When flushing is complete, clean strainers.
- C. Fire protection mains to be flushed at flows required by NFPA-13 and NFPA-24.
- D. For steam piping systems, after system is placed in operation, dump condensate for 24 hours before returning condensate to boiler.

### 3.07 PIPING PROHIBITIONS

- A. Do not run piping over electrical equipment, across windows, door openings, access panels or lighting fixtures or within 36 inches in front of electrical panels that operate at a voltage of 150 volts or less, or within 42 inches of electrical panels that operate at a voltage of 151 to 600 volts. Obtain instructions from the Architect if a conflict occurs. Coordinate with the Electrical Contractor.
- B. On any given system, the Contractor will not be permitted to mix and join different types of pipe material. For example, if a storm or sanitary system uses plastic, copper, and cast iron, the Contractor may change from one to the other only once. The line may not be changed back to the first material further downstream.
- C. Storm, vent and sanitary lines shall be continuously sloped; trapping is expressly prohibited.

### 3.08 EMBEDDED PIPING LIMITATIONS

- A. Install embedded pipes and sleeves subject to the following limitations:
  - 1. Do not embed aluminum without prior approval of coating material.
  - 2. Do not displace reinforcing steel.
  - 3. In slabs and walls, limit outside dimension of pipes to 1/3 member thickness. Minimize crossing embedded piping, and where crossing cannot be avoided, maintain same minimum concrete cover as required for reinforcing bars. For slabs over metal decks, slab thickness is measured from the top of the metal deck.
  - 4. In columns, limit total area of pipes to 4% of column area.
  - 5. Maintain a center-to-center spacing of at least three diameters of pipe or sleeve.
  - 6. Do not install sleeves or piping in any concrete beam, unless specifically shown on the structural Drawings.

END OF SECTION

SECTION 20 05 65  
EQUIPMENT, PIPING, AND DUCTWORK IDENTIFICATION

PART 1 GENERAL

1.01 DESCRIPTION

- A. Identify by labels and tags the following items:
  - 1. Equipment such as ductless split systems and similar items.
  - 2. Piping and ductwork exposed in equipment rooms and accessible service areas.
  - 3. Piping and ductwork above accessible ceiling construction and near access panels in non-accessible ceiling construction.
- B. Install laminated plastic nameplates for equipment, and install color banding, flow arrows, and contents identification for piping.

1.02 COORDINATION

- A. Coordinate with other Contractors to ensure that the identification used by all Trades is uniform in type, style, and appearance.
- B. Coordinate all identification systems with any already existing.

1.03 MANUFACTURERS

- A. Brady, Seton, Kolbi, Graphic Products, CALPICO, EMED, MSI, or Brimar.

PART 2 PRODUCTS

2.01 EQUIPMENT IDENTIFICATION

- A. Engraved laminated plastic, white over black, sized for 3/4 inch high letters or numbers, Gothic style.
- B. Refer to specification 22 61 13 “Medical Gas Piping System” for medical gas and vacuum system equipment labeling requirements.

2.02 PIPING AND DUCTWORK IDENTIFICATION

- A. Provide vinyl adhesive labels or vinyl wrap-around markers. Match label background color to 2 inch color band.
- B. Refer to specification 22 61 13 “Medical Gas Piping System” for medical gas and vacuum system piping labeling requirements.

C. Size to be as follows:

| Outside Diameter of Pipe<br>or Covering | Minimum Letter Height |
|-----------------------------------------|-----------------------|
| 3/4" to 1-1/4"                          | 1/2"                  |
| 1-3/8" to 2"                            | 3/4"                  |
| 2-1/8" to 7-7/8"                        | 1-1/4"                |
| 8" to 10"                               | 2-1/2"                |
| Over 10"                                | 3-1/2"                |

## 2.03 COLOR BANDS

A. Provide 2 inch wide (minimum) painted gloss enamel or vinyl tape color band on each pipe, completely wrapping the pipe circumference. See the "Identification Schedule" for band color.

## 2.04 FLOW ARROWS

A. Provide color-coded adhesive vinyl flow arrow on each pipe, secure flow arrows to pipe at each end of flow arrow with a color band, completely wrapping the pipe circumference. Match flow arrow color with color band.

B. Size to be as follows:

| Outside Diameter of Pipe<br>or Covering | Minimum Flow Arrow Size |
|-----------------------------------------|-------------------------|
| 3/4" to 1-1/4"                          | 1-1/8" by 4"            |
| 1-3/8" to 2"                            | 1-1/2" by 4"            |
| 2-1/8" to 7-7/8"                        | 2-1/4" by 6"            |
| 8" and over                             | 4" by 7"                |

C. In lieu of separate flow arrows, flow arrows may be incorporated into color bands. See "Identification Schedule" for band color, and match flow arrow color lettering color.

## 2.05 IDENTIFICATION SCHEDULE

A. Identify as follows:

| Type of Service            | 2 Inch Color Band<br>and Label Color | Lettering<br>Color | Designation |
|----------------------------|--------------------------------------|--------------------|-------------|
| HVAC                       |                                      |                    |             |
| Air conditioner condensate | Green                                | White              | COND        |
| Refrigerant liquid         | Yellow                               | Black              | L           |
| Refrigerant suction        | Yellow                               | Black              | S           |

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Attach equipment tags with screws. Exception where screws might damage equipment or ductwork, use compatible adhesive instead of screws.
- B. Apply piping and ductwork identification only after finish painting is completed.
- C. Provide service designations, flow arrow, and color banding at intervals of 15 feet (maximum).
- D. Also identify piping at connections to equipment, at entrances to spaces, at valves, near access doors to pipe spaces, at branches from main, at each riser, and at both sides of the wall or barrier through which the piping passes.
- E. Clean piping, duct, or insulation in area of labeling just before labeling of pipe, duct, or insulation.
- F. Ensure that labels are readable from a normal standing position.

END OF SECTION

SECTION 20 05 80  
VIBRATION ISOLATORS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Provide a complete vibration isolation system to isolate motorized equipment, piping, ductwork, and appurtenances from the building structure and ceiling construction.
- B. Provide vibration isolation devices with motion limiters, sway struts, limits stops, shock absorbing devices, and/or snubbers to control the horizontal and vertical movement of equipment during seismic events. These devices shall be supplied based on the seismic design data included in the other sections of this specification or listed on the drawings. This data includes Site Class, Seismic Design Category, and Design Spectral Response Acceleration for short period.

1.02 QUALITY ASSURANCE

- A. Expected noise levels in various parts of the building shall conform to noise criteria recommendations as set forth in the current edition of ASHRAE Guide and Fundamentals. The midpoint of the range of noise criteria curves shall apply and become part of these Specifications.
- B. Sound and vibration control design criteria for mechanical systems for this building shall conform to the chapter in Sound and Vibration Control in the current edition of ASHRAE Guide, HVAC Systems and Applications.
- C. Vibration isolation devices, including auxiliary steel bases and pouring forms, shall be designed and furnished by a single manufacturer or supplier.

1.03 MANUFACTURERS

- A. Kinetics, Korfund Dynamics Corporation, Vibration Eliminator Company, Inc., Vibration Mountings and Controls, Inc., or Mason Industries, Inc.

PART 2 PRODUCTS

2.01 VIBRATION ISOLATORS

- A. Type 1 - Pad Mounts: Pre-compressed molded fiberglass isolation pads, neoprene jacketed and stabilized during manufacturing. Pads shall be sized for loading from 40 to 60 psi.
  - 1. Kinetics Model KIP

- B. Type 2 - Hanger Mounts: Vibration isolators with maximum static deflection requirements under the operating load conditions not exceeding 0.40 inch shall be hangers consisting of an elastomer-in-shear insert encased in a welded steel bracket and provided with a stamped load transfer cap. The elastomer insert shall be neoprene, molded from oil resistant compounds, and shall be color coded to indicate load capacity and selected to operate within its published load range. The hanger bracket shall be designed to carry a 500% overload without failure and to allow a support rod misalignment through a 30 degree arc without metal-to-metal contact or other short circuit.
1. Kinetics Model RH
- C. Type 3a - Spring Hanger Mounts: Vibration isolators shall be hangers consisting of a freestanding, laterally stable steel spring and elastomeric washer in series, assembled in a stamped or welded steel bracket. Springs shall have a lateral stiffness greater than 0.8 times the rated vertical stiffness and shall be designed to provide up to 50% overload capacity. Springs shall be selected to provide operating static deflections shown on the Vibration Isolation Schedule or as indicated on the project documents. Springs shall be color coded or otherwise identified to indicate load capacity.
1. Kinetics Noise Control Type SH
- D. Type 3b - Spring Hanger Mounts: Vibration isolators where both high and low frequency vibrations are to be isolated, shall be hangers consisting of a laterally stable steel spring in series with a pre-compressed molded fiberglass insert, complete with load transfer plates and assembled in a stamped or welded steel bracket. Vibration isolators shall be pre-compressed molded fiberglass pads individually coated with a flexible, moisture impervious elastomeric membrane. Vibration isolation pads shall be molded from glass fibers with fiber diameters not exceeding 0.00027 inches and with a modulus of elasticity of 10.5 million PSI. Natural frequency of fiberglass vibration isolators shall be essentially constant for the operating load range of the supported equipment. Vibration isolators shall be color coded or otherwise identified to indicate the load capacity. Springs shall have a lateral stiffness greater than 0.8 times the rated vertical stiffness and shall be designed to provide up to 50% overload capacity. Springs shall be selected to provide operating static deflections shown on the Vibration Isolation Schedule or as indicated on the project documents. Springs shall be color coded or otherwise identified to indicate load capacity.
1. Kinetics Noise Control Type SFH
- E. Type 3 - Spring Floor Mounts: Vibration isolators shall be freestanding, unboxed, laterally stable springs wound from high strength spring steel. Springs shall have a lateral stiffness greater than 0.8 times the rated vertical stiffness and shall be designed to provide up to 50% overload capacity. Springs shall be selected to provide operating static deflections shown on the Vibration Isolation Schedule or as indicated on the project documents. Springs shall be color coded or otherwise identified to indicate load capacity. In capacities up to 5,000 lbs., springs shall be replaceable. In capacities over 5,000 lbs., springs shall be welded to the top and bottom load plate assemblies. Springs shall be assembled between a top and bottom steel load plate. The upper load plate shall be provided with a steel leveling bolt lock nut and washer for attachment to the supported equipment. The lower load plate shall have a non-skid noise isolation pad bonded to the bottom and have provisions for bolting the isolator to the supporting structure.
1. Kinetics Noise Control Type FDS

- F. Type 4 - Spring Limit Floor Mounts: Similar to Type 3 Spring Floor Mounts but include neoprene and steel vertical limit stops to assure a constant spring mount. Vibration isolators shall consist of large diameter laterally stable steel springs assembled into formed or welded steel housing assemblies designed to limit vertical movement of the supported equipment. Housing assembly shall be formed or fabricated steel members and shall consist of a top-load plate complete with adjusting and leveling bolts, vertical restraints, isolation washers and a bottom plate with non-skid noise stop pads and holes provided for anchoring to supporting structure. Housing shall be hot dipped galvanized. Make provisions to prevent mechanical short-circuiting by isolating the limit stops.
  - 1. Kinetics Noise Control Type FLS.
- G. Type 5 - Thrust Restraints: Spring-loaded restraint with 1 inch deflection, installed in pairs to limit movement associated with equipment thrust.
  - 1. Kinetics Model HSR
- H. Type A - Structural Base: No additional base is provided. The isolators are attached directly to equipment that has been designed for adequate structural rigidity.
- I. Type B - Structural Base: Welded structural steel frame base, individually designed and engineered by the manufacturer to support mechanical equipment and allow the use of vibration isolators. Provide main steel members with section depths of 3 to 12 inches. Complete with outboard isolator brackets and pre-located equipment anchor bolts.
  - 1. Kinetics Model SFB
- J. Type C - Inertia Bases:
  - 1. Reinforced concrete inertia base with welded steel channel frame with pre-located equipment anchor bolts and welded templates, 1/2 inch diameter rebars, 8 inches O.C. each way, isolator mounting brackets, base thickness greater than 8% of span between isolators or as indicated on the Drawings, length and width as required to control size and weight of equipment being isolated, including pipe elbows connected to pumps.
  - 2. Kinetics Model CIB
- K. Type D - Roof Curb Isolation Rails: Prefabricated extruded aluminum rail system incorporating 1 inch deflection freestanding stable springs for vibration isolation and a continuous foam neoprene air and water seal. The aluminum rail shall include an integral slot anchoring springs to the bottom section but allowing horizontal adjustment.
  - 1. Rooftop units over 20 tons - Kinetics Model ESR
  - 2. Rooftop units less than 20 tons – Kinetics Model KSR3.0

## 2.02 ISOLATOR SCHEDULE

- A. Furnish isolator types as follows:

| Equipment Item       | Base Type | Isolator Type | Deflection<br>(Inches) |
|----------------------|-----------|---------------|------------------------|
| Air cooled condenser | A         | 1             | 0.25                   |



## 2.03 MASS-LOADED VINYL WRAP

- A. Limp, reinforced loaded vinyl with lead-free and asbestos-free fillers, with high-strength polyester fabric reinforcement, 1 lb. per square foot face weight. Material shall have a continuous operating range of -40 degrees F to +180 degrees F, and shall be resistant to water, oil, weak acids, alkalies, mold, and fungi. Material shall not rot, shrink or cause metal corrosion. Provide Class A fire-rating where required.
- B. Type KNM-100 by Kinetics, or equal by other listed manufacturers.

## PART 3 EXECUTION

### 3.01 PREPARATION

- A. Use steel components that are phosphated and painted. Use only nuts, bolts, and washers that are zinc electroplated.
- B. Thoroughly clean structural steel bases of welding slag and prime them with zinc-chromate or metal etching primer.
- C. All isolators exposed to the weather, located outdoors, or within manholes or tunnels shall have all steel parts either PVC-coated or hot-dip galvanized.
- D. Use aluminum components that are etched and painted.

### 3.02 INSTALLATION

- A. Equipment: All motorized heating and air-conditioning equipment, including pumps, fans and other equipment, shall be mounted on, or suspended with, vibration isolators.
- B. The installed vibration isolation system for each floor or for ceiling supported equipment shall have a maximum lateral motion under equipment start-up or shutdown conditions of 1/4 inch. Motions in excess shall be restrained by approved spring-type thrust restraints as specified or approved by submittal Drawing.

END OF SECTION

SECTION 20 05 99  
REQUIREMENTS FOR CONTRACT COMPLETION

PART 1 GENERAL

1.01 DESCRIPTION

- A. Refer to Division 1 for additional requirements. Following is a partial list of items that must be submitted as required before Contract Completion.
  - 1. All Plumbing and HVAC Contractors:
    - a. Receipt for Operating Instructions and Service Manual
    - b. Certificate of Equipment Demonstration
    - c. Receipt for keys
    - d. Warranties
    - e. All required test reports as specified in other Sections
    - f. All As-Built Drawings per Specifications
  - 2. HVAC Contractor only:
    - a. Certificate of Inspection
    - b. Air balance reports
- B. In addition to the written submittals, the following material shall also be submitted prior to Contract Completion. Submit a signed copy of the Certificate of Materials Receipt. (ATTACHED TO THE END OF THIS SECTION)
  - 1. Loose or spare parts as specified in other Sections.
  - 2. Spare parts as specified in this Section.
- C. Provide an equipment report to the A/E which lists:
  - 1. Date the equipment arrived on jobsite.
  - 2. Dates equipment installation was complete.
  - 3. Dates of startup and period maintenance and inspections.
  - 4. Dates of lubrication, including the specific lubricant type, name brand and manufacturer.

PART 2 PRODUCTS

2.01 SPARE PARTS

- A. Furnish one complete set of the following spare parts:
  - 1. Gaskets for each pump
  - 2. Pump packing/mechanical seal for each pump
  - 3. Gaskets for manholes and handholes
  - 4. Glass for each water gauge
  - 5. All air filters (does not include air filters used during construction)
  - 6. Special keys, wrenches, and similar required or special tools

## PART 3 EXECUTION

### 3.01 OPERATIONAL TEST

- A. At completion, operate the systems at least five (5) days, not necessarily consecutive, to demonstrate fulfillment of the requirements of the Contract. During this time, make adjustments so that equipment will perform as the manufacturer intended and systems will function as designed. Complete balancing before operating test is started.
- B. Operate each system in every mode of operation and check the position of valves, dampers, and other devices for proper closure and switching.
- C. Following completion of the testing described previously, sign and submit the Certificate of System Completion. (ATTACHED TO THE END OF THIS SECTION)

### 3.02 PERSONNEL INSTRUCTION

- A. After all system operational tests have been completed, schedule an instruction period with the University. Instruct the University-designated personnel in the operation and maintenance of all systems and equipment. Use manuals to familiarize the University-designated personnel with equipment and procedures. Allow time as necessary for this instruction. Schedule time convenient for the University and the Architect.
- B. The instruction is to include the following:
  - 1. Location of items of equipment and explanation of their use
  - 2. Reference to service manual for record and clarity
  - 3. Coordination of written and verbal instructions so that each is understood by personnel
  - 4. Explanation of control system
  - 5. Complete review of items in the manuals
  - 6. Maintenance procedures to be followed by the University
- C. At the completion of instruction, have all attendees sign the Certificate of System Completion. (ATTACHED TO THE END OF THIS SECTION)

END OF SECTION

CERTIFICATE OF MATERIAL RECEIPT

Project Name: \_\_\_\_\_

Date: \_\_\_\_\_

Contractor: \_\_\_\_\_

Contractor's Representative: \_\_\_\_\_

On the date listed previously, the following pieces of equipment, as required by the Project Specifications, were delivered to the University's representative:

| Equipment | Quantity |
|-----------|----------|
| 1.        |          |
| 2.        |          |
| 3.        |          |
| 4.        |          |
| 5.        |          |
| 6.        |          |
| 7.        |          |
| 8.        |          |
| 9.        |          |
| 10.       |          |

(Attach a separate page for additional items)

University's Representative: \_\_\_\_\_ (PRINT)

\_\_\_\_\_ (SIGN)

CERTIFICATE OF SYSTEM COMPLETION

Project Name: \_\_\_\_\_

Contractor: \_\_\_\_\_

System: \_\_\_\_\_

Specification Section Number: \_\_\_\_\_

A. Manufacturer's Inspection and Approval (if required by specification section)

The previously identified system has been inspected and approved as meeting the manufacturer's written instructions for installation and operation.

Manufacturer's Representative: \_\_\_\_\_ Date: \_\_\_\_\_

B. Testing

The previously identified system has passed all testing required by the Project Specifications and has met the terms of the contract. Written test results are attached.

Contractor's Representative: \_\_\_\_\_ Date: \_\_\_\_\_

C. Equipment Demonstration

The previously identified system has been demonstrated to the following University's representatives:

|     | Name | Title | Date | Signature |
|-----|------|-------|------|-----------|
| 1.  |      |       |      |           |
| 2.  |      |       |      |           |
| 3.  |      |       |      |           |
| 4.  |      |       |      |           |
| 5.  |      |       |      |           |
| 6.  |      |       |      |           |
| 7.  |      |       |      |           |
| 8.  |      |       |      |           |
| 9.  |      |       |      |           |
| 10. |      |       |      |           |

(ATTACH A SEPARATE PAGE FOR ADDITIONAL NAMES)

SECTION 23 05 01  
HEATING, VENTILATING, AND AIR CONDITIONING

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish material, labor, tools, accessories, and equipment to complete test, adjust, start up, balance, and successfully run all HVAC systems of this Project as described in these Specifications and as shown on the Drawings.
- B. Refer to Sections 20 00 00 through 20 99 99 (as included) for items of a general nature which apply to this portion of the Work. Sections 23 00 00 through 23 99 99 (as included) describe the HVAC work.
- C. It is the intent that the HVAC Work be complete in every respect.

1.02 LICENSES

- A. The installation of this HVAC work shall be made by a Contractor and craftsmen licensed by the Governing Authorities.
- B. Obtain all permits and licenses required by Local Code Authorities having jurisdiction.

1.03 FEES

- A. Unless otherwise noted, this Contractor shall pay for all permits, inspection fees, and other charges related to the installation and inspection of the HVAC work.

1.04 CODES, REGULATIONS, AND STANDARDS

- A. Unless otherwise noted, the latest enforced Edition shall apply to this work.

1.05 HVAC ROUGH-INS

- A. Provide service rough-ins and make final connections to equipment furnished by the Equipment Contractor or the University.
- B. Provide piping, valves, ductwork, and specialties as required, and as specified under other Sections of these Specifications.

1.06 EQUIPMENT CONNECTIONS

- A. Make final connections to equipment. Coordinate rough-in locations with other Contractors.
- B. Refer to approved equipment drawings for exact rough-in sizes and locations.

END OF SECTION

SECTION 23 07 05  
HVAC INSULATION

PART 1 GENERAL

1.01 DESCRIPTION

- A. Insulate the following:
  - 1. Piping:
    - a. Condensation drain
    - b. Refrigerant lines

1.02 QUALITY ASSURANCE

- A. Indoor pipe and duct insulation shall have a flame-spread rating not exceeding 25, a smoke-developed rating not exceeding 50, and a fuel-contributed rating not exceeding 50. All insulation accessories shall have similar ratings. All rating procedures shall meet the standards set in ASTM E-84, NFPA 255, and UL 723.
- B. All insulation located in a return air plenum shall be listed and labelled for a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested accordance with ASTM E84 or UL 723.
- C. Install insulation to according to "Commercial and Industrial Insulation Standards," as published by the Midwest Insulation Contractor's Association, latest edition.
- D. Insulation values shall be in accordance with the State Energy Codes.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Protection: Leave insulation boxed and stored until time for use. Elevate and cover material to avoid moisture condensation and physical abuse.

1.04 MANUFACTURERS

- A. Fiberglass-based insulation: Owens-Corning, Manson, Knauf, or Johns-Manville.
- B. Closed-cell elastomeric insulations: Armacell, Aeroflex, or K-Flex.
- C. Calcium silicate insulation: Pabco Super Caltemp Gold 1500, or approved equal by Kaylo.
- D. Polyisocyanurate insulation: Dow Chemical Company or Johns-Manville

PART 2 PRODUCTS

2.01 ADHESIVES, FINISHES, AND MASTICS

- A. Use the following items or equivalent items:
  - 1. Vapor barrier lap adhesive - Foster Drion Contact Bond Cement 85-75

2. Lagging adhesive - Foster 81-42W
3. Metal bonding adhesive - Foster 85-15
4. Indoor vapor barrier finish - Foster 30-80
5. Indoor breather finish - Foster Lagtone 46-50
6. Outdoor vapor barrier mastic - Foster 46-50
7. "Fuse-Seal" sticks and applicator (for polyolefin insulation)

## 2.02 THERMAL RESISTANCE OF PIPING INSULATION

- A. Insulate all piping installed to serve buildings and within buildings in accordance with the minimum pipe insulation as listed in the following table. Pipe insulation not required between control valve and heating coil on runouts when the control valve is within 4 feet of coil and piping is 1 inch or smaller. Condensate system design temperature shall match the saturation temperature of the steam system they drain.

| Minimum Insulation Thickness for Pipe Sizes (Inches) |                               |             |            |            |        |            |
|------------------------------------------------------|-------------------------------|-------------|------------|------------|--------|------------|
| Piping System Types                                  | Fluid Temperature Ranges (°F) | Less than 1 | 1 to 1-1/4 | 1 1/2 to 3 | 4 to 6 | 8 and Over |
| <b>Cooling systems:</b>                              |                               |             |            |            |        |            |
| Chilled, or Condenser water or condensate            | Above 40                      | 0.5         | 1.5        | 1.5        | 1.5    | 1.5        |
| Refrigerant or brine                                 | Below 40                      | 1.0         | 1.5        | 1.5        | 1.5    | 1.5        |

- B. Pipe sizes are nominal dimensions. For piping exposed to outdoor temperatures, increase thickness by 0.5 inches.

## 2.03 INDOOR PIPING

- A. Fiberglass, heavy-density insulation with all service jacket and pressure sealing lap adhesive on longitudinal and butt strips. Jacket vapor membrane shall have an installed vapor permeance of not more than 0.09 perms. Staple and seal with pressure-sealing lap adhesive on longitudinal and butt strips. Insulation conductivity shall be in accordance with the following table. Condensate system insulation design temperature shall match the saturation temperature of the steam system they drain.
- B. Flexible closed-cell elastomeric sponge- or expanded rubber type insulation in compliance with ASTM C534, Grade 1.



- C. Polyolefin: Unicellular, polyethylene thermal plastic insulation in compliance with ASTM C 1427, Type I, Grade 1.

| Piping System Types                       | Fluid Design Temperature Ranges (°F) | Insulation Conductivity Range (Btuh in./ft <sup>3</sup> deg. F) | Mean Rating Temperature (°F) |
|-------------------------------------------|--------------------------------------|-----------------------------------------------------------------|------------------------------|
| <b>Cooling systems:</b>                   |                                      |                                                                 |                              |
| Chilled, or Condenser water or condensate | Above 40                             | 0.21-0.27                                                       | 75                           |
| Refrigerant or brine                      | Below 40                             | 0.20-0.26                                                       | 50                           |

#### 2.04 EXPOSED INDOOR PIPING UP TO 10 FEET ABOVE NEAREST WALKING SURFACE

- A. Insulation same as for indoor piping. Cover with ultraviolet-resistant PVC jacket. Jacket is to be self-extinguishing and have zero fuel contribution. All piping visible inside and outside mechanical room is considered exposed.
1. Ceel-Co Ceel-Tite 300 Series or Foster Sealfas.

#### 2.05 FITTINGS AND VALVES

- A. Premolded PVC covers over molded insulation. Insulation same thickness as on adjoining pipe. Insulation shall have a flame-spread rating not exceeding twenty-five (25) and a smoke-developed rating not exceeding fifty (50). Exception: heating valves and unions, or any components specified to have removable covers.

#### 2.06 OUTDOOR PIPING

- A. Piping systems with operating temperatures 220 degrees F or less: Flexible closed-cell elastomeric sponge- or expanded rubber type insulation in compliance with ASTM C534, Grade 1.
- B. Increase insulation thickness by 1/2 inch, minimum.
- C. Cover with 0.016 inch thick aluminum jacket with "Pittsburgh Seam." Seal between metal jacket and sleeve.

#### 2.07 PIPE INSULATING SUPPORT

- A. Refer to Section 20 05 45, "Hangers, Supports, and Inserts." The use of thermal protectors as pipe insulation support are noted elsewhere in this Specification. Maintain insulation vapor barrier integrity where inserts are used.

#### 2.08 REFRIGERANT PIPING

- A. Insulation for all indoor refrigerant piping shall be the same as for indoor piping.
- B. Insulation requirements for all outdoor refrigerant piping shall be the same as for outdoor piping.

## PART 3 EXECUTION

### 3.01 INSTALLATION NOTES

- A. Use no damaged or water-soaked insulation.
- B. Insulate piping where concealed in walls.
- C. Make insulation continuous through sleeves and hangers, except through fire-rated walls.
- D. Leave no "raw" ends on insulation. Bevel insulation terminations, seal with insulating cement, and cover ends with glass cloth or similar to pipe insulation covering.
- E. Ensure that exposed insulation has a neat and finished appearance. Size insulation if required and leave ready for painting.
- F. Ensure that jacket has overlapping joints and is sealed with suitable adhesive. The use of staples is acceptable on heating hot water systems only, but only as an installation aid and not as a substitute for adhesive.
- G. Brush coat all staples used with a white vapor barrier mastic.
- H. Tape and seal all joints.

END OF SECTION

SECTION 23 21 16  
CONDENSATION DRAIN AND MAKE-UP WATER PIPING

PART 1 GENERAL

1.01 DESCRIPTION

- A. Provide a complete piping system for the following:
  - 1. Condensation drain
  - 2. Make-up water

PART 2 PRODUCTS

2.01 PIPING

- A. Interior piping: Type "L" hard copper tubing (ASTM B88).

2.02 JOINTS AND FITTINGS

- A. Interior Piping Copper: Wrought copper socket solder (ANSI B16.22) joints.
- B. Copper Press Fitting Joining System
  - 1. At Contractor's option, and if permitted by local authorities, copper pipe may be mechanically joined by copper or bronze compression fittings. Fittings shall carry a 50-year manufacturer's warranty.
    - a. Use shall be limited to systems with maximum operating pressure of 200 psi, and maximum operating temperature of 210 degrees.
    - b. Fittings 1/2 inch to 3 inches shall be crimped on both sides of an integral bead containing an EPDM seal. Fittings 2 1/2 inches through 3 inches shall be double crimped, and be fitted with a stainless steel grip ring.
    - c. Piping shall be Type "L" copper.
    - d. The Contractor shall be trained on the installation of the product by the manufacturer and shall follow the manufacturer's installation instructions.
    - e. All valves and specialties must conform to all other requirements of these Specifications.
  - 2. Material:
    - a. Copper and copper alloy press fittings shall conform to material requirements of ASME B16.18 or ASME B16.22 and performance criteria of IAPMO PS 117. Sealing elements for press fittings shall be EPDM. Sealing elements shall be factory installed or an alternative supplied by fitting manufacturer. Fittings shall have a feature which allows the installer to quickly and easily identify connections which have not been pressed prior to putting the system into operation.
  - 3. Acceptable Manufacturers:
    - a. Rigid-Viega, Nibco, Apollo, or Anvil]

2.03 SOLDER

- A. 95/5 Tin-Antimony (ASTM B32).

PART 3 EXECUTION

3.01 INSTALLATION OF CONDENSATION DRAIN PIPING

- A. Provide trapped condensation drain piping from outlets of drain pans of all cooling coils.
- B. Provide drain piping from drain valves and overflows.
- C. Pitch all condensation lines down a minimum of 1 inch in 8 feet in the direction of flow.
- D. Provide full size interior piping cleanouts consisting of plugged tees at all changes of direction and where shown on the Drawings.
- E. Contractor shall install top of underground piping cleanouts flush and level with floor. All items not installed flush and level will be removed and replaced by this Contractor at no cost to the Owner.
- F. Where cleanouts occur below carpet, provide vandalproof stainless steel carpet marker.

END OF SECTION

SECTION 23 23 05  
REFRIGERANT PIPING SYSTEM

PART 1 GENERAL

1.01 DESCRIPTION

- A. Provide refrigerant piping between the indoor units and outdoor condensing units. Install oil and refrigerant charge, and test system.

PART 2 PRODUCTS

2.01 REFRIGERANT PIPING

- A. Hard drawn, Type "L" ACR copper tubing (ASTM B280), cleaned, capped, and nitrogen charged.

2.02 FITTINGS

- A. Less than 4": Wrought copper or wrought bronze fittings (ANSI B16.22) with brazed joints.

2.03 BRAZING ALLOYS

- A. Copper to Copper or Brass: Greater than 5.5% Silver with phosphorus and copper with a melting point greater than 1000 degrees F.
  - 1. Harris "Dynaflow" or Equal by LucasMilhaupt or Airco Welding Products.
- B. Copper to Steel: 55% Silver/copper, zinc and tin alloy with a melting point greater than 1,000 degrees F.
  - 1. Harris "Safety-Silv 56" or Equal by LucasMilhaupt or Airco Welding Products.

2.04 SERVICE VALVES

- A. Henry Type 203 or approved equal.

2.05 FLEXIBLE CONNECTORS

- A. Corrugated stainless inner tube with braided outer shield, 200 lb. minimum working pressure, sweat connections.
- B. Metraflex, Flexonics, Flexicraft, or Hyspan Precision Products.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Clean ends immediately before brazing joints. Plug ends to exclude dirt and foreign matter during construction.

- B. Adequately support tubing with consideration for expansion, contraction, and vibration.
- C. Provide adequate lift traps for hot gas riser.
- D. Maintain a continual flow of inert gas (nitrogen) through the tubing while brazing joints.

### 3.02 LEAK TESTING

- A. After refrigerant piping system is completed, but before insulation is applied, the system shall be thoroughly tested for leaks. Nitrogen at 300 psig may be used for initial test; loss of initial pressure must be zero psig after a duration of four (4) hours.
- B. After system is tight, all inert gas shall be evacuated. Full refrigerant charge for proper operation shall be furnished and placed in the system by this Contractor. System shall be leak tested with halide leak detector after installation of refrigerant. All defective materials shall be replaced. Leaking joints shall be completely re-done, and the entire testing procedure performed again.
- C. Upon completion of testing, but before insulation is applied, piping shall be inspected by a representative of the governing authority.

END OF SECTION

SECTION 23 81 27  
DUCTLESS SPLIT SYSTEM AIR CONDITIONER

PART 1 GENERAL

1.01 DESCRIPTION

- A. Provide a complete ductless split system complete with fan, filters, electronic controls, factory-furnished condensate pump, necessary valves and DX coil. Units shall be of the following type, as scheduled:
  - 1. Air Conditioner
- B. Provide matching air-cooled condensing unit complete with fan, coil, compressor and accessories.

1.02 QUALITY ASSURANCE

- A. Standards: American Refrigeration Institute (ARI) and Underwriters' Laboratories (UL).
- B. The units shall be listed by Electrical Laboratories (ETL) and bear the ETL label.
- C. All wiring shall be in accordance with the National Electrical Code (N.E.C.).

1.03 RATINGS AND CAPACITIES

- A. See Drawings for capacity requirements.

1.04 MANUFACTURERS

- A. Daikin, Friedrich, Mitsubishi, or Sanyo.

1.05 WARRANTY

- A. Provide a one-year parts and labor warranty on the entire unit and a five-year parts warranty for the compressors. Warranties shall commence at Substantial Completion. Warranties commencing at the date of shipment or start-up are not sufficient.

PART 2 PRODUCTS

2.01 UNIT DESCRIPTION

- A. General: Systems shall be designed and matched to operate as a system to provide the scheduled cooling and heating capacities. Systems shall utilize R454B or R32 refrigerant.

- B. Indoor Unit: Indoor Unit: The indoor shall be of the type and configuration as indicated on the drawings. The unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, piping, control board, fan, and motor. Evaporator unit and refrigerant pipes will be charged with dry air before shipment from the factory. The evaporator fan shall be an assembly with a fan direct driven by a single motor. The fan shall be statically and dynamically balanced and run on a motor with permanently lubricated bearings. The evaporator coil shall be of nonferrous construction with smooth plate fins on copper tubing. The tubing shall have inner grooves for high efficiency heat exchange. All tube joints shall be brazed with phosphor copper or silver alloy. The coils shall be pressure tested at the factory. A condensate pan and drain shall be provided under the coil.
- C. Outdoor Unit: The compressor shall be a high efficiency scroll design. A crankcase heater shall be factory mounted on the outside of the compressor. The condensing unit shall have an accumulator. The compressor will be equipped with an internal thermal overload. The condensing unit shall have high pressure and low pressure safety switches. The condensing unit must have the ability to operate with a maximum height difference of 50 feet and have refrigerant tubing length of 75 feet between evaporator and condensing units without the need for line size changes, traps, or additional oil. The compressor shall be mounted to avoid the transmission of vibration. The condensing unit shall be capable of operating at 0 degree F outdoor ambient temperature.
- D. Controls: This unit shall have a wired controller to perform input functions necessary to operate the system. The control system shall consist of two microprocessors interconnected by a single non-polar two wire cable. Wiring shall run direct from the indoor unit to the controller with no splices. Manufacturer shall provide 2 conductor 18 gauge stranded wire for connection to remote controller. The microprocessor located in the evaporator unit shall have the capability of sensing return air temperature and indoor coil temperature, receiving and processing commands from the wired controller, providing emergency operation and controlling the outdoor unit. The unit shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, an emergency operation function and a test run switch.
- E. Accessories:
1. Condensate Pump: Provide unit mounted condensate pump, wired to, and powered from the indoor unit. If condensate pump is required to be mounted outside indoor unit, provide all power wiring for the condensate pump at no additional cost to the Owner. The condensate pump shall be able to raise drain water 33 inches above the condensate pan.
  2. Fresh air intake kit.
  3. Frame and border for lay-in of drywall construction for ceiling cassettes.
  4. Electronic expansion device
  5. Reversing Valve (Heat Pump Units)
  6. Replaceable Air Filter

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Install unit and piping as per manufacturer's written recommendations.



- B. Make wiring connections between remote control panel and unit mounted control devices and panel. Also make any other field wiring connection required for remote or duct mounted sensors.
- C. Make all refrigerant-piping connections, fully charge unit and complete installation in accordance with the manufacturer's written installation instructions.
- D. For wall hung units in public spaces, install refrigerant piping and condensate line in wall. Provide cover on exposed piping for neat appearance.

END OF SECTION

SECTION 26 00 05  
DIVISION 26 GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish all materials, labor, tools and equipment to complete and leave ready for operation all electrical systems as called for in these Specifications or shown on the Drawings and any and all details essential to complete the work.
- B. By submitting a bid, the Contractor certifies that:
  - 1. He/she fully understands the makeup, construction, and operation of all systems and equipment he/she is bidding on, and that he/she has included in his/her price all materials, supplies, accessories, and services necessary to make these systems complete and operational.

1.02 REFERENCE

- A. These General Requirements are in addition to the other requirements referenced in Section 26 00 00, "Division 26- Electrical Introductory Statement." They are not meant to replace them. In case of conflict, ask the A/E for interpretation.
- B. The Contractor is responsible for becoming thoroughly familiar with all Drawings and Specifications prior to bidding so that all conditions of work are clear with regard to electrical requirements of equipment, mounting conditions, etc. Contractor shall study reflected ceiling plans, elevations, and details, etc.
- C. The Division 26 Contractor is responsible for all electrical work shown, whether noted by his/her division or not, on all Drawings and Specifications in the entire construction documents package. In case of conflict, Contractor shall include greatest quantity of equipment, extent of work, and expense in his/her bid. If there is any question about scope, the bidder must bring his concerns to the attention of The Ohio State University's representative during bidding through the A/E.

1.03 STANDARDS OF QUALITY

- A. Provide quality work conforming to the best accepted practices and standards of the trade. Further definition of quality is given by reference to various laws, codes, standards, and regulations. Refer also to the publications of NECA (National Electrical Contractors Association).
- B. All laws and codes having jurisdiction over this project are deemed to be included in their entirety as a part of these Specifications. Also, any other laws, codes, standards, or regulations referenced herein are deemed to be included in their entirety.

- C. If a conflict occurs between the Drawings and the Specifications, immediately call the conflict to the attention of the A/E at least ten (10) days before bids are submitted, so an addendum clarification may be issued. Conflicts not brought to the A/E attention before bids are due, shall be priced by the Contractor to include the most expensive, highest quality and quantity of the conflicting items in question.
- D. Material and equipment installed under this Contract shall be new, undeteriorated, and of a quality not less than the minimum specified. All equipment and conductors shall be certified, listed, and labeled by UL. If UL does not certify an associated piece of equipment, then certification by another nationally recognized testing laboratory such as ETL shall be permissible. If equipment or conductors are of a type that no testing lab lists or labels, then a safety evaluation must be performed at the supplier's expense by the inspecting authority or another Federal, State, or municipal agency.
- E. The latest adopted editions of the following also apply to this work:
  - 1. National Electrical Code, NEC
  - 2. National Fire Protection Association Publications, NFPA
  - 3. Ohio Building Code
  - 4. National Electrical Safety Code

#### 1.04 CONTRACT DRAWINGS

- A. Drawings are schematic and show approximate locations and the extent of work. Exact locations and extent must be coordinated with other Contractors and verified in the field. Coordination of the final fabrication drawings and final coordination of the installation in the field is the Contractor's responsibility. Contractor is to take the design to the next level of detail knowing exactly what equipment and materials he/she is going to provide and build the project based on that equipment and other approved shop drawings.
- B. Significant deviations from Drawings must be approved by the A/E.
- C. The A/E reserves the right to make minor changes in location which do not require additional labor or material up to the time of roughing-in without additional cost. No cost shall be added to the Contract for a minor change. The A/E shall determine what is "SIGNIFICANT" and what is a "MINOR" change.

#### 1.05 DEFINITIONS

- A. "Provide": To furnish and install.
- B. "Concealed": Embedded in or installed behind walls, within partitions, above suspended ceilings, below grade, in trenches, in tunnels and in crawl spaces.
- C. "Exposed": Not installed underground or "concealed" as defined above.
- D. "Contractor": Means the Division 26 Contractor.
- E. "Furnish": To purchase and deliver products to the project site and make ready for installation.

- F. "Install": To take furnished products, assemble, erect, secure, connect, and place into operation.
- G. "Products": Includes materials, systems, and equipment.
- H. "Work": The providing of products for entire Contract.

#### 1.06 PERMITS, FEES AND NOTICES

- A. Unless otherwise excluded in the Contract Documents, secure and pay for all permits and governmental fees, licenses, and inspections necessary for the proper execution and completion of work.
- B. Give notice and comply with all laws, ordinances, rules, regulations, and lawful orders of any public authority having jurisdiction on the performance of the work.

#### 1.07 EXAMINATION OF SITE

- A. Certain existing conditions may affect the manner or sequence of the performance of work. Review existing services and structures prior to bidding the work. Review operating schedules for existing systems and services. Coordinate the scheduling of the work with existing operations.
- B. Verify and reconcile work required by the Contract Documents with conditions at the site.
- C. Visits to the site prior to bid are highly recommended. Contractor shall coordinate all site visits with Division 1 requirements.

#### 1.08 UTILITIES

- A. Locate any existing utilities prior to construction. Advise the A/E immediately of major conflicts to permit modification of the Contract Documents.
- B. Contractor shall record exact locations of all existing overhead and underground site utilities within the project limits on a site layout plan and submit to A/E for review prior to any excavation. Where existing utilities conflict with new work, proposed modifications shall also be marked and identified on the site layout plan.
- C. Record locations of all concealed utilities on the Record Drawings.
- D. Coordinate any utility service shutdowns or outages with the A/E and The Ohio State University. Shutdowns shall conform to all utility company requirements. Avoid inconveniencing The Ohio State University and provide temporary service during the curtailment, as required by the A/E or The Ohio State University. Provide ten working days advance notice for any required utility outages.

- E. At least ten (10) working days prior to construction in an area which may involve underground utility facilities, the Contractor shall notify the A/E, the registered utility protection service, and each underground utility company:
  - 1. Utilities Protection Service  
Phone ..... 1-800-362-2764
  - 2. FOD Service2Facilities  
Phone ..... 614-292-HELP

## 1.09 ABBREVIATIONS

- A. Abbreviations used in these specifications:

|      |   |                                               |
|------|---|-----------------------------------------------|
| ADA  | - | Americans with Disabilities Act               |
| ANSI | - | American National Standards Institute         |
| CBM  | - | Certified Ballast Manufacturers               |
| EIA  | - | Electronic Industries Association             |
| ETL  | - | Electrical Testing Laboratories               |
| FCC  | - | Federal Communications Commission             |
| ICEA | - | Insulated Cable Engineers Association         |
| IEC  | - | International Electro Technical Commission    |
| IES  | - | Illuminating Engineering Society              |
| ITL  | - | Independent Testing Laboratories              |
| NEC  | - | National Electrical Code                      |
| NECA | - | National Electrical Contractors Association   |
| NEMA | - | National Electrical Manufacturers Association |
| NESC | - | National Electrical Safety Code               |
| UL   | - | Underwriters Laboratories                     |

## PART 2 PRODUCTS

### 2.01 DESIGN BASE MANUFACTURERS ("STANDARDS")

- A. The Contract Documents are based on the requirements and layout of the equipment of the Design Base Manufacturer. Coordination of equipment with the building and with other trades has been made for these specific models and manufacturers of equipment. Where several manufacturers are listed, the first named is the Design Base Manufacturer, unless specifically noted otherwise. Products of the other listed manufacturers which are of comparable performance and quality to the Design Base Manufacturers may be submitted for review and approval per Section 26 00 15, "Submittals." Refer to 26 00 05, "Division 26 General Requirements," Paragraph 2.02, "Approved Equals" for products of manufacturers not listed.
- B. Prepare new layouts for all non-Design Base Manufacturers equipment and adjust and coordinate these layouts with equipment dimensions or service requirements which may be different from those of the Design Base Manufacturer. Verify that this equipment will fit and function in the indicated application. Submit these layouts as part of the submittal review.

- C. Whenever the Contractor furnishes equipment or material other than the Design Base Manufacturer specified, the Contractor is responsible for the cost and coordination of all modifications required not only for his/her work, but also for the work of all other Trades affected. Where changes to other Trades' work are required, this Contractor must include the additional costs of all such work in his/her bid and ultimately make arrangements with these other Trades for such changes and compensate them accordingly. Where changes to design are required, the Contractor shall submit such changes to the A/E for approval. The Contractor shall investigate potential conflicts such as the following:
1. Physical dimensions and weights
  2. Code required working clearances
  3. Connecting pipe sizes
  4. Additional control and interlock wiring
  5. Lug size and quantity
  6. Increased wire size, fuse size, and motor control equipment size
  7. Increased ventilation requirements
  8. Battery capacity
  9. Sound levels of audible devices
  10. Increased withstand and interrupting ratings of downstream equipment due to differences in overcurrent protective device characteristics

## 2.02 APPROVED EQUALS

- A. Equal (equivalent) components (articles, devices, materials, forms of construction, fixtures, etc.) by manufacturers not listed but meeting the specifications may be submitted to the A/E for approval and subsequent inclusion into the bidding documents. Submission must be received no later than ten (10) working days before bid date. If approved, such manufacturers will be listed in an addendum.
- B. Submittals must include all of the following:
1. Cover Letter: Company letterhead; addressed to A/E. Indicate the following:
    - a. Project name, project number, and phase or bid package if applicable
    - b. Specification Section by number and title
    - c. Specified Product
    - d. Proposed Product
    - e. Deviations, if any, from Specified Product
    - f. List of attachments
  2. Product Data: Manufacturer's literature, fully describing proposed product with exact item clearly indicated.
  3. Specifications: Manufacturer's specifications with all modifications noted as required to show compliance with Bidding Documents.
  4. Test Data: Where performance requirements are specified, submit laboratory tests to indicate compliance.
  5. Samples: Submit appropriate samples of proposed product when required by A/E, showing color, texture, construction, and other attributes necessary for evaluation.
- C. Failure to comply with and provide all of the above requirements will result in the submission not being reviewed.

### 2.03 QUANTITIES

- A. Equipment may be referred to either in these Specifications or on the Drawings, as singular or plural; Contractor is responsible for verifying the exact number of items required to complete his/her work.

### 2.04 UNIVERSITY FURNISHED (CONTRACTOR INSTALLED) EQUIPMENT

- A. Certain items of equipment may be furnished by The Ohio State University to the Contractor. The Contractor shall take delivery of such items and unload them from the truck at the job site.
- B. The Contractor shall protect and store such items as part of this Contract.
- C. The Contractor shall install these items in conformance with the requirements of the Specifications and Drawings and the supplier's recommended installation instructions.

### 2.05 ACCESS DOORS

- A. Install junction boxes, remote ballasts, etc. in locations where they will be accessible. Where not possible, Division 26 Contractor shall pay General Contractor to install access doors for electrical equipment. Coordinate all access door types and locations with the A/E.

### 2.06 RECORD (AS-BUILT) DRAWINGS

- A. Contractor shall maintain at the job site, one (1) copy of Drawings which shall be used exclusively for recording the location of all installed work not extraneous information such as field notes. Neatly record all information with red pen.
- B. Record deviations in locations of concealed conduit, equipment, lighting, outlets, manholes, etc., dimensioned from a fixed control point, including depth of bury, at each change of direction, at each change of slope and as required for further reference. Minor variations need not be recorded. Addendums, Change Orders, Field Work Orders, Supplemental Instructions, and other pertinent changes of record shall be recorded. These changes shall be reviewed monthly for conformance.
- C. Record deviations made necessary to incorporate equipment different from the Design Base equipment.
- D. Record deviations as noted above.
- E. At completion of the project, Contractor shall deliver "As-Built" Drawings and Coordination Drawings to the Architect for review and approval with regard to completeness. This submission shall consist of the job site "As-Built" Drawings in electronic format and as PDF files. Following approval, provide a full-plotted set as well as the electronic version and original.
- F. Refer to Division 1 for additional requirements.

## PART 3 EXECUTION

### 3.01 PAINTING AND RELATED WORK

- A. Finish painting in areas of new construction is the responsibility of the General Trades Contractor and is specified in Division 9.
- B. Any other painting, required by Sections in Division 26, is the responsibility of the respective Division 26 Contractor. It shall be done by a qualified tradesman skilled in the craft and shall meet the requirements of Division 9. Each Contractor is responsible for repainting of finished areas disturbed by his/her own cutting and patching.
- C. Factory-finished equipment which has rusted or has been damaged shall be cleaned, spot primed with zinc chromate, and finished to the original quality and color by the Contractor.
- D. Support steel shall be cleaned, rust removed, primed, and painted.

### 3.02 CUTTING AND PATCHING

- A. Unless otherwise required in General or Special Conditions, Contractor shall perform all cutting and patching required for his/her own work. Work must be accomplished in a neat and workmanlike manner, acceptable to the A/E.
- B. If necessary to cut into work of other Trades, it shall be done by other Trades at this Contractor's expense. Patching shall be similarly executed.
- C. Cutting of structural support beams, joists, plates, or other structural members is strictly prohibited without the specific written consent of the A/E. Use rotary drills where cutting holes through concrete, brick, plaster, or tile is necessary. Obtain approval of the A/E before proceeding with work.
- D. All cutting and patching shall be done promptly and all repairs shall be made as necessary to leave the entire work in good condition, including all cutting, fitting, and drilling of masonry, concrete, metal, wood, plaster, and other materials as specified or required for proper assembly, fabrication, installation, and completion of all work of the Contract.
- E. Patching shall match adjacent materials and shall be accomplished only by tradesmen skilled in the respective craft required. Materials and equipment used in the patching work shall comply with requirements of those Sections of the Specifications relating to material to be used in new construction.

### 3.03 SCAFFOLDING, RIGGING, HOISTS AND TRANSPORTATION

- A. The Contractor shall provide scaffolding, staging, cribbing, tackle, hoists, and rigging necessary for placing of his/her materials and equipment in their proper places in the project.
- B. The Contractor shall pay costs for transportation of materials and equipment to the jobsite and shall include such costs in his/her proposal.



- C. Scaffolding and hoisting equipment shall comply with requirements of applicable Federal, State, and Local Laws and Codes.

#### 3.04 CLEANING

- A. Upon completion of work, all material and equipment furnished in this Contract shall be thoroughly cleaned of labels, dirt, grease, rust, oil and other foreign matter. Prepare for finish painting, where painting is specified.

#### 3.05 TESTS

- A. The Contract Documents, laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction may require portions of the work to be inspected, tested, or approved. These services shall be performed by approved agencies.
- B. The A/E (and The Ohio State University's representative) must be notified of all scheduled tests and adjustments at least 72 hours before they are scheduled so that he/she may witness same. Obtain confirmation of attendance or absence for each test. If the Contractor performs any test or adjustment without the A/E present, or without proper notification, the Contractor may be required to perform the test or adjustment a second time. All test schedules are to be coordinated with the The Ohio State University to minimize inconvenience.
- C. The Contractor shall bear all costs of such inspections, tests, or approvals.
- D. Required certifications of inspection, testing, or approval shall be secured by the Contractor and included in the Record and Information Manuals. See Section 26 00 20, "Record and Information Manuals."

#### 3.06 WARRANTY OF WORK

- A. The Contractor shall warrant all work for a period of one (1) year from date of Contract Completion against defects in materials, equipment, and workmanship. All manufacturer warranties shall begin on date of Contract Completion also.
- B. The Contractor will be required to make all repairs or changes which, in the opinion of The Ohio State University, are necessary as the result of defective materials, equipment, or workmanship.
- C. The Contractor shall, promptly upon receipt of notice from The Ohio State University, and without expense to The Ohio State University, replace all defective work with suitable materials and equipment.
- D. Failure by the Contractor to promptly respond to warranty service calls can be sufficient reason for The Ohio State University to have the defects corrected at the expense of the Contractor.
- E. Refer to Division 1 for additional guarantee requirements.
- F. Refer to other Specification Sections for extended warranty requirements.

### 3.07 TEMPORARY POWER

- A. Contractor shall provide 3-pole breaker in existing panel(s) to provide temporary power for project. No other power shall be used. Temporary panel shall be metered. Contractor may use panels as described below to serve each building.
  - 1. Faculty Club – Panel PAT in room 004M
  - 2. Animal Science – Panel PL or PLA in machine room / corridor X005C
  - 3. Meiling Hall – Panel DD in room 308M
  - 4. Rightmire Hall – Panel BA in room 096M
  - 5. Mendenhall Labs – Panel R4EA in room 407A

END OF SECTION

SECTION 26 00 10  
COORDINATION BETWEEN TRADES

PART 1 GENERAL

1.01 DESCRIPTION

- A. The Division 21, 22, 23, 26, 27 and 28 Contractors shall coordinate their rough-in, service, and control requirements with each other.
- B. Division 26 Contractor shall coordinate all of his/her work with the General Trades Contractor for location of all devices, luminaires and equipment prior to rough-in.
- C. All wiring required to power Division 21, 22, 23, 27 and 28 equipment shall be installed by the Division 26 Contractor. All control and interlock wiring, regardless of voltage, is by the Contractor furnishing the control device. The Division 26 Contractor shall be responsible for all wiring from the fire alarm system equipment.
- D. If motors and/or equipment are furnished by Division 21, 22 or 23, which require larger or smaller starters, safety switches, circuit breakers, fuses, and/or branch circuit conductors than indicated, due to a larger size than specified, the Contractor furnishing the motors shall reimburse the Division 26 Contractor for any cost differential. Submittals for circuit breakers and motor feeder rough-in shall be provided after motor/elevator submittals have been approved.
- E. All electrical devices furnished as a part of Division 21, 22, 23, 27 and 28 equipment, and installation requirements of all electrical work done by Division 21, 22, 23, 27 and 28 Contractors shall conform to the applicable sections of Division 26.
- F. Division 26 Contractor shall coordinate with other Contractors prior to installation of panelboards to ensure requirements of NEC Article 110 and 408 are met. The Contractor violating this requirement shall be responsible for the cost of all modifications required to comply to the satisfaction of the inspection agency for failure to meet the above code requirements.
- G. Final operation of equipment provided under Division 21, 22, 23, 27 and 28 shall be the responsibility of the respective Division 21, 22 or 23 Contractor.
- H. Division 26 Contractor shall coordinate in particular with Divisions 8 and 14 Contractors for specific requirements for door hardware and elevators.
- I. Division 26 Contractor shall provide a safety switch for every mechanical piece of equipment that he/she is providing power for.
- J. Division 26 Contractor is responsible for all electrical work shown on all documents within the bid set.

END OF SECTION

SECTION 26 00 15  
SUBMITTALS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Refer to the GENERAL CONDITIONS and Division 1 for general requirements.
- B. Materials and equipment installed in this work shall meet all the requirements of the Contract Documents and no materials or equipment shall be ordered until submittals are reviewed and approved by the A/E.
- C. Submit complete catalog data or shop drawings for each manufactured item of equipment and all components to be used in the work, including specific performance data, material description, rating, capacity, working pressure, dimensional data, material gauge or thickness, wiring diagrams, brand name, catalog number, and general type.
- D. Catalog data for equipment reviewed by the Engineer shall not take precedence over the requirements of the Contract Documents. The review of the Engineer shall not relieve the Contractor from the responsibility for deviations from Drawings or Specifications, nor from the responsibility for providing proper clearance and coordination with other Trades.
- E. When submitted for review, all shop drawings shall bear the Contractor's signed certification that he/she has reviewed, checked, and approved the shop drawings, that they have been coordinated with the requirements of the project and with the provisions of the Contract Documents, and that he/she has verified all field measurements and construction criteria, materials, catalog numbers, and similar data. Annotations shall be in red ink.
- F. Each required Specification Section submittal shall be complete with all required information included in one PDF file. External web links are not permitted. Include a transmittal cover page indicating Specification Section name and number.
- G. Submittals shall be sent to [shopdrawings@korda.com](mailto:shopdrawings@korda.com).

1.02 CONTRACTOR'S RESPONSIBILITIES

- A. Complete review of shop drawings, product data, and samples prior to submission.
- B. Determine and verify:
  - 1. Field Measurements
  - 2. Field Construction Criteria
  - 3. Catalog Numbers and Similar Data
  - 4. Conformance with Specifications
- C. Coordinate each submittal with requirements of the work and the Contract Documents.
- D. Include a letter in the front of the submittal of any deviations in the submittals from the requirements of the Contract Documents.

- E. Make submittals and resubmittals, if necessary, promptly in accordance with the approved schedule and in such sequence as to cause no delay in the work or in the work of any other Contractor, or the project as a whole.
- F. Make any corrections or changes in rejected submittals as required by the A/E and resubmit until approved.
- G. Begin no fabrication or work which requires submittals until approved submittals are returned.

#### 1.03 INCORPORATION OF SUBMITTALS INTO RECORD AND INFORMATION MANUALS

- A. Refer to Section 26 00 20, "Record and Information Manuals."

#### 1.04 CERTIFICATIONS

- A. Provide:
  - 1. Test Agency results verifying capacities, operating conditions, and power requirements at design conditions
  - 2. Manufacturer's Statement of Compliance with Standards discussed in individual Specification Sections
  - 3. Equipment labels indicating Certification requirements
  - 4. Quality standard designations on each unit piece
  - 5. Typed verification that noted mixes, chemical compositions, and testing procedures were complied with
  - 6. Other Certifications listed in other Sections of the Specifications

#### 1.05 REQUIRED SUBMITTAL INFORMATION

- A. Submittal Transmittal
  - 1. Provide the following information on the Transmittal Form for each submittal:
    - a. Project name and address.
    - b. Specification number, as listed for each submittal item required in Paragraph 1.05C below.
    - c. Item description, as listed for each submittal item required in Paragraph 1.05C below. Where equipment is identified by number or tag on the documents, same shall be indicated on the submittal.
    - d. Specification number and item description (b and c, above) for each submittal if more than one submittal is sent under one transmittal form.
    - e. Name, address, and telephone number of Contractor.
    - f. Bid package number (if applicable).
    - g. Korda's project number (2019-0322).
  - 2. Submittal Transmittal Forms not properly identified with the above information will be returned (without review) to the Contractor.

- B. Refer to the following letter key:

KEY FOR REQUIRED SUBMITTALS:

- A. Shop Drawings and/or Layout Drawings
- B. Product Data Sheets
- C. Color Samples
- D. Product Samples
- E. Typed Statement
- F. Typed Verification of Compliance with Certification Requirements
- G. Motor Efficiencies and Power Factor
- H. Wiring Diagrams
- I. Installation, Operation, and Maintenance Instructions
- J. Reports or Test results

- C. Submit information on equipment items as listed below.

| SECTION # | CONTRACT ITEM                              | SUBMITTALS<br>REQUIRED |
|-----------|--------------------------------------------|------------------------|
| 26 00 20  | RECORD AND INFORMATION MANUALS             | A, B, E, F, H, I       |
| 26 00 75  | ACCESS PANELS                              | B                      |
| 26 08 40  | ELECTRICAL TESTS, ADJUSTMENTS, INSPECTIONS | J                      |
| 26 27 26  | WIRING DEVICES AND PLATES                  | B                      |
| 26 28 13  | FUSES                                      | B                      |
| 26 28 16  | SAFETY SWITCHES                            | B, I                   |
| 26 51 14  | LUMINAIRES                                 | B                      |

- D. After approval, one (1) copy shall be returned to the Contractor. Contractor shall make prints of the approved transparencies and reproductions of all other shop drawing information as necessary for his/her use and for inclusion in the Record and Information Manuals.

END OF SECTION

SECTION 26 00 20  
RECORD AND INFORMATION MANUALS

PART 1 GENERAL

1.01 REFERENCE

- A. Refer to Division 1 for general requirements and for specific information regarding Record (As-Built) Drawings and quantity required.

1.02 SUBMITTALS

- A. Submit one (1) copy of draft manual to the A/E for review and approval thirty (30) days before final inspection is due.
- B. After approval, submit approved manuals in PDF format to The Ohio State University and obtain receipt. (See Section 26 00 99, "Requirements for Contract Completion.")

PART 2 PRODUCTS

2.01 MANUALS

- A. Manuals shall PDF format with bookmarks for each section. Material shall be typewritten or printed and be fully legible and PDF addressable. Shop drawings shall be final approved with no marking as an addressable PDF. Scanned shop drawings are prohibited.
- B. The following items, together with any other necessary pertinent data, shall be included in each Manual:
  - 1. Each manual shall be labeled on front cover with project name, Contract, Contractor's name, A/E, and date of project completion.
  - 2. Manufacturers' names, nearest Factory Representative, and model and serial numbers of components of systems
  - 3. Operating instructions, start-up, and shutdown procedures
  - 4. Maintenance instructions
  - 5a. Routine and 24 hour emergency service/repair information:
    - a. Name, address, and telephone number of servicing agency
    - b. Names of personnel to be contacted for service arrangements
  - 5. Parts list with numbers of replaceable items, including sources of supply
  - 6. Manufacturers' literature describing each piece of equipment
  - 7. One (1) approved copy of each submittal
  - 8. Written warranties
  - 9. Certificate of Material Receipt and Certificate of System Completion
  - 10. One (1) typewritten directory for each panelboard as installed
  - 11. Record (As-Built) Drawings
  - 12. Certificate of Final Inspection signed by Building Authority having jurisdiction
  - 13. Test results

END OF SECTION

SECTION 26 00 55  
SLEEVES, SEALS, AND FIRESTOPS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish and install sleeves for conduit penetrations through masonry and concrete construction or where conduit passes through walls exposed and through smoke or fire rated separations.
- B. Provide watertight, corrosive service, oil resistant service and fire rated seals and firestopping as specified herein.

1.02 QUALITY ASSURANCE

- A. Firestopping materials shall be classified by UL as "fill, void or cavity materials" and "through penetration firestop systems."
- B. Firestopping materials shall conform to both Flame (F) and Temperature (T) ratings as tested by nationally accepted test agencies per ASTM E-814 or UL 1479 Fire Tests of Through-Penetration Firestops.
  - 1. The F rating shall be a minimum of one (1) hour, but not less than the fire resistance rating of the assembly being penetrated.
  - 2. Conduct the fire test with a minimum positive pressure differential of 0.01 inches of water column.
- C. Firestopping equipment used shall be in accordance with the Manufacturer's written installation instructions.
- D. Firestopping materials shall be expanded to fill cavities or provide adhesion to substrates that will maintain seal under normal expected movements of substrates.

1.03 SUBMITTALS

- A. For Review:
  - 1. Manufacturer's product data sheets indicating product characteristics, performance and limiting criteria
  - 2. Manufacturer's installation instruction for each type of seal or firestop required by the project
  - 3. Written certification that firestopping systems meet firestopping requirements specified herein
- B. To be included in Record and Information Manuals:
  - 1. One (1) copy of each approved submittal



#### 1.04 MANUFACTURERS

- A. Seals
  - 1. Link-Seal by Thunderline Corporation
  - 2. CSD Sealing Systems
  - 3. O-Z/Gedney Inc.
- B. Firestopping Materials
  - 1. Hilti
  - 2. Tremco Sealants & Coatings
  - 3. 3M Fire Protection Products
  - 4. Dow Corning
  - 5. CSD Sealing Systems

### PART 2 PRODUCTS

#### 2.01 SLEEVES

- A. Sleeve material through floors and walls shall be machine cut rigid galvanized steel conduit.
- B. At the Contractor's option, steel wall sleeves by Link-Seal may be provided.

#### 2.02 SEALS

- A. Modular Mechanical Type
  - 1. Seals shall consist of interlocking synthetic rubber links shaped to continuously fill the annular space between conduit and sleeve.
  - 2. Seal assembly shall have steel bolts and nuts and rubber sealing element for service and environment under which assembly will be used. Seal shall have a pressure resistance rating of 20 psig.
- B. Sealing Plug Type
  - 1. Seals shall consist of two (2) identical piece plugs made of synthetic rubber with one edge flanged, serrated profile on the outside and a series of ridges on the inside which compress and assures a tight seal. Seal shall have a pressure resistance of 15 psig at the plug base and 30 psig at the flange. Rubber grade shall be suitable for the service and environment under which sealing plug will be used.

#### 2.03 WATERTIGHT SEALS

- A. Modular mechanical type watertight seals shall have zinc galvanized bolts and nuts with EPDM rubber sealing element. Seals shall be Link-Seal, Type C.
- B. Sealing plug type watertight seals shall be made of EPDM rubber. Seals shall be by CSD Sealing Systems.

#### 2.04 FIRE RATED SEALS

- A. Modular mechanical type fire rated seals shall have zinc galvanized bolts and nuts with silicone rubber sealing element which provides a three hour fire resistance rating.
- B. Sealing plug type fire rated seals shall be made of FRR rubber for three hour fire resistance rating.

#### 2.05 FIRESTOP MATERIALS

- A. Use only firestop products that have been UL 1479, ASTM E-814 tested for specific fire rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.
- B. Cast-in-place firestop devices are installed prior to concrete placement for use with non-combustible and combustible plastic pipe (closed and open piping systems), or electrical cable bundles, penetrating concrete floors.
- C. Sealants, foams, or caulking materials for use with non-combustible items including rigid steel conduit and electrical metallic tubing (EMT).
- D. Intumescent sealants, caulking materials for use with combustible items (penetrants consumed by high heat and flame) including PVC jacketed, flexible cable or cable bundles and plastic pipe.
- E. Foams, intumescent sealants, caulking or putty materials for use with flexible cable or cable bundles.
- F. Non curing, re-penetrable intumescent sealants, caulking or putty materials for use with flexible cable or cable bundles.
- G. Wall opening protective materials for use with UL listed metallic and specified nonmetallic outlet boxes.
- H. Non curing, re-penetrable materials shall be used for large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways in raceways.
- I. Provide a firestop system with a "F" Rating as determined by UL 1479 or ASTM E814 which is equal to the time rating of construction being penetrated.

#### 2.06 OIL RESISTANT SERVICE SEALS

- A. Modular mechanical type oil resistant service seals shall have zinc galvanized bolts and nuts with Nitrile rubber sealing element. Seals shall be Link-Seal, Type O.
- B. Sealing plug type oil resistant seals shall be made of Nitrile rubber. Seals shall be by CSD Sealing Systems.

## 2.07 CORROSIVE SERVICE SEALS

- A. Modular mechanical type corrosive service seals have stainless steel bolts and nuts with rubber sealing element having high resistance to most organic compounds, acids, alkalis and related chemicals. Seals shall be Link-Seal, Type S.
- B. Sealing plug type corrosive service seals shall be made by Viton rubber. Seals shall be by CSD Sealing Systems.

## PART 3 EXECUTION

### 3.01 APPLICATION

- A. Provide sleeves for all conduit penetrations through walls, and through floors where above ground level. Sleeves are not necessary for slab-on-grade penetrations. (Refer to 26 00 30, Concrete Foundations, Supports, and Envelopes, for concrete collar requirements.)
- B. Provide one (1) spare sleeve of equal size in any floor or wall area where more than three (3) conduits penetrate floor or wall.

### 3.02 INSTALLATION

- A. Sleeves
  - 1. Carefully coordinate and check locations of sleeves immediately before and after each concrete pour and masonry installation.
  - 2. Give the General Trades Contractor locations and sizes of all openings required for the installation of sleeves before construction of masonry or concrete walls is started. If it becomes necessary to cut into new work because of the failure of this Contractor to notify the General Trades Contractor, then the General Trades Contractor shall do any necessary cutting and patching required at this Contractor's expense.
  - 3. Cut sleeves through walls flush with each surface. Unused sleeves shall extend beyond wall surface and be provided with caps.
  - 4. Cut sleeves 3 1/2 inches above finished floors. Joint between sleeve and floor shall be caulked to be watertight. Bottom of sleeve to be cut flush.
  - 5. Core drill holes for sleeves in existing construction.
  - 6. Patching shall be by the General Trades Contractor at this Contractor's expense.
- B. Seals and Firestops
  - 1. Clean surfaces and substrates of dirt, oil, loose materials, and other foreign materials which may affect the proper bond or installation of seals and firestops.
  - 2. Do not apply seals and firestops to surfaces previously painted or treated with a sealer curing compound or similar product. Remove coatings as required in compliance with Manufacturer's instructions. Provide primers, as required, which conform to Manufacturer's recommendations for various substrates and conditions.
  - 3. Follow Manufacturer's written instructions for installation of seals and firestops.
  - 4. Install firestops with sufficient pressure to fill seal holes, voids, and openings to ensure an effective smoke seal and to maintain the fire resistance rating of the assembly.
  - 5. Tool or trowel exposed surfaces. Remove excess firestop material promptly as work progresses and upon completion.

6. Unused sleeves shall be filled with and surrounded by firestop material. Sleeve ends shall be capped. Blind sealing plugs may be used at Contractor's option.
7. Install watertight seals for all below grade penetrations of conduit into the building.
8. Install fire rated seals in all fire rated walls and floors.
9. Install oil resistant service seals in environment where oils, fuels, solvents, and other petroleum-base products are used.
10. Install corrosive service seals in environments where organic materials, acids, alkalis, and related chemicals are used.

### 3.03 INSPECTION

- A. Examine seals and firestops to ensure proper installation and full compliance with this Specification. Work shall be accessible until inspection and approval by the applicable code authorities.
- B. Correct unacceptable seals and firestops and provide additional inspection to verify compliance with this specification at no additional cost.

END OF SECTION

SECTION 26 00 70  
DEMOLITION

PART 1 GENERAL

1.01 DESCRIPTION

- A. Perform demolition work of all electrical items as shown and/or described on the Drawings. Remove all items from site designated as scrap.
- B. Provide care so as not to damage adjacent construction designated to remain.
- C. All electrical items in good condition are to remain the property of The Ohio State University. Verify with The Ohio State University Representative which items are considered scrap and are to be disposed of.

PART 2 PRODUCTS - (NOT APPLICABLE)

PART 3 EXECUTION

3.01 DEMOLITION

- A. Coordinate and schedule all work in a careful manner with all necessary consideration for The Ohio State University, neighbors, and the public, avoiding interference with the use of, and passage to and from adjacent areas and facilities designated to remain in use during demolition. Coordinate work with other trades.
- B. Disconnect and remove all items as shown and described on the Drawings completely back to source, including:
  - 1. Luminaires
  - 2. Electrical equipment and pads
  - 3. Devices, boxes, and plates
  - 4. Conduit and wires
  - 5. Low voltage system devices, cables, and termination equipment.
- C. Maintain all existing circuits to items that are to remain in use.
- D. Existing outlets which are to be removed and have conduits rising from the floor slab shall have the conduits cut below floor level. Rework as required to provide feed-through service to other remaining outlets. Pull new wire between remaining outlets affected by feed-through. Patch floor as required to restore to original condition.
- E. All conduits not embedded in concrete are to be removed. Conduits protruding from concrete shall be cut below floor level. Patch floor as required to restore to original condition.
- F. Abandoned outlet boxes in walls to remain shall be closed with blank coverplates. If equipped with devices, the devices shall be removed, and the conductors removed to the adjacent outlet or reconnected as required to provide feed-through service.

- G. Outlet boxes in walls, which are to remain and be resurfaced, shall be removed.
- H. Panelboards flush in masonry walls shall have their bussing removed and a blank steel plate installed over the panelboard cabinet to cover the entire opening.
- I. Disconnect and remove electrical connections to equipment designated to be removed by other Trades.
- J. Abandoned low voltage cables shall be removed. Coordinate with The Ohio State University regarding tagging for future use.

### 3.02 RELOCATION

- A. Items designated to be relocated, shall be removed, and stored until the construction is ready for their installation.
- B. All luminaires designated to be relocated shall be cleaned and relamped.

### 3.03 SALVAGE AND SCRAP

- A. Tag and identify all salvageable materials. Coordinate with The Ohio State University Representative all items to be salvaged and store on site as directed. Removal of salvaged and stored items from site is to be by The Ohio State University.
- B. Division 26 Contractor shall remove all scrap items from the building and arrange for disposal in accordance with State and Local regulations.
- C. Unless fluorescent light bulbs and ballasts are going to be reused, these items need to be carefully removed and stored for proper disposal as “Universal Waste” as required by the EPA. This will include all other types of light bulbs such as incandescent, sodium, mercury, etc. These materials cannot be disposed as demolition waste. Contact Paul Amstein, Hazardous Waste Supervisor for the Office of Environmental Health and Safety (EHS) for containers, as well as pick up and disposal arrangements; there is no charge for these services. He can be reached at (614) 292-1284 or amstein.1@osu.edu.

### 3.04 EXISTING EQUIPMENT TO REMAIN

- A. All electrical items and luminaires designated to remain are to be cleaned and relamped. All outlet boxes shall have knockout plugs installed in unused openings. All panelboards are to have blank covers installed in unused circuit breaker spaces.
- B. All existing outlets, equipment, and associated wiring and conduit systems which interfere with the work of the General Trades, Structural, or Division 21, 22 and 23 Contractors shall be reworked as required to maintain system operation. Relocate conduits where they interfere with new work of other Trades.

END OF SECTION

SECTION 26 00 99  
REQUIREMENTS FOR CONTRACT COMPLETION

PART 1 GENERAL

1.01 DESCRIPTION

- A. The following material must be submitted prior to Contract Completion:
  - 1. Spare parts
  - 2. Record and Information Manuals
  - 3. Accessories and miscellaneous equipment
  - 4. Keys for equipment
- B. Contractor shall use only the attached forms for Material Receipt and System Completion.

1.02 SUBMITTALS

- A. To be included in Record and Information Manuals:
  - 1. Certificate of Material Receipt for all required spare parts
  - 2. Certificate of System Completion for each system when required by individual Division 26 Specifications

PART 2 PRODUCTS

2.01 SPARE PARTS

- A. Furnish spare parts and devices as required by Division 26 Specifications.

PART 3 EXECUTION

3.01 SPARE PARTS AND KEYS

- A. Deliver spare parts and keys to The Ohio State University's Representative. Obtain a signed copy of the Certificate of Material Receipt (ATTACHED TO THE END OF THIS SPECIFICATION SECTION).

3.02 OPERATIONAL TEST

- A. At completion, Contractor shall operate the systems for a period of at least seven (7) days, to demonstrate fulfillment of the requirements of the Contract. During this time, adjust equipment so that it will perform as the Manufacturer intended, and so that systems will function as designed. Contractor shall sign the Certificate of System Completion (ATTACHED TO THE END OF THIS SECTION).

END OF SECTION

CERTIFICATE OF MATERIAL RECEIPT

PROJECT NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

CONTRACTOR'S REPRESENTATIVE: \_\_\_\_\_

On the above listed date, the following pieces of equipment, as required by Division 26 Specifications, were delivered to The Ohio State University's Representative:

| Equipment | Quantity |
|-----------|----------|
| 1.        |          |
| 2.        |          |
| 3.        |          |
| 4.        |          |
| 5.        |          |
| 6.        |          |
| 7.        |          |
| 8.        |          |
| 9.        |          |
| 10.       |          |

(Attach a separate page for additional items)

The Ohio State University's Representative: \_\_\_\_\_ (PRINT)

\_\_\_\_\_ (SIGN)



CERTIFICATE OF SYSTEM COMPLETION

PROJECT NAME: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

SYSTEM: \_\_\_\_\_

SPECIFICATION SECTION NUMBER: \_\_\_\_\_

B. TESTING

The above listed system has passed all testing required by Division 26 Specifications and has met the terms of the Contract. Written test results are attached.

Contractor's Representative: \_\_\_\_\_ Date: \_\_\_\_\_

SECTION 26 05 10  
WIRE AND CABLE

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish and install all electrical conductors for feeder and branch circuit wiring and control wiring.
- B. Refer to other Division 26 Specification Sections for additional wiring requirements.

1.02 QUALITY ASSURANCE

- A. Wire and cable furnished shall be in accordance with the following standards where applicable:
  - 1. UL Standard 44 for rubber insulated wires and cables
  - 2. UL Standard 83 for thermoplastic insulated wires and cables
  - 3. UL Standard 1569 for Type MC cable
- B. Wire and cable shall be in accordance with applicable NEC Articles.
- C. Wire and cable shall be identified by surface markings indicating manufacturer, size, metal type, voltage rating, UL listing and cable type.

PART 2 PRODUCTS

2.01 TYPE "THHN/THWN" WIRING

- A. Wire shall be single conductor annealed uncoated copper with PVC insulation and nylon jacket. Insulation shall be heat and moisture resistant with light stabilized jacket. Wire shall be rated 600 volt, 90 degree C in dry locations, 75 degree C in wet locations.
- B. Conductors No. 12 AWG and smaller may be solid; No. 10 AWG and larger shall be stranded. Where stranded conductors of sizes 12 and 10 are used, appropriate crimp terminations shall be provided on the ends of each conductor for making connections to wiring devices, switches, etc.

2.02 TYPE "XHHW" WIRING

- A. Wire shall be single conductor annealed uncoated copper with heat and moisture resistant thermosetting cross-linked polyethylene insulation. Wire shall be rated 600 volt, 90 degree C in dry locations, 75 degree C in wet locations.

## 2.03 TYPE "MC" METAL-CLAD CABLE

- A. Three (3) conductors (thermosetting cross-linked polyethylene) insulated, aluminum or galvanized steel interlocked armor Type MC power cable for use in circuits not exceeding 600 volts phase to phase at conductor temperatures of 90 degrees C in wet or dry locations for normal operation, 130 degrees C for emergency overload conditions and 250 degrees C for short circuit conditions. Cable is intended for installation indoors or outdoors, aerially, in metal rack, trough or cable trays, or for direct burial.
- B. Cable assembly shall include full-size green grounding conductor, and full-size isolated grounding conductor (if applicable), with suitable fillers and binder tape.
- C. Type "MC" cable shall be of the single circuit type only.

## 2.04 SPLICES

- A. Splices in No. 10 AWG and smaller wire shall be made with threaded on plastic or nylon insulated wire nuts. Crimp on connectors are prohibited.
- B. All taps, terminations or splices, size No. 8 and larger shall be made with bolted-type pressure or compression connectors. Connectors shall be compatible with the conductor material. Insulate connectors with electrical tape to 150% of the insulating value of the conductor insulation. The tape shall have insulating properties equivalent to the conductor.
- C. All splices located in exterior junction boxes shall be made with waterproof splice kits.

# PART 3 EXECUTION

## 3.01 APPLICATION

- A. Conductors for underground installations in raceways shall be Type "XHHW."
- B. All branch circuits, feeders and control wiring shall be Type "THHN/THWN."
- C. Unless otherwise noted, minimum wire size for power branch circuits shall be No. 12 AWG and for control and auxiliary systems No. 14 AWG. Wire size for branch circuit homeruns shall be as indicated in the panelboard schedules. Remainder of branch circuit shall be No. 12 AWG, unless noted otherwise.

- D. Type "MC" cable may be used for normal power concealed branch circuit wiring in dry locations above ceilings between luminaires and in walls between outlets in offices, pool classrooms, and corridors of office and classroom buildings. Homeruns, multi-wire branch circuits, circuit runs with multiple circuits and special purpose outlets shall occur in conduit. Conversion from "MC" cable to conduit shall occur within 10 feet of first utilization device connection to circuit. The use of Type "MC" cable for emergency branch circuits is not permitted. "MC" cable may not be used in the following applications unless approved in writing by the University Engineer.
1. Exposed conditions, in mechanical and electrical rooms, utility spaces, or medical facilities. Exception 1: "MC" cable may be used as fixture whips for lighting fixtures provided "MC" cable longer than 6' shall be properly supported. Exception 2: "MC" cable may be used in existing walls in buildings and/or spaces where "MC" cable is allowed.
  2. For any branch circuit or feeder serving any device, outlet, luminaire, and equipment within any space serving elevator. All conductors within elevator machine room, pit, hoistway shall be RMC.
- E. All conductors shall be copper.
- F. Aluminum conductors are prohibited in all application.

### 3.02 INSTALLATION

- A. Install electrical cables, wires and connectors as indicated, in compliance with Manufacturer's written instructions, applicable requirements of NEC and NECA'S "Standard Installation," and in accordance with recognized industry practices.
- B. Coordinate cable and wire installation work with electrical raceway and equipment installation work, as necessary for proper interface.
- C. No wire may be pulled until masonry and concrete is in place. Free ends and loops at boxes and enclosures are to be pushed back in box and protected by blank covers or other means until the interior painting and decorating work is completed.
- D. Leave at least 6 inches of free conductor at all outlets except where conductors are intended to loop without joints through outlets for luminaires or wiring devices hookups.
- E. Wire color and code shall be used as follows:

|         | 120/208 Volt | 277/480 Volt          |
|---------|--------------|-----------------------|
| Phase A | Black        | Yellow                |
| Phase B | Red          | Orange                |
| Phase C | Blue         | Brown                 |
| Neutral | White/Grey   | Gray                  |
| Ground  | Green        | Green w/ Yellow Strip |

Where existing building uses a different color code, Contractor shall coordinate with The Ohio State University's Representative in writing for direction. In new construction,

Contractor shall coordinate with The Ohio State University's Representative in writing to confirm acceptable color codes.

Emergency: Same as normal, but with 1/2 inch red tape wrapped twice around wire at maximum 12 inch intervals at access points.

- F. All circuits shall have separate neutral conductors run for each phase conductor.
- G. Number of branch circuit conductors in a conduit including switch legs and neutral conductors shall not exceed nine (9) conductors. Conductors shall be derated in accordance with NEC Article 310 when more than three (3) current carrying conductors are installed in a raceway.
- H. Branch circuits shall be connected as numbered on the Drawings. Test and permanently tag by circuit number each circuit wire, except neutrals in panelboard gutter before connecting to panelboard. Numbered adhesive tapes may be used at Contractor's option.
- I. Where a feeder or branch circuit exceeds the terminating lug size, the Contractor shall use an appropriate adapter fitting to reduce cable size. Cutting of conductor strands is not permitted.
- J. Emergency circuit wiring and ground fault circuit breaker wiring shall be installed in separate conduits from all other wiring.
- K. Use pulling means, including fish tape, cable or rope and lubricant which will not damage raceway or deteriorate insulation.
- L. Branch circuit conductor splices shall be kept to a minimum. Feeder conductors shall have no splices.
- M. Any equipment having multiple power connections shall have a warning label attached to each source where it connects to the equipment.
- N. Subsequent to wire and cable hookups, energize circuitry and demonstrate functioning in accordance with requirements.
- O. Type "MC" cable shall be supported and secured at intervals not exceeding 6 feet with approved steel or malleable iron cable straps, clamps, or hangers. Install "anti-short" bushings on all "MC" cable ends. Cable shall be supported properly and run taut.

### 3.03 CONDUCTOR SIZING

- A. Branch circuit conduit routing is not shown on the plans and is left to the discretion of the Contractor. Wire size for 120 volt branch circuits shall be as follows, unless specifically noted on the Drawings:

| <u>Conductor Size</u> | <u>Maximum Conductor Length</u> |
|-----------------------|---------------------------------|
| #12 AWG               | 75 feet                         |
| #10 AWG               | 150 feet                        |
| #8 AWG                | 250 feet                        |
| #6 AWG                | 400 feet                        |

3.04 TESTING

- A. Refer to Section 26 08 40, "Electrical Tests, Adjustments, Inspection."
- B. Prior to energization, test cable and wire for continuity of circuitry and for short circuits.

END OF SECTION

SECTION 26 05 26  
GROUNDING & BONDING

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish and install a complete Grounding system extension as shown on the Drawings and specified herein. Provide all accessories as necessary for a complete system.
- B. All components of the electrical system shall be grounded and bonded including: raceways, enclosures, receptacles, motors, controllers, panelboards, contactors, luminaires, and all other electrical components and subsystems.

1.02 QUALITY ASSURANCE

- A. All equipment shall be UL listed and labeled and in accordance with applicable NEMA and ANSI Standards and NEC Article 250.

1.03 SUBMITTALS

- A. For Review:
  - 1. Product data sheets of all components

PART 2 PRODUCTS

2.01 CONDUCTORS, CLAMPS AND CONNECTORS

- A. Refer to Specification Section 26 05 10, "Wire and Cable."

PART 3 EXECUTION

3.01 INSTALLATION

- A. Enclosure and Equipment Grounding
  - 1. Metal enclosures or raceways for conductors or equipment shall be grounded.
  - 2. Exposed noncurrent-carrying metal parts of fixed equipment likely to become energized shall be grounded.
  - 3. Exposed noncurrent-carrying metal parts of switchboard frames and structures, motor frames, enclosures for motor controllers, and lighting fixtures shall be grounded.
- B. Method of Grounding
  - 1. Provide separate green insulated equipment grounding conductors for all feeders and branch circuits.

- C. Bonding
  - 1. Bonding shall be provided and conform to all requirements of NEC Article 250 V and VII.
- D. Motor terminal boxes shall be grounded by the use of a manufacturer supplied ground lug or by drilling and tapping a hole for a ground screw. Remove paint prior to making the connection.

END OF SECTION



SECTION 26 05 29  
HANGERS AND SUPPORTS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish and install complete hangers, supports and concrete inserts as required for the installation of conduits, cabinets, transformers and equipment installed under Division 26.
- B. Provide all beam clamps, expansion anchors, threaded rod, framing steel and hardware as required.

1.02 QUALITY ASSURANCE

- A. All equipment shall be UL listed and labeled and in accordance with applicable NEMA and ANSI Standards.

1.03 MANUFACTURERS

- A. Hangers, Supports and Inserts
  1. GTE/Unistrut International Inc.
  2. Flex-Strut
  3. Kindorf/Midland Ross Corporation
  4. Grinnell
  5. Tufstrut - Pilgrim Technical Inc.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Conduits or raceways shall be securely supported and anchored with proper devices, using lead shields in walls or sides of beams, expansion shields or other approved type device for direct down-pull loads. Minerallac type hanger shall be limited to above ceilings. Holes made in walls or ceilings for use with anchoring devices shall be covered by large steel washers. Include special hangers, as required. Minerallac type fittings shall not be permitted within 8 feet of the floor surface where exposed raceways are installed.
- B. Hangers shall be individual ring or clevis type, one hole straps or multiple trapeze hangers.

2.02 STRUCTURAL ATTACHMENTS

- A. Concrete: Use Grinnell Fig. 285, or equal, Light Weight concrete insert for loads up to 400 lbs., or Grinnell Fig. 282, or equal, Universal Concrete insert for loads up to 1430 lbs.
- B. Steel Beams: Where pipe size is 2 inches or less, use Grinnell Figure 87 or equal, Malleable iron C-Clamp and Retaining Clip. Where pipe size is over 2 inches, use Grinnell Figure 229, or equal.

- C. Intermediate Attachments: Continuous threaded rod shall be used wherever possible. No chain, wire or perforated strap shall be used. Up to 2 inches trade size pipe use 3/8 inch (minimum) rod, 2 1/2 inches and larger use 1/2 inch (minimum) rod.
- D. Pipe Attachments: For steel pipe use Grinnell Figure 115 Ring and Turnbuckle Adjuster, or Figure 260 Clevis.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Conduits shall be supported to meet the conditions as required using proper type and size straps, clamps, and hangers.
- B. Exposed conduits shall be installed parallel with or at right angles to building structure, fastened at least every 8 feet and at both sides of each outlet, except at one side only of conduit terminating outlets. Conduits shall be installed tight to structure and beams/joists. Coordinate exposed conduit routing with Architect prior installation.
- C. Conduit risers shall be supported with friction clamps with two point bearing anchored to building construction and at every floor.
- D. The following hanger methods are not permitted:
  - 1. Wood plugs
  - 2. Perforated band iron
  - 3. Hook chain supports
  - 4. Bailing wire, etc.
  - 5. Minerallacs where previously mentioned
  - 6. Friction type clamps, such as hammer on clips
- E. Whenever possible, use supports, clamps, hangers, etc., designed especially for the equipment to be installed.
- F. The maximum permitted load on hanger rod, plain or all-thread, shall be as follows:
  - 1. 1/4 inch size - 750 pounds
  - 2. 3/8 inch size - 1000 pounds
  - 3. 1/2 inch size - 2000 pounds
  - 4. 5/8 inch size - 3000 pounds
  - 5. The minimum size hanger rod permitted is 1/4 inch size.
- G. Any supports exposed to weather, shall be cleaned, primed and painted.

END OF SECTION

SECTION 26 05 33  
CONDUIT AND FITTINGS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Provide complete grounded conduit systems for all electrical conductors.
- B. All conduits shown on the Drawings shall meet NEC fill requirements for the conductors enclosed.
- C. Conduit raceway systems shall be made mechanically tight and electrically continuous throughout. All metal raceway systems shall be grounded.

1.02 QUALITY ASSURANCE

- A. All equipment shall be UL listed and labeled and in accordance with applicable NEMA and ANSI Standards.
- B. Conduit shall be in accordance with applicable NEC Articles.

PART 2 PRODUCTS

2.01 RIGID (RMC) AND INTERMEDIATE METAL CONDUIT (IMC)

- A. Conduit shall be steel, hot dipped zinc galvanized (minimum 0.0008 inch thick) inside and out, with circular cross section, uniform wall thickness, continuously welded seams, and chamfered threaded ends. Conduit shall be furnished in 10 foot standard lengths.

2.02 ELECTRICAL METALLIC TUBING (EMT)

- A. EMT shall be zinc galvanized (minimum 0.0008 inch thick) inside and out, with circular cross section, uniform wall thickness and continuously welded seams. EMT shall be furnished in 10 foot standard lengths.

2.03 FLEXIBLE METAL CONDUIT (FMC)

- A. Conduit shall be steel or aluminum, hot dipped zinc galvanized inside and out and made from one continuous length of high-grade strip of uniform weight and thickness shaped into interlocking convolutions with smooth interior and exterior surfaces. Conduit shall be provided in standard coil lengths.

#### 2.04 LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LFMC)

- A. Conduit shall be hot dipped zinc galvanized inside and out and made from one continuous length of high-grade steel strip of uniform weight and thickness shaped into interlocking convolutions with smooth interior and exterior surfaces. Conduit shall be provided in standard coil lengths.
- B. Conduit shall have a continuous PVC jacket enclosing it.

#### 2.05 CONDUIT FITTINGS

- A. All RMC, IMC, and EMT fittings shall be galvanized steel. Connectors and couplings shall be threaded, set screw or compression type, concrete-tight for EMT and threaded for RMC and IMC.
- B. Conduit bodies shall be threaded steel type. Provide neoprene cover gaskets for conduit body covers exposed to the weather.
- C. Expansion fittings shall be O-Z/Gedney Type "AX" for RMC and Type "TX" for EMT. For IMC applications, a 15 inch minimum length of RMC shall be used with a Type "AX" expansion fitting. Provide O-Z/Gedney Type "BJ" bonding jumpers at all expansion fittings.
- D. Sealing fittings shall be Crouse Hinds Type EYD or Appleton Type EYD, with drain.
- E. RMC and IMC conduit bushings shall be of the insulated type with phenolic thermosetting insulation molded to a hot dipped galvanized steel body of the threaded type.
- F. EMT fittings shall be of the insulated throat type. Fittings larger than 2 1/2 inches shall have threaded bushings installed as described in Paragraph E above.
- G. Conduits larger than 1 inch shall have grounding type bushings.

#### 2.06 ROOF PENETRATIONS

- A. Use prefabricated pipe flashing of ultra-violet resistant EDPM rubber with ribbed aluminum base.
- B. Pate, Shipman, or Thy-Curb.

#### 2.07 ROOF SUPPORTS

- A. Rooftop conduit supports shall be UL listed for glue down installation.

### PART 3 EXECUTION

#### 3.01 APPLICATION

- A. All conduit shall be rigid metal conduit, unless noted otherwise below, minimum 3/4 inch trade size.

- B. EMT may only be used in these locations:
  - 1. Within interior partitions walls
  - 2. Above suspended ceilings inside building
  - 3. Exposed above 8 feet A.F.F. inside building (except in wet, or areas specifically describe conduit type such as areas serving elevator)
  - 4. Exposed above electrical equipment above 8 feet in electrical and mechanical rooms; not elevator machine room.
- C. Intermediate metal conduit may be used at the Contractor's option in lieu of rigid steel conduit within the building interior.
- D. Flexible metal conduit up to 6 feet in length shall be used for connections to lighting fixtures or motor connections. A green grounding conductor shall be installed in each flexible conduit as specified in Section 26 05 26, "Grounding." All runs shall be terminated in insulated flexible conduit fittings in accordance with NEC. Minimum size to be 1/2 inch for lighting fixture whips and 3/4" for all other applications. Flexible conduit of any type is prohibited in interior partitions or in walls as a substitute for EMT, IMC, or RMC. Flexible metal conduit may only be used indoors.
- E. Liquid tight flexible metal conduit (up to 3 feet in length) and appropriate fittings shall be used for connections to motors, engine/generators, and vibrating equipment. A green grounding conductor shall be installed in each flexible conduit as specified in Section 26 05 26, "Grounding." All runs shall be terminated in insulated flexible conduit fittings in accordance with NEC. Minimum size to be 3/4 inch.
- F. EMT shall not be installed on the underside of metal roof decking or exterior walls.
- G. Aluminum RMC conduit shall be used on roofs or other exterior locations above grade with appropriate expansion fittings.
- H. Compression fittings shall be used where exposed below 8'-0" from finished floors. Set screw fittings may be used in other applications. Note: Set screw fittings may be used below 8'-0" if bolts are not pointing outward.
- I. Use of incompatible materials is prohibited. Aluminum fittings and boxes shall not be used with steel conduit. All materials in a raceway system shall be compatible.
- J. Flexible cable is prohibited for fire alarm system conduits.
- K. Set screw fittings are prohibited for fire alarm conduits. Minimum size is 3/4 inch.
- L. Set screw fittings are prohibited for voice/data conduits.

### 3.02 INSTALLATION

- A. Generally, all conduits shall be concealed with runs installed parallel and perpendicular to walls and floor. Exposed conduits below 8 feet will be permitted only in electrical and mechanical rooms. Anywhere else at the discretion of the Architect or where specifically noted on the Drawings. In these cases, install conduit escutcheon plates around conduit penetration, sized to cover the conduit sleeve. Submit proposed routing of exposed conduits in finished spaces with Architect prior to installation.
- B. Branch circuit conduits shall not be run within concrete floors except for short runs to floor boxes.
- C. Conduit shall be securely and rigidly fastened in place with approved pipe straps, wall brackets, conduit clamps, conduit hangers, threaded C-clamps, or ceiling trapeze. C-clamps and beam clamps shall have strap or rod-type retainers.
- D. Conduit support fastenings shall be by:
  - 1. Wood screws to wood
  - 2. Toggle bolts in hollow concrete masonry units
  - 3. Expansion bolts in concrete or brick
  - 4. Machine screws, welded threaded studs on steel work
  - 5. Nail-type nylon anchors or threaded studs driven by a powder charge and provided with lock washers and nuts for concrete, brick, or steel work
  - 6. Conduit shall not be supported using wire or nylon ties.
- E. In areas without ceilings, conduits shall be run as high as possible attached to the structure of the roof, or of the floor deck above. Do not attach directly to the metal deck. Conduits shall be run next to walls as inconspicuously as possible. In finished areas exposed to public view without ceilings, all work shall be installed in an aesthetically acceptable manner. The A/E reserves the right to require the Contractor to make changes as necessary to equipment installation that is unsuitable for public view due to poor workmanship.
- F. Install conduit sleeves for all conduit penetrations through floors, masonry walls, and fire rated walls. Refer to Section 03 30 00, "Concrete" for spacing requirements. Sleeves shall be spaced a sufficient distance apart to maintain fire ratings as required by the UL Fire Resistance Construction Manual.
- G. Conduit shall be independently supported from elements of the building and shall not rest on, nor be supported from suspended ceilings. Boxes shall be fastened to structure independently from conduit system. Conduits shall not be attached to metal decking forming the roof or floor slab above.
- H. Lay out conduit system to avoid crossing building expansion joints. Where crossings are necessary, use expansion fittings.
- I. All conduits shall be continuous from outlet to outlet or junction box and installed complete before pulling conductors. Swab conduits free of dirt, grease, and moisture before pulling conductors.

- J. Install bushings on all RMC and IMC conduit ends. Install insulated throat fittings on all EMT conduit ends. Fasten conduit to boxes and cabinets using locknuts. Provide two (2) locknuts where required by the NEC, where insulating bushings are used and where bushings cannot be brought into firm contact with the box.
- K. Do not install conduits beneath nor above equipment generating heat such as boilers, heat exchangers or water heaters.
- L. Provide a high strength pull cord in all empty conduits, and cap ends.
- M. Maintain minimum clearances of 6 inches from parallel hot water piping and 4 inches from crossovers.
- N. Provide conduit sleeves, seals, and firestops in accordance with Section 26 00 55, "Sleeves, Seals and Firestops."
- O. Provide expansion joints in conduits run on roofs and exterior to building above grade. Provide proper roof flashing and sealing when penetrating roofs.
- P. Install cable wedging plug type supports in all vertical conduit runs as required by NEC.
- Q. Do not exceed four (4) 90 degree bends in any conduit run without a pulling point. Provide pullboxes as required. Locate pullboxes in accessible areas. Coordinate locations with all other building Trades.
- R. Roof support steel shall be galvanized.

END OF SECTION

SECTION 26 05 34  
OUTLET BOXES

PART 1 GENERAL

1.01 DESCRIPTION

- A. Outlets shall be provided for devices, luminaires, motors, and equipment connections, systems equipment connections, special outlets, and as otherwise required.
- B. Outlet boxes shall be of sufficient size to provide free space for all conductors enclosed in the box. Boxes shall be not less than the minimum size required by NEC Article 314 for the number and size of conductors contained within.

1.02 QUALITY ASSURANCE

- A. All equipment shall be UL listed and labeled and in accordance with applicable NEMA and ANSI Standards.

PART 2 PRODUCTS

2.01 OUTLET BOXES

- A. Interior Outlet Boxes: Provide galvanized flat rolled sheet steel interior outlet wiring boxes, of types, shapes, and sizes, including box depths, to suit each respective location and installation; construct with stamped knockouts in back and sides, and with threaded screw holes with corrosion-resistant screws for securing box covers and wiring devices.
- B. Interior Outlet Box Accessories: Provide outlet box accessories as required for each installation, including mounting brackets, wallboard hangers, extension rings, fixture studs, cable clamps, and metal straps for supporting outlet boxes, which are compatible with outlet boxes being used and fulfilling requirements of individual wiring situations. Choice of accessories is Installer's option.
- C. Weatherproof Outlet Boxes: Provide corrosion-resistant cast aluminum, weatherproof outlet wiring boxes, of types, shapes, and sizes, including depth of boxes, with threaded conduit ends, cast-metal face plates with spring-hinged waterproof caps suitably configured for each application, including face plate gaskets and corrosion-resistant fasteners.
- D. Luminaire outlet boxes shall be standard 4 inch octagonal, minimum 1 1/2 inches deep.
- E. Flush device boxes in masonry walls to be masonry boxes designed for the purpose, or 4 inch square boxes with raised covers designed for masonry.
- F. Wiring device boxes for surface conduit work and located in potentially damp areas shall be FS series cast aluminum boxes.



- G. Flush device boxes shall be 4 inch square, 2 1/8 inch deep boxes with plaster covers or gangable 2 1/2 inch deep boxes. Shallow 1 1/2 inch deep gangable boxes may be used only in walls too thin for standard depth boxes.
- H. Flush boxes for low voltage cabling shall be 4 11/16 inches square x 2 1/8 inches deep for 3/4 inch conduits. Boxes shall be 4 11/16 inches square x 3 1/4 inches deep for 1 to 2 inch conduits.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. All outlet boxes upon which luminaires are to be installed shall be equipped with 3/8 inch fixture studs. All outlet boxes shall be installed vertically plumb within 3 degrees.
- B. All boxes shall be rigidly supported from building structure independent of the conduit system. Boxes cast into masonry or concrete are considered to be rigidly supported. Framing members of suspended ceiling systems shall not be permitted as a support.
- C. Flush boxes shall finish within 1/4 inch of surface of non-combustible materials. Boxes shall not project beyond finished surfaces.
- D. Flush luminaires in lay-in ceilings shall have branch circuit conduit terminated in a junction box above ceiling, but accessible through ceiling opening and located at least one foot away from the luminaire.
- E. Locations of all outlets are approximate. Final location shall be verified with the A/E in the field prior to installation.
- F. Install knockout closures for unused openings.
- G. Outlet boxes installed on opposite sides of a fire rated wall shall have a minimum of 24 inch spacing between adjacent boxes.
- H. All outlet boxes shall use stud to stud box brackets with far side supports.
- I. "Through-wall" type boxes shall not be used.

END OF SECTION

SECTION 26 05 35  
PULL AND JUNCTION BOXES

PART 1 GENERAL

1.01 DESCRIPTION

- A. Pull or junction boxes shall be provided in all raceway systems where required to avoid an excessive number of bends, to facilitate wire pulling, or to afford required access to the raceway system. Maximum distance between boxes in raceway systems shall not exceed 100 feet.
- B. Pull and junction boxes shall provide adequate space and dimensions for the installation of conductors in accordance with NEC Article 314.

1.02 QUALITY ASSURANCE

- A. All equipment shall be UL listed and labeled and in accordance with applicable NEMA and ANSI Standards.

PART 2 PRODUCTS

2.01 PULL AND JUNCTION BOXES

- A. Pull and Junction Boxes: Provide galvanized code-gauge sheet steel junction and pull boxes, with screw-on covers, of types, shapes, and sizes, to suit each respective location and installation. Minimum size shall be 4 inch square, 2 1/8 inch deep box.
- B. Concealed pull or junction boxes shall be flush in finished walls, located near the floor and provided with flush type covers; blank device plates in case of outlet type boxes and flat plates prime painted and secured with flat head screws in the case of larger boxes. Surface junction boxes in utility areas shall be without knockouts, shall have close fitting screw covers and shall be finished in medium gray enamel.
- C. Boxes exposed to the weather shall be weatherproof type as required by NEC.
- D. Bushings, Knockout Closures and Locknuts: Provide corrosion-resistant punched-steel box knockout closures, conduit locknuts and malleable iron conduit bushings, offset connectors, of types and sizes to suit respective uses and installation.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install pull and junction boxes, complying with Manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation," and in compliance with recognized industry practices.

- B. Coordinate installation of electrical boxes and fittings with wire/cable and raceway installation work.
- C. Pull and junction boxes shall be located in utility areas or above accessible ceiling systems wherever possible. Boxes located in exposed areas shall be brought to the attention of the A/E prior to installation.
- D. Pull and junction boxes shall be sized in accordance with the NEC for both contained conductors and conduit entrances and exits.
- E. Fasten boxes rigidly to structural surfaces, or solidly imbed electrical boxes in concrete or masonry.
- F. Boxes not otherwise accessible in ceilings and walls shall be made accessible by an access panel.
- G. Provide watertight boxes, slip expansions or bonding jumpers where dictated by construction conditions.

END OF SECTION

SECTION 26 05 53  
ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.01 NAME PLATES

- A. Furnish and install equipment identification nameplates on all pieces of electrical equipment including, but not limited to:
  - 1. Safety Switches
  - 2. Motor Starters
  - 3. Panelboards
  - 4. Each Switch, Circuit Breaker, Spare, and Space in new and existing Distribution Panelboards and Switchboards
  - 5. Motor Control Centers
  - 6. Motor Starters and Unit Disconnect Switches in Motor Control Centers
- B. Nameplates shall state the equipment name and number or letter as shown on the Drawings; voltage and phase; HP, ampacity or KW size; and source of power. Identification shall be as shown in the following examples:
  - 1. Elevator "E1"  
480/277 Volt, 3 Phase, 70 Ampere  
Powered from MSB in room XYZ  
State # 12345  
Installation Code: ABC  
Speed: 3500 FPM  
Stops: 4  
Travel: 50'
  - 2. Split Unit "ACC1"  
208 Volt, 1 Phase, 20 Amp  
Powered from Panel P1 in room XYZ
  - 3. Panel "P1"  
208/120 Volt, 3 Phase  
225 Ampere  
Powered from MSB in room XYZ
- C. In pull and junction boxes, identify each set of circuit conductors by permanent ink on plastic tags with circuit number, voltage and phase, wire size, source, and load information.
- D. Refer to Section 26 05 10, "Wire and Cable" for color code identification of wire and cable.

1.02 JUNCTION BOX IDENTIFICATION

- A. Junction boxes in conduit runs shall be color coded and labeled as to the system that they have within. Each system shall have a different color or labeling scheme used. Do not color code in finished areas without ceilings.

- B. Electrical power and lighting branch circuit junction boxes shall be painted but labeled with the circuit numbers contained within. Labeling may be done with paint stencils or permanent black felt-tip markers.
- C. Special systems shall have junction boxes painted as follows:
  - 1. Fire Alarm - Red

## PART 2 PRODUCTS

### 2.01 NAMEPLATES

- A. Nameplates for equipment shall be Safe-T-Mark Style matte non-glare finish with engraving depth no less than 0.003". Provide nameplate suitable for outdoor use for equipment installed outdoors. Letter type shall be minimum 3/8 inch high for equipment name and 1/4 inch high for details. All uppercase letters.
- B. Nameplates for devices shall be laminated plastic with letter type a minimum of 1/4 inch high. All uppercase letters.
- C. Color of nameplates shall be white with black letters for normal power systems and red with white letters for emergency power systems.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Install nameplates on equipment using cadmium plated, steel, self-tapping screws, or rivets.
- B. Nameplates shall be installed on the front cover or trim of each piece of equipment. Where not possible, install on wall next to equipment using hollow-wall anchors.
- C. Horsepower, ampacity, or kilowatt values shall be taken from the equipment as delivered in the field, not from the Drawings.

### 3.02 EXISTING EQUIPMENT IDENTIFICATION

- A. Provide nameplates on all existing equipment within building as listed in Paragraph 1.01.A. of this Specification Section.
- B. Provide updated panelboard directories in all existing panelboards impacted by work.

END OF SECTION

SECTION 26 08 40  
ELECTRICAL TESTS, ADJUSTMENTS, INSPECTION

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish equipment and perform as necessary all testing as required herein and called for in other Division 26 Specification Sections. Perform adjustments of equipment as required. Arrange for inspections by the authority having jurisdiction.

1.02 QUALITY ASSURANCE

- A. Testing equipment shall be UL listed and specially manufactured and appropriate for the intended type of testing to be performed.
- B. All testing shall be witnessed by Owner's Representatives. Provide five days advance notice.

1.03 SUBMITTALS

- A. For Review:
  - 1. Test results form (attached to the end of this Section) with all recorded data sheets and graphs
- B. To be included in Record and Information Manuals:
  - 1. One (1) copy of each approved submittal
  - 2. Final Certificate of Inspection

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 TESTING

- A. Amperage Phase Balance
  - 1. Test and record amperage of each phase at each branch distribution panel, and all lighting and appliance panels.
- B. Continuity of Conduit System
  - 1. Test each run of metallic conduit for continuity of ground return path.
- C. Conductor Insulation Leakage
  - 1. Test each run of 600 volt cable for insulation leakage. Use the short-time method with readings taken at 30 and 60 seconds. Record results for conductors used for switchboard and panelboard feeders.
- D. Grounding System Resistance
  - 1. Test and record grounding system resistance. Refer to Section 26 05 26, "Grounding" for test procedure.

- E. Operating Voltage
  - 1. Measure and record operating voltage at all panelboards with all systems in building operating normally.

### 3.02 ADJUSTMENTS

- A. Amperage Phase Balance
  - 1. Where Contractor has deviated from panelboard circuit arrangement as shown on the Drawings, perform a phase balancing within the panelboard by rearranging the position of selected circuit breakers. Record the changed circuits on the "As-Built" Drawings.
- B. Continuity of Conduit System
  - 1. Where the resistance of a conduit run is greater than two (2) ohms, disassemble all connections, clean, and reassemble to obtain an acceptable reading.
- C. Conductor Insulation Leakage and Impedance
  - 1. Where insulation leakage is above Manufacturer's stated values, replace conductor.
- D. Grounding System Resistance
  - 1. Refer to Section 26 05 26, "Grounding" for procedure for grounding system resistance adjustment.
- E. Other Adjustments
  - 1. Refer to Division 26 Specification Sections for additional adjustments.

### 3.03 INSPECTION

- A. Inspection shall be performed by:
  - 1. Local authorized inspection agency, or
  - 2. State division of Inspection
- B. Contractor shall arrange for periodic and final inspections in a timely manner and with due regard for the work of other Contractors and the Construction Schedule.
- C. Include final Certificate of Inspection in the Record and Information Manuals.

END OF SECTION

TEST RESULTS FORM

PROJECT NAME:

CONTRACTOR:

SYSTEM:

SPECIFICATION SECTION NUMBER:

TYPE OF TEST:

EQUIPMENT USED:

WEATHER CONDITIONS:

TEMPERATURE:

HUMIDITY:

PART OF SYSTEM TESTED:

SUMMARY OF TEST:

PERSON PERFORMING TEST: \_\_\_\_\_ DATE: \_\_\_\_\_

CONTRACTOR'S REPRESENTATIVE: \_\_\_\_\_

(Attach Recorded Testing Data Sheets To This Form)



CERTIFICATE OF SYSTEM APPROVAL

PROJECT NAME: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

SYSTEMS COMPONENT: \_\_\_\_\_

SPECIFICATION SECTION NUMBER: \_\_\_\_\_

A. APPROVAL (If required by specification section)

The above listed system has been inspected and approved as meeting the specified instructions for installation.

Owner's Representative: \_\_\_\_\_ Date: \_\_\_\_\_

B. EQUIPMENT DEMONSTRATION

The above listed system has been demonstrated to the following Owner's Representatives:

|     | <u>NAME</u> | <u>TITLE</u> | <u>DATE</u> | <u>SIGNATURE</u> |
|-----|-------------|--------------|-------------|------------------|
| 1.  |             |              |             |                  |
| 2.  |             |              |             |                  |
| 3.  |             |              |             |                  |
| 4.  |             |              |             |                  |
| 5.  |             |              |             |                  |
| 6.  |             |              |             |                  |
| 7.  |             |              |             |                  |
| 8.  |             |              |             |                  |
| 9.  |             |              |             |                  |
| 10. |             |              |             |                  |

(ATTACH A SEPARATE PAGE FOR ADDITIONAL NAMES)

SECTION 26 26 30  
TWO-WAY EMERGENCY COMMUNICATIONS SYSTEM

PART 1 GENERAL

1.01 DESCRIPTION

- A. Division 26 Contractor shall furnish and install two-way intercom communications system stations as shown on the Drawings and as specified herein. Provide all accessories and equipment as necessary for a complete and fully compliant system. Depending on the manufacturer provided, this may include line voltage power, low voltage power, phone lines, and supplies.
- B. The call station shall call pre-programmed phone numbers assigned to that call station. The base station shall be the primary number called by the call station with automatic roll-over to the off-site monitoring center (or 24/7 staffed location as determined by Owner) as the secondary number called with two-way off-site person to person voice communications.
- C. Drawings and Specifications are considered to be supplementing each other. Items drawn but not specified or specified but not drawn shall be performed or furnished as though mentioned in both the Specifications and the Drawings.
- D. System shall conform to the requirements of the ADAAG (Americans with Disabilities Act Accessibilities Guidelines), NFPA 72 (National Fire Alarm and Signaling Code), NPFA 101 (Life Safety Code), Ohio Building Code, and Local Code and Building Authority requirements.
- E. Systems shall be located in elevator landings and in area of refuge (rescue assistance) areas.

1.02 QUALITY ASSURANCE

- A. All equipment shall be UL listed and labeled and in accordance with applicable NEMA and ANSI Standards.

1.03 SUBMITTALS

- A. For Review:
  - 1. Product data sheets of all components
  - 2. Wiring Diagrams
  - 3. Layout Drawings locating all components of system
- B. To be included in Record and Information Manuals:
  - 1. One (1) copy of each approved submittal
  - 2. Test results
  - 3. Certificate of System Completion

1.04 MANUFACTURERS

- A. The manufacturer basis for design shall be Rath Security. Equivalents by:
  - 1. Talk-A-Phone

2. Jeron Electronics
3. Cornell

## PART 2 PRODUCTS

### 2.01 CALL STATION

- A. The flush mounted call station shall be an ADA compliant hands-free telephone access emergency phone. The emergency phone shall have a single call button to dial pre-programmed emergency numbers.
- B. The emergency phone shall have the following features:
  1. The faceplate shall be stainless steel.
  2. The faceplate shall be 9.5" H x 7.5" W.
  3. The backbox shall be 8" H x 6" W x 3" D.
  4. Communication shall be hands-free two-way.
  5. Power shall be via the phone line. (No external power supply will be needed.)
  6. Non-volatile programming can be done from any telephone.
  7. Minimum of two programmed calling numbers with automatic roll-over to secondary number if the primary number is unanswered. If the location of the base station is not constantly attended, it shall have a timed automatic communications capability to connect with a constantly attended monitoring location acceptable to the AHJ where responsible personnel can initiate the appropriate response.
  8. The call station shall include the capability to record a message identifying the location of the call.
- C. The call station shall be a Rath 2100 Series or Engineer-approved equivalent, with a matching backbox.
- D. The call stations must be in full compliance with Americans with Disabilities ACT (ADA). Call stations require a hands-free speakerphone with an LED to indicate status of call.
- E. The call stations must allow the programming of a specific location message of the call station. This allows rescue personnel to know the location of the activated call station.
- F. The call stations are to be located no higher than 48 inches above ground level to the center of the push button to ensure conformance with the ADA requirements.
- G. The call stations must have a Braille faceplate located no higher than 48 inches for front reach and 54 inches for side reach above ground level to ensure conformance with the ADA requirements.

### 2.02 BASE STATION

- A. The base station shall indicate an incoming call with a strobe/sounder and call location LED, allowing rescue personnel to know with call station needs assistance. The base station allows rescue personnel to speak to all call stations or individual call stations.
- B. The base station shall have the following features:
  1. Provides power to the call stations

2. LED on base station indicates call station location
  3. Built-in four (4) hour battery backup in case of power failure
  4. Built-in phone
  5. Line seizure for off-site calling lines eliminating the need for a dedicated phone line
- C. The base station shall be a Rath 2500 Series or Engineer-approved equivalent.
- D. The 24 volt DC power supply must be capable of supplying power to the base station and all call stations. The power supply shall be a Rath 2500-PWR24U or Engineer-approved equivalent.

## 2.03 CABLING

- A. Cabling shall meet the applicable requirements for pathway survivability. Cabling shall consist of one or more of the following:
1. 2-hour fire-rated circuit integrity (CI) cable
  2. 2-hour fire-rated cable system
  3. 2-hour fire-rated enclosure or protected area
- B. Cabling shall be shielded twisted 20 gauge pair terminating at a telephone junction block. The system shall be connected to a standard telephone (voice) line for off-site calling.

## 2.04 SIGNAGE

- A. The self-adhesive wall signage at each call station shall have raised lettering and Braille for ADA-compliance. Signage shall be Rath 7087 or Engineer-approved equivalent, stating "Emergency Communication". For areas designated as an area of refuge, the sign shall be Rath 7044 or Engineer-approved equivalent, stating "Area of Refuge". For areas requiring two-way emergency communications that are not designated as an area of refuge, the sign may instead state "Two-Way Emergency Communications".
- B. The self-adhesive wall instructional signage at each call station shall have raised lettering and Braille for ADA-compliance. Signage shall be Rath 7049 Series or Engineer-approved equivalent.
- C. The illuminated sign shall be 14.0" by 10.5" and shall be wall or ceiling mounted as shown, 120 volt. The sign shall have an integral battery to provide 90 minutes of emergency run time. For areas designated as an area of refuge, the sign shall "Area of Refuge" and shall be Rath 7050 / 7050D or Engineer-approved equivalent. For areas requiring two-way emergency communications that are not designated as an area of refuge, illuminated signs are not required. Illuminated signs shall match exit signs in building.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Division 26 Contractor shall install call stations and base station as shown on the Drawings in accordance with Manufacturer's written instructions.
- B. Coordinate exact wiring requirements with Equipment Manufacturer.

- C. The illuminated Area of Refuge sign shall be circuited to the nearest exit sign circuit.

### 3.02 MONITORING

- A. Coordinate with Owner to arrange for an off-site monitoring agency associated with this communication system or a 24/7 staffed location selected by Owner.

### 3.03 TESTING

- A. Division 26 Contractor shall provide a complete functional test of all components in accordance with Manufacturer's recommendations.
- B. Operate system for a minimum of seven (7) consecutive days with no problems before final acceptance by Owner.
- C. Refer to Section 26 08 40, "Electrical Tests, Adjustments, Inspection."

### 3.04 EQUIPMENT DEMONSTRATION

- A. After all system tests have been completed, schedule an instruction period with the Owner. Instruction to be provided by Manufacturer's authorized field technician.
- B. Instruction shall include:
  - 1. Location of all components of the system and explanation of their function
  - 2. Demonstration of equipment
  - 3. Maintenance and repair procedures
  - 4. Review of documents in Record and Information Manuals

### 3.05 WARRANTY

- A. System shall be warranted for a period of three years.

END OF SECTION

SECTION 26 27 26  
WIRING DEVICES AND PLATES

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish and install wiring devices and plates as specified herein and as shown on the Drawings.
- B. Specialty switches and outlets required for auxiliary systems shall be specified under those Sections or as shown on the Drawings.
- C. All devices shall be ganged together where shown grouped on the Drawings.
- D. All normal power devices shall be the same color.

1.02 QUALITY ASSURANCE

- A. All equipment shall be UL listed and labeled and in accordance with applicable NEMA and ANSI Standards.
- B. All wiring devices and plates shall be furnished by one of the Manufacturers listed. No mixing of Manufacturer's products shall be permitted unless otherwise noted herein or on the Drawings.

1.03 SUBMITTALS

- A. For Review:
  - 1. Product data sheets for wiring devices and plates
- B. To be included in Record and Information Manuals:
  - 1. One (1) copy of each approved submittal

1.04 MANUFACTURERS

- A. Wiring Devices (except dimmers) and Plates
  - 1. Cooper
  - 2. Pass and Seymour
  - 3. Hubbell
  - 4. Leviton
- B. Dimmers and Plates
  - 1. Lutron
  - 2. Leviton
- C. Cover Assemblies
  - 1. TayMac Corporation
  - 2. Intermatic Inc.

3. Carlon Electrical Products

PART 2 PRODUCTS

2.01 SWITCHES

- A. Switches shall conform to NEMA Heavy Duty Standards and shall be Specification Grade, general use AC quiet type, 20 Ampere, 120-277 volt, back and side wired with white handles, unless noted otherwise.
- B. Pilot light switches shall be Specification Grade, general use AC quiet type, 20 Ampere, 120-277 volt, back and side wired with clear handle.

2.02 RECEPTACLES

- A. All convenience and power receptacles shall conform to NEMA Heavy Duty Standards and shall be Specification Grade, grounding type.
- B. Convenience duplex receptacles shall be 20 Ampere, 125 volt, back and side wired, 3 wire grounding, UL listed as complying with the requirements of NEC Article 250.146, NEMA 5-20R configuration.
- C. Ground-fault circuit-interrupting (GFCI) duplex receptacles shall be 20 Ampere, 125 volt "feed-through" type, NEMA 5-20R configuration.
- D. Weatherproof Duplex Receptacles shall be 20 Ampere, 125 volt or 250 volt, UL listed as weather resistant type per NEC 406.
- E. All receptacles shall be white, unless on emergency power, in which case receptacles shall be red.
- F. Refer to the Drawings for specification of specialty receptacles.

2.03 PLATES

- A. Plates for flush devices in interior partitions shall be stainless steel.
- B. Plates for flush devices on concrete block walls shall match others but be "Jumbo" plates.
- C. Plates for voice/data communication boxes shall match wiring device plates in material, and be as specified in Section 27 05 29, "Voice/Data Communication Raceway System" or Section 27 10 00, "Structured Cabling System."
- D. Plates for devices in surface fittings shall be cadmium plated steel surface covers. Covers shall fit without overlap and have round corners.
- E. Plates for specialty receptacles required for auxiliary systems shall be satin stainless steel, furnished and specified with the device.

- F. Plates for future system outlets shall be blank plates matching device plates in quality and finish.

## 2.04 COVER ASSEMBLIES

- A. Wiring devices in wet locations shall have hinged, gasketed cast aluminum coverplates of a color matching adjacent wall finish.
- B. Wiring devices subject to wet locations while in use shall be provided with NEMA 3R cover assemblies UL listed for wet locations while in use. Cover assemblies shall use a vertically-lifting "canopy" to protect the wiring device(s). Cover assemblies shall be standard size, one (1) or two (2) gang as required with gaskets between the hinged cover and mounting plate/base to assure proper seal. Covers assemblies shall include locking type coverplates.

## PART 3 EXECUTION

### 3.01 APPLICATION

- A. Provide outlets as noted on the Drawings and herein described.
- B. Provide GFCI type outlets in all bathrooms, anywhere within 6 feet of sinks, lavatories, mop basins, and in all exterior locations.
- C. Provide weatherproof "in use" covers on GFCI outlets exterior to the building.
- D. Switches provided at roof hatches or where provided outside rooms they are serving shall be pilot light type. Lit handles are prohibited.

### 3.02 INSTALLATION

- A. Install wiring devices as indicated, in compliance with the Manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation," and in accordance with recognized industry practices to fulfill project requirements.
- B. Coordinate installation of wiring devices with other work, including painting, electrical box and wiring work, as necessary.
- C. Install wiring devices only in electrical boxes, which are clean, free from excess building materials, dirt and debris.
- D. All devices shall be connected to conductors using the side wiring terminal screw connections. Devices with voltages higher than 120 volt shall have two (2) layers of electrical tape applied over the exposed side terminals. Provide electrically continuous, tight grounding connections for wiring devices, as required by NEC Article 250.
- E. Delay installation of wiring devices and wall plates until after painting work is completed. Wiring devices may be installed prior to painting where protective plastic covers are used. All wiring devices and covers shall be clean and free of paint upon completion of work.



- F. Upon installation of wall plates and receptacles, advise other Contractors regarding proper and cautious use of convenience outlets. At time of Contract Completion, replace those items which have been damaged, including those burned and scored by faulty plugs.
- G. Install matching device plates on all devices. Devices shown grouped on the Drawings shall be ganged together with one plate.
- H. Provide permanently installed barriers between switches ganged in outlet boxes where the voltage between adjacent switches exceeds 300 volts.
- I. Receptacle plates shall be labeled with permanent marker on the back with panelboard and circuit number.
- J. All unused outlet boxes shall have blank coverplates installed.
- K. Wiring from ground-fault circuit-interrupters shall not occupy the same raceways with wiring from non-ground-fault interrupting type devices.
- L. Wiring devices shall be installed with grounding pin on top.

### 3.03 TESTING

- A. Prior to energizing circuitry, test wiring devices for electrical continuity, short circuits, and proper polarity connections.

END OF SECTION

SECTION 26 28 13  
FUSES

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish and install 600 volt and 250 volt fuses as herein specified and sized as shown on the Drawings.
- B. Provide all accessories as specified.
- C. All fuses shall be provided by the same Manufacturer.
- D. For fuses greater than 600 volts, refer to appropriate equipment Specification Section.

1.02 QUALITY ASSURANCE

- A. All equipment shall be UL listed and labeled and in accordance with applicable NEMA and ANSI Standards.

1.03 SUBMITTALS

- A. For Review:
  - 1. Product data sheets of fuses and accessories
  - 2. Fuse curves and selectivity ratio charts
- B. To be included in Record and Information Manuals:
  - 1. One (1) copy of each approved submittal
  - 2. Certificate of Material Receipt

1.04 MANUFACTURERS

- A. Fuses
  - 1. Bussmann
  - 2. Littelfuse

PART 2 PRODUCTS

2.01 FUSES

- A. Fuses shall be rated 600 volt for nominal 480 volt systems and 250 volt for nominal 240 or 208 volt systems. Fuses shall be UL Class RK, current limiting, 200,000 Ampere interrupting rating, dual element, with minimum time delay of 10 seconds at 500 percent rating.
  - 1. Bussmann LPN-RK (250 volt) or LPS-RK (600 volt)

- B. In-line fuse and fuse holders for high intensity discharge luminaires shall be 600 volt, UL Class CC, current limiting, 200,000 Ampere interrupting rating, single element non-time delay fuses in a waterproof single or two (2) pole fuse holder.
  - 1. Bussmann KTK-R in HEB or HEY holder
- C. Motor control circuits shall use 600 volt, UL Class CC, current limiting, 200,000 Ampere interrupting rating, single element, non-time delay fuses.
  - 1. Bussmann KTK-R
- D. In-line fuse and holder combination units for fluorescent luminaires shall be glass ferrule fuses in a two (2) piece insulating fuse holder with 6 inch pigtail conductors.
  - 1. Bussmann GLR with HLR holder

## 2.02 FUSE REDUCERS

- A. Fuse reducers shall be Bussmann 200-R or 600-R Series.

## PART 3 EXECUTION

### 3.01 APPLICATION

- A. Class J fuses are prohibited with the exception of elevator power modules.

### 3.02 INSTALLATION

- A. Install fuses in all fusible devices with name and fuse size facing outward.
- B. Install spare fuse cabinets in main electrical room. Provide a list of all spare fuse sizes, types, and quantities on inside of door.
- C. Install fuse reducers in equipment where required.

END OF SECTION

SECTION 26 28 16  
SAFETY SWITCHES

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish and install safety switches where shown on the Drawings, and where required including all accessories and mounting hardware.
- B. Refer to Section 26 28 17, "Elevator Safety Switches" for safety switches used for elevator controllers.

1.02 QUALITY ASSURANCE

- A. All equipment shall be UL listed and labeled and in accordance with applicable NEMA and ANSI Standards.
  - 1. Comply with NEMA KS 1.
  - 2. Comply with UL 98.

1.03 SUBMITTALS

- A. For Review:
  - 1. Product data sheets of safety switches
- B. To be included in Record and Information Manuals:
  - 1. One (1) copy of each approved submittal

1.04 MANUFACTURERS

Subject to compliance with requirements, provide products by one of the following:

- A. Safety Switches
  - 1. Square D Company
  - 2. Cutler-Hammer Electric Corporation
  - 3. Siemens Energy & Automation, Inc.
  - 4. General Electric Company
- B. Equipment shall be furnished by the Manufacturer supplying major components of the electrical distribution system.

PART 2 PRODUCTS

2.01 SAFETY SWITCHES - NON-FUSIBLE

- A. Safety switches shall have heavy-duty, single-throw, quick-make, quick-break, visible knife blade operators mounted in hinged cover steel enclosure. Lugs shall be listed for 75 degrees C ampacity aluminum or copper wire.

- B. Switches shall be clearly labeled for "ON" and "OFF" handle positions. Cover shall have defeatable safety interlock with handle to prevent inadvertent opening when in the "ON" position. Handle shall be pad lockable in the "OFF" position with at least three (3) padlocks.
- C. Safety switches to be horsepower rated 600 volt AC.
- D. Switches shall have ground lug kit and neutral when required.
- E. Non fusible switches shall be series-rated with upstream devices in accordance with manufacturer's application date.

## 2.02 SAFETY SWITCHES - FUSIBLE

- A. Fusible safety switches shall be as specified in Paragraph 2.01 and with the following additional features:
  - 1. Safety switches rated 600 Amperes and less shall have spring reinforced, plated fuse clips with rejection feature for Class R fuses.
  - 2. Safety switches rated larger than 600 Amperes shall have provisions for Class L fuses.
  - 3. Short circuit-interrupting rating shall be 200,000 Amperes RMS symmetrical.
  - 4. Safety switches to be horsepower rated 240 volt AC for 208 or 240 volt usage, and 600 volt AC for 480 volt usage.

## PART 3 EXECUTION

### 3.01 APPLICATION

- A. Provide the following NEMA rated enclosure types in these locations:
  - 1. Interior, dry and clean locations: NEMA 250, Type 1.
  - 2. Exterior locations: NEMA 250, Type 3R.
  - 3. Other wet or damp, interior locations: NEMA 250, Type 4.

### 3.02 INSTALLATION

- A. Use flexible conduit to and from safety switches where vibration isolation is required.
- B. Install safety switches securely to building structure. Install safety switches on freestanding metal framing system support where mounting to building structure is not feasible or where shown on the Drawings. Framing system shall be galvanized steel.
- C. Provide fuses sized in accordance with Equipment Manufacturer's data plate.
- D. Provide nameplates in accordance with Section 26 05 53, "Electrical Identification."
- E. Touch-up all scratches on enclosure after installation.

END OF SECTION

SECTION 26 51 13  
LUMINAIRES

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish and install luminaires as herein specified and shown on the Drawings.
- B. Luminaire Manufacturer and model numbers shall be as scheduled on the Drawings. Luminaires not bearing a letter symbol shall match adjacent luminaire in space.
- C. All LED modules, lamps for a given luminaire type shall be by the same Manufacturer.

1.02 QUALITY ASSURANCE

- A. All equipment shall be UL listed and labeled and in accordance with applicable NEMA and ANSI Standards.
- B. Ballasts shall be certified by ETL and CBM. Ballasts shall match lamps with appropriate ANSI code.

1.03 SUBMITTALS

- A. For Review:
  - 1. Luminaires
    - a. Product data sheets for each fixture.
- B. To be included in Record and Information Manuals:
  - 1. One (1) copy each of approved submittal
  - 2. Spare lamp inventory list
  - 3. Certificate of Material Receipt

1.04 MANUFACTURERS

- A. Luminaires
  - 1. Refer to Luminaire Schedule on the Drawings.
- B. Lamps/LED/LED Module
  - 1. LED/LED Module
    - a. Nichia
    - b. Osram/Sylvania Corporation
    - c. Philips Lighting Company
    - d. Cree
    - e. Achriche
    - f. Equal approved by Engineer
  - 2. Fluorescent
    - a. General Electric Company
    - b. Osram/Sylvania Corporation

c. Philips Lighting Company

PART 2 PRODUCTS

2.01 LUMINAIRES

- A. Luminaires shall be as scheduled on the Drawings.
- B. Recessed LED luminaires shall have integral thermal protection.
- C. LED luminaire shall be rated for installation/ambient temperature from -40 degrees C to +40 degrees C.
- D. LED luminaire shall be modular in design with the ability to replace individual components without having to replace the entire luminaire.
- E. LED luminaire shall have a minimum CRI of 80.

2.02 LED MODULES

- A. Unless specifically indicated otherwise per the luminaire schedule, the color temperature of all LEDs colors shall be 3500K.
- B. LED/LED Module shall be rated for a minimum 50,000 hours of life at 70% output (L70)
- C. LED/LED Modules shall originate from a common manufactured batch source.
- D. LED/LED Modules shall adhere to LED package manufacturer guidelines, certification programs, and test procedures for thermal management.

2.03 LED DRIVER

- A. LED driver shall have a rated life of a minimum of 50,000 hours.
- B. UL8750 recognized.
- C. Driver shall be FCC Part 15 compliant.
- D. Driver shall meet ANSI C62.41 category A surge protection standards up to and including 4 kV.
- E. Driver shall have a power factor greater than 0.90.

2.04 LUMINAIRE ACCESSORIES

- A. Luminaires located in mechanical and electrical rooms, shops, workrooms, and gymnasiums shall have appropriate guards provided with each luminaire.
- B. Luminaires located in gypsum board (drywall) or plaster ceilings shall have appropriate plaster rings provided with each luminaire.

- C. Luminaires provided by the Manufacturer with cords attached shall be coordinated by the Division 26 Contractor so that cord lengths are of appropriate lengths for each luminaire installation.
- D. Luminaires shall be provided with all required mounting hardware for a complete installation.

## PART 3 EXECUTION

### 3.01 APPLICATION

- A. New fluorescent lamps must be burned-in (seasoned) at full intensity for 100 hours (before dimming for extended periods). Without these operating hours, lamps may fail prematurely.

### 3.02 INSTALLATION

- A. Luminaires shall be securely mounted to elements of the building structure such that they will be square, plumb, and rigid, and will not fall or sag. Flush luminaires shall be furnished with installation provisions compatible with the suspended acoustical system furnished by the General Trades Contractor. This Contractor shall verify the actual suspension system to be used and make all adjustments in luminaire installation provisions.
- B. All open type troffers shall be shipped from the Manufacturer with the louver enclosed in plastic wrap. The Contractor shall install the luminaires with the plastic wrap intact and only remove the wrap after the work environment is clean. Contractor shall patch any holes in the wrap to keep dirt out of the luminaire during construction.
- C. All luminaires mounted in suspended acoustical tile ceilings shall be securely attached to the ceiling grid system by removable grid clips or fasteners. Recessed "can" type luminaires shall have bar hangers attached to the ceiling grid system.
- D. All luminaires mounted on suspended acoustical tile ceilings shall be mounted to junction boxes with bar hangers attached to the ceiling grid system. In addition, luminaires heavier than ten (10) pounds shall have hangers attached to the ceiling grid system.
- E. All luminaires that are wall mounted or surface mounted to other than suspended acoustical tile ceilings shall be attached to outlet boxes that are securely supported to the building structure and UL listed for luminaire support.
- F. All surface mounted and recessed luminaires installed in suspended acoustical tile ceilings shall have a supplemental support means attached to the building structure consisting of chain or cable, installed with 6 inches of slack. This support means shall be attached from the structure to the luminaire at each end and shall be capable of suspending the luminaire in the event the ceiling grid at the luminaire is removed.
- G. Clean both inside and outside surfaces of luminaires after installation. No luminaires shall be installed until the painting work of the General Trades Contractor is completed. Damaged, deformed, or defective luminaires are to be replaced.



- H. Only the number of lamps required to provide adequate lighting for work yet to be done, in each area, and acceptable temporary lighting elsewhere shall be installed by this Contractor at the time luminaires are installed and tested. Remaining lamps to be installed not more than ten (10) days prior to date of Contract Completion of the project. Replace lamps used for temporary lighting with new lamps not more than ten (10) days prior to date of Contract Completion of the project.
- I. All luminaires are to be in working order at the time of Contract Completion. This Contractor shall replace all defective LED luminaires and fluorescent lamps with new lamps up until the time of Contract Completion.
- J. Prewired flush luminaire shall have minimum 90 Degree C wiring. Junction box capacity shall be sufficient for the circuit wiring requirements.
- K. Furnish all required installation accessories for the luminaires as required for specific location whether or not included in the Manufacturer's catalog number. Such accessories include plaster frames, rings, flanges, canopies, stem hangers, and suspension straps. REFER TO ARCHITECTURAL ROOM TREATMENT SCHEDULE.
- L. Designated night light, emergency egress, and exit signage luminaires shall be connected ahead of any switching.
- M. Luminaires provided by the Manufacturer with cords attached shall be coordinated by the Division 26 Contractor to assure adequate cord length for each individual luminaire installation.
- N. Luminaire supports used in fire rated ceiling assemblies shall be in conformance with that assembly's UL listing requirements.
- O. Coordinate exact wiring requirements to luminaire drivers with Manufacturer.
- P. Flexible conduit or cord run down to suspended luminaires shall be installed along side of the suspension chain and neatly attached along its entire length.
- Q. Fixture whips shall be made up of either #12 AWG minimum conductors in 1/2" flexible conduit minimum or #12 AWG MC cable. If MC is used, then it shall be provided with a green grounding conductor. If cable ties are used to support fixture whip, they must be UV stable cable ties.
- R. Daisy chaining of MC or fixture cords is prohibited.

### 3.03 WARRANTY

- A. Luminaires and drivers shall have a Manufacturer's full warranty for five (5) years.

END OF SECTION

SECTION 26 00 00  
DIVISION 26 - ELECTRICAL INTRODUCTORY STATEMENT

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

- A. The requirements of Instructions to Bidders, General Conditions, and Division 1 apply to all work herein.
- B. In addition to conforming to the documents listed in Paragraph 1.01 A. above, the Work performed by the Division 26 Contractor shall conform to all provisions of Division 26 Sections as included in this Specification. The Division 26 Contractor is to consider the word "Contractor" when used in these Sections to mean himself/herself.
- C. The Division 26 Contractor must read the Specifications of all divisions therein because they will be responsible for Work described in other Sections where reference is made to "Electrical Contractor."
- D. All work included under this heading is subject to the Bidding Requirements, General Conditions and Division 1 General Requirements written for this entire Specification, whether attached to this Part or not, and the Contractor is notified to refer thereto as an integral part of the Work.

1.02 APPLICABLE SECTIONS

- A. Contractor shall perform Work described in the preceding paragraphs, the General Conditions, Division 1 and all Division 26 Sections (as included).
- B. Contractor is required to coordinate his/her work with that described in other Sections, and therefore, must familiarize themselves with the entire set of Specifications.

1.03 RESPONSIBILITY

- A. The A/E's efforts under this Contract are aimed at designing a project which will be safe after full completion. The A/E has no expertise in, and takes no responsibility for, construction means and methods or job site safety during construction, which are exclusively the Contractor's responsibility. Processing and/or approving submittals made by the Contractor which may contain information related to construction methods or safety issues, or participation in meetings where such issues might be discussed must not be construed as voluntary assumption by the A/E of any responsibility for safety procedures.

END OF SECTION

SECTION 28 31 00  
FIRE DETECTION AND ALARM

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish and install all equipment and accessories for a complete local, analog addressable with adjustable pre-alarm level, with analog addressable voice notification devices, and addressable appliances, manually and automatically actuated, electrically operated, device annunciated, double supervised, non-coded 24 volt DC fire alarm system as described herein and as shown on the Plans.

1.02 QUALITY ASSURANCE

- A. Fire alarm installation shall conform to the requirements of the NFPA 101, Life Safety Code, the Ohio Building Code, and Local Code and Building Authority requirements.
- B. Where site visits are required by the A/E and/or OSU Representative Contractor shall provide one (1) week of notification and shall occur during business hours.
- C. All equipment shall be UL listed and labeled, and in accordance with applicable NEMA, ANSI Standards and Codes:
  - 1. National Electrical Code (NFPA 70)
  - 2. FCC Part 15, Subpart J
  - 3. EMC Directive 89/336/EEC
  - 4. NFPA 72
  - 5. NFPA 90A
  - 6. Ohio Building Code (OBC)
  - 7. Ohio Fire Code (OFC)
- D. All devices and installation shall be in accordance with the Americans with Disabilities Act.
- E. All cabling for Signaling Line Circuit (SLC) shall be Class X. Notification Appliance Circuit (NAC) shall be Class A with separate wiring return. Initiating Device Circuits shall be Class A. Network cable shall be Style 7. The return path for all Class A circuits shall be in a separate conduit with a separate route back to the panel.
- F. All vertical riser cable shall be a two (2) hour fire rated fire alarm cable and shall be listed in accordance with UL 2196. The vertical riser cable shall be installed in accordance with Electrical Circuit Protective System (FHIT), System No. 22.
- G. Prior to final programming of Fire Alarm System, room numbers shall be verified for correctness. Labor to provide verification shall be included in bid.

### 1.03 SUBMITTALS

- A. For Review:
1. Product data sheets of all components and cabling.
  2. Riser/wiring diagrams and plans of entire system showing all devices, quantity, and size of wires, conduit sizes, zone schedule, sound levels, types of audible devices.
  3. Power supply, amplifier and battery calculations indicating operating time and spare capacity for additional devices.
  4. Voltage drop calculations for strobe circuits.
  5. Plan drawings showing all devices and wiring.
- B. To be included in Record and Information Manuals:
1. One (1) copy of each approval submittal
  2. Certificate of Material Receipt
  3. Certificate of System Completion
- C. Submit shop drawings to the appropriate Building Authority's office for review after approval by the Associate. These drawings shall include the following statement:
- Korda/Nemeth Engineering, Inc., 1650 Watermark Drive, Columbus, Ohio 43215 as shown on the Construction Documents and as required by the OBC, designed the fire protective signaling system for this project. The [Insert Company Name] project drawings are provided with manufacturer's installation and wiring recommendations to assist in the installation. Korda/Nemeth Engineering, Inc., Job # \_\_\_\_\_.
- [Insert Designer Name]  
[Insert Company]  
[Insert City, State]  
NICET Level \_\_\_\_\_  
Fire Protection System Designer  
[Insert, Name]  
[Certification # \_\_\_\_\_, valid through \_\_\_\_\_]
- D. Shop drawing shall be sent to OSU Project Manager for acceptance.

### 1.04 MANUFACTURERS

- A. Fire alarm system components shall be as manufactured and/or certified by manufacturer to work as a complete and functional system.
1. Base Bid: Manufacturer shall match existing system in the building (EST).
  2. Alternate #1: If this alternate is accepted, approved manufacturers are EST, Notifier, Siemens, Simplex

### 1.05 SYSTEM OPERATION

- A. Operation of any manual pull station or the actuation of any automatic device shall cause immediate and continuous operation of fire alarm signal and alarm indication at the control panel, remote annunciators until the actuated device is restored to normal and the control panel is manually reset.

- B. The University has centralized the monitoring of all security and other critical alarms. The Access Control and Alarm Monitoring System (ACAMS) uses a proprietary remote monitoring system based upon Lenel Intelligent System Controller equipment. The remote monitoring communication panels are located at the buildings. All Columbus and regional campus buildings, excluding the University Hospitals, shall require 24-hour remote reporting and monitoring, and shall use this system, and shall report to DPS Communications & Security Technology Division Central Alarm Center and the FOD's Service2Facilities. The fire alarm system shall report the following (via dry contact output) to the remote monitoring system:
  - 1. Common Building Fire Detection Alarm
  - 2. Common Building Fire Detection Trouble
  - 3. Common Building Fire Suppression Alarm
  - 4. Common Building Fire Suppression Trouble The remote LCD annunciator panel shall audibly and visually annunciate both alarm and trouble as well as the location of the affected device.
- C. All initiating devices, all notification appliances, and all panels shall be under constant electrical supervision by the fire alarm system. An open or ground in any wire shall cause a trouble alarm to operate. The systems shall include battery standby power. Systems shall indicate a trouble alarm upon loss of battery standby power, and shall close a separate dry contact output. When commercial AC power is restored, the systems shall automatically revert to AC power, without operator intervention. Batteries shall be sized to provide a minimum of 24 hours of monitoring, plus 15 minutes of 100% full alarm output. Recharging systems shall be sized to recharge all batteries to 100% capacity within 12 hours. When the system is operating on battery for one minute, the fire door relays shall release to conserve battery power. Locate trouble alarms in a public area. The trouble signal may be silenced by means of a switch mounted on the control panel. Upon restoration of the system, the trouble signal shall resound until the trouble silence switch is restored to the NORMAL position.
- D. The incoming power to the system shall be supervised so that any power failures must be audibly and visually indicated at the control panel. A green "power on" LED shall be displayed continuously while incoming power is present. The system batteries shall be supervised so that a low battery condition or disconnection of the battery shall be audibly and visually indicated at the control panel and the remote annunciator.
- E. Individual initiation circuits are to be zoned and separated as follows:
  - 1. Manual devices (all pull-stations) shall report independently from automatic devices (smoke detectors).
  - 2. Water flow switches shall report independently from other devices.
  - 3. All other devices shall be zoned as required per codes and application.
  - 4. Address assignments on any single circuit shall not exceed 75% of the address capacity of the circuit, to allow for future expansion.
  - 5. Power draw and/or voltage drop on any single circuit shall not exceed 75% of the power and/or voltage limitation of the circuit, to allow for future expansion.
- F. Signaling device circuits shall be loaded to no more than 75% of capacity.

- G. Sprinkler waterflow and tamper switches shall be supervised for alarm and trouble conditions. Tamper switches and flow switches are located schematically. Coordinate exact location with Division 21 Contractor in field. Provide monitor modules as needed to report status of flow and tamper switches.
- H. Sprinkler system alarm bells (provided by Division 21) shall be powered and controlled from the fire alarm system and shall operate upon water flow condition.
- I. All air handling units and return air fans shall shut down when smoke is detected by return air duct smoke detectors at the unit, unless unit is an integral part of a smoke control system. Shutdown shall be achieved by relay module signaled by the fire alarm panel. Exact location of smoke detectors shall be coordinated with Division 23 Contractor.
- J. The fire alarm system shall have a programmable relay module for each HVAC air handler. This relay shall close upon smoke detection by any duct smoke detector associated with that air handler in ductwork or at fan powered VAV terminal boxes. Division 23 shall wire to temperature control system.
- K. Each fan powered VAV HVAC terminal box or fan coil unit shall have a duct smoke detector installed in the return air duct, with auxiliary relay modules. Shutdown wiring is by Division 23.
- L. Smoke detectors located in elevator lobbies, elevator machine rooms, and hoistways shall be connected to the elevator control panel through fire alarm system relay modules. Activation of any of these devices shall send a signal to the elevator controller for seizure purposes. Elevator to be recalled to grade level access floor, unless the fire is on that floor, in which case the elevator shall be recalled to an alternate floor as designated by the local fire marshal.
- M. Heat detectors and water flow switches located in elevator hoistways and machine rooms shall signal power feeder circuit breakers to elevator machines to shunt trip, through fire alarm system relay modules.
- N. The fireman's helmet in the elevator shall illuminate upon activation of associated elevator lobby smoke detectors and shall flash intermittently upon activation of the associated elevator room or hoistway smoke detectors. Provide relay module in elevator equipment room for this function.
- O. The fire alarm panel shall monitor fire pumps as follows:
  - 1. Electric Fire Pumps
    - a. Pump running
    - b. Power failure
    - c. Phase reversal
    - d. Alternate power source available
- P. Pre-action and dry pipe sprinkler systems shall be monitored for loss of supervisory air pressure.

- Q. Manual control with the capability of making live voice announcements shall also be furnished to provide occupants notification on either a selective or all-call basis. The capability for making live voice announcements on a selective or “all call” basis shall be provided both at the main fire alarm control panel for the building and remotely from Blankenship Hall (DPS). All new fire alarm control panels installed shall include all Hardware and software required for making remote live voice announcements.
- R. Panels, devices, and appliances shall be based upon EEPROM memory (electrically erasable programmable read only memory) or “flash” memory, for address, sensitivity, and pre-alarm levels, and shall be programmable in the field by the University. (Panels, devices, and appliances limited to PROM memory, EPROM memory, or RAM memory are not acceptable).

## PART 2 PRODUCTS

### 2.01 FIRE ALARM PANEL

- A. Fire Alarm Panel shall be an analog addressable type. Panel shall be modular with solid state, microprocessor based electronics, expandable, semi-flush mounted cabinet with glass window and locking door. Program shall be stored in non-volatile memory. Features shall include:
  - 1. 80 character English readout dynamic LCD display
  - 2. Battery supervision
  - 3. Multiple operator access levels
  - 4. 800 event historical logging
  - 5. Zone selectable alarm verification
  - 6. Individual circuit disable
  - 7. Alarm, trouble, power on, and supervisory service LED indicators
  - 8. Alarm, acknowledge, drill, lamp test, signal silence, and system reset buttons
  - 9. Full Qwerty keyboard
  - 10. Printer communication module
  - 11. Remote station transmitter module for connection to 24 hour supervisory service
  - 12. Synchronizing module for synchronized strobe visual devices
  - 13. Optional wire or fiber network modules
- B. All external circuits requiring system operation power shall be 24 VDC and shall be individually protected at the control panel.
- C. Digital voice communication audio system, shall provide one way microphone voice communication, and pre-recorded voice and alarm tones to selectable speaker circuits. Features shall include:
  - 1. Dual channel audio
  - 2. Selectable alarm-tones
  - 3. Local panel speaker
  - 4. Fire fighters' master telephone module with master phone and circuit selector switches
  - 5. Digital audio technology

- D. Digital amplifiers for voice communication audio systems shall have 25% spare capacity for additional audible devices. Provide one (1) backup redundant digital amplifier with automatic transfer in the main voice evacuation panel and in all remote audio transponder cabinets.
- E. Panel shall have spare capacity for twenty-five (25) additional initiating devices.
- F. Digital communicator shall be point programmable, dual phone line with twenty-four (24) hour automatic test and automatic overload protection reset.
- G. Fire alarm system shall contain a relay module for each air handler fan. Relay shall be programmed to open upon smoke detection by any smoke detector associated with that air handling system and shutdown unit. Refer to Division 23 Drawings.
- H. Future software and firmware updates shall be provided at no cost to the Owner for two (2) full years following project close-out.
- I. The fire control panel shall have RS-232 and IP interface connection for emergency communication system. The port is to be set to lock out Acknowledge, Silence, and Reset commands. In addition, the RS-232 port will be programmed to the lowest priority level for any control commands from the Portal. This setting locks out any outside commands affecting the panels programmed fire alarm operation.

## 2.02 REMOTE ANNUNCIATOR

- A. Annunciators and remote annunciators shall be equipped with identical displays. All annunciators and remote annunciators shall be fully supervised by the system, and the system shall audibly and visually indicate the fault of either component. Remote annunciators shall be a UL listed component as a UL listed control unit. Annunciator signals shall remain locked in until the annunciator is manually reset from the remote single-button building system common reset. Include annunciators to provide location/address identification where any of the following conditions exist:
  - 1. Automatic devices are connected to the fire alarm system.
  - 2. A building has four or more fire zones. Each area on a floor separated by a firewall shall be considered a zone.
  - 3. Lighted window type, operated from the zone controls of the fire alarm panel. Separately wired annunciator circuits are not approved. Signals on the annunciators shall remain locked in until manually reset.

## 2.03 SMOKE DETECTORS

- A. Area smoke detectors shall be analog addressable, two-wire and multi-sensor smoke sensor type photoelectric and thermal devices that communicate smoke density values and temperature to the fire alarm control panel. Sensors shall have integral insect screens and RFI shielded electronics in a white plastic head and base. Detectors shall be addressable. Bases shall have LED status indicating light and locking tamper resistant screw. Detectors performing auxiliary control function such as elevator recall, smoke damper closing, or fire door release shall be associated with a Programmable Relay Module to perform the intended operation.



- B. Duct mounted smoke detectors shall be similar to area smoke detectors but with steel sampling tube as required to span HVAC duct width and equip with end cap. Addressable relay control module shall be provided for equipment shutdown. Housing shall be NEMA 4 gasketed and weatherproof with internal heating means for applications where detector is located in an unheated space or on roofs. Tamper switch on cover. UL listed for 100-4000 fpm air velocity.
- C. Remote LED indicator stations shall have a red status LED.
- D. Area smoke detectors installed within return air HVAC ductwork is prohibited.
- E. Duct smoke detector shall have a test port installed upstream for aerosol smoke injection. Test port shall consist of pipe and elbow within ductwork upstream of detector, flexible hose with cap below ductwork at an accessible location. Product available from: Lifesafetytest.com.

#### 2.04 HEAT DETECTORS

- A. Heat detectors shall be analog addressable combination rate-of-rise and fixed temperature (135 degree Fahrenheit) sensing with RFI shielded electronics. Base shall have an LED status indicating light and locking tamper resistant screw.

#### 2.05 MANUAL PULL STATIONS

- A. Manual pull stations shall be red lexan semi-flush mounted push type double action with pull handle with key reset. Unit shall lock in the pulled position requiring a key to reset. Unit shall be individually addressable on the system. Status LED shall be visible through the front cover.
- B. Within any single building, new stations shall be keyed alike, such that a single key will function for both existing and new stations. The contractor shall include necessary labor and materials to unify key requirements within any single building. New stations shall be so arranged that they cannot be reset to normal without the use of a local key. The use of a local key shall not include code wheels, or code devices.

#### 2.06 AUDIBLE/VISUAL DEVICES

- A. Visual devices (strobes) shall be multi candela, 24 VDC, xenon flash unit, white semi-flush base assembly stating "FIRE," clear tamper resistant lexan lens. Candela settings shall be set per Paragraph 3.01 D. Devices shall be white.
- B. Combination audible/visual devices (speaker strobes) shall have multi candela 24 VDC xenon flash unit, clear tamper resistant lexan lens, white semi-flush base assembly stating "ALERT," minimum 85 dBA (at 10 feet at 2 watts) speaker with water sealed compression driver and taps at 1/4, 1/2, 1, and 2watts. Devices shall be white.
- C. Audible/visual devices installed on the exterior of building or in high humidity areas shall be weatherproof and moisture proof.
- D. Provide synchronizing flash rate modules as needed to sync all strobes in the facility.

## 2.07 WATERFLOW AND TAMPER SWITCHES

- A. Sprinkler water flow and supervisory tamper switches shall be provided by Division 21. Provide addressable input monitor module to monitor each water flow switch and supervise each tamper switch.

## 2.08 MONITOR AND CONTROL DEVICES

- A. Dual Contact Relay IAM (Individual Addressable Module) control module shall provide relays with isolated contacts for controlling equipment.
- B. Communicating Device IAM (Individual Addressable Module) shall provide supervised Class B monitoring of normally open, dry contacts

## 2.09 MAGNETIC DOOR HOLDERS

- A. Magnetic door holders shall be 24 VDC electromagnetic, flush wall or floor mounted single door devices. Provide Programmable Relay Module for each set of doors to remove power to doors during alarm condition.

## 2.10 NOTIFICATION APPLIANCE PANELS

- A. Remote Notification Appliance Circuit (NAC) power extender panels shall be wall mountable, with locking hinged door cabinet. The panels shall contain batteries, charging circuit, and power supply.
- B. The Notification Appliance Circuit panel shall be addressable or controlled by programmable control modules. Strobe sync circuitry shall be built into each panel.
- C. Each Notification Appliance Circuit panel shall have a minimum of 6 Amperes of notification circuit power and shall have a minimum of four (4) zones.

## 2.11 BATTERIES

- A. Batteries shall be sealed lead acid with a nominal life expectancy of five (5) years minimum. Batteries shall be manufactured in the USA, stamped with ship date from the manufacturer, and stamped with the date of system activation. Batteries shall not be stored in excess of one (1) month without having a continuous trickle current applied to maintain charge. A/E and University Representative shall witness the fact that the batteries are being charged.
- B. Batteries shall not be shipped and installed in the panels until the system pre-test is to be done by manufacturer's technician.
- C. Perform and record a battery load test after Fire Life Safety Inspection is completed, and submit this information to the A/E.
- D. At the end of the two (2) year warranty period all batteries will be retested by the - manufacturer and witnessed by FOD's Fire System Shop representative. The batteries that have amp-hour capacity below 80% of the original manufactured ratings shall be replaced, material and labor, at no additional cost to the University.

- E. Provide battery-charging circuitry for each standby battery in the system. The charger shall be automatic in design, adjusting the charge rate to the condition of the batteries. All system battery charge rates and terminal voltage shall be read using the fire alarm control panel LCD display in the service mode, indicating directly in volts and amps. Meters reading in percentage are not acceptable.

## PART 3 EXECUTION

### 3.01 APPLICATION

- A. Smoke detectors shown on plans are located schematically. Maximum spacing between multiple smoke detectors in an area shall be 30 feet. No walls shall be more than 15 feet from a smoke detector. Smoke detectors shall not be installed within three feet of a HVAC diffuser. Wall mounted smoke detectors shall be installed at 12 inches from ceiling.
- B. Programming shall be done by the manufacturer's authorized representative. Contractor shall provide required time for programming entire system and subsystems in their bid.
- C. Tamper and waterflow switches are located schematically. Coordinate exact locations with Fire Protection Contractor.
- D. Visual device types shall be located as follows:

#### Candela Level

|                  |       |
|------------------|-------|
| Corridors        | 15/75 |
| Rooms < 400 SF   | 15/75 |
| All other spaces | 110   |

- E. Visual device types shall be located within 15 feet of end of corridor.
- F. Provide ceiling mounted smoke detector within 5 feet of fire alarm panel, and each NAC subpanel. Provide manual pull station next to fire alarm panel.
- G. Fire alarm speakers shall be installed in elevator cars and exit stairways; however, they must only be activated to broadcast live voice messages (e.g., manual announcements). The automatic voice messages shall - be broadcast through the fire alarm speakers on the appropriate floors, but not in stairs or elevator cars.
- H. Provide an audible / visible electric alarm bell monitored by the fire alarm control panel to indicate water is flowing from the sprinkler system. Locate alarm bell on exterior of building near first responders point of entry.

### 3.02 WORK ON EXISTING SYSTEMS

- A. Prior to fire alarm work on an existing system, contractor must verify, in the presence of personnel from the respective department (FOD, Student Life, or OSUWMC), that there are no troubles on the system. All troubles shall be reported to DPS prior to the start of work. Contractor will be responsible for all system troubles not reported.

- B. Where heat detectors are used instead of smoke detectors during construction, contractor shall provide them and be responsible for all system programming required to change heat detectors to smoke detectors and vice versa at the end of the project to avoid any additional troubles/alarms on systems.

### 3.03 INSTALLATION

- A. Follow manufacturer's written instructions regarding mounting, wiring, and testing the fire alarm system. Installers shall be certified for fire alarm work by State Agencies.
- B. Conductors shall be UL listed to work with manufacturer's equipment. Installation shall be in accordance with the manufacturer's wiring diagrams, recommendations, and in compliance with practices set forth by local, State and National fire codes. Color code and tag all wires at all junction points and at both ends. All cables shall be UL listed for Fire Alarm Application. Fire alarm wiring shall be red. Conductors shall be Types FPLP and FPLR, inner and outer insulation: LS PVC-Low Smoke Polyvinyl Chloride, 75 degrees C, NFPA 262. The A/E is required to witness the wire type on site prior to the wire being pulled.
- C. Network Riser cable shall have a two-hour fire-resistive rating.
- D. Final connection between equipment and the wiring system to be made under the direct supervision of a representative of the manufacturer.
- E. All wires shall be terminated with ring or split terminal crimp on connectors. All fire alarm system wiring shall be plenum rated.
- F. Splicing of power and/or control wiring and the use of wire nuts is prohibited. Use numbered screw terminal strips in junction, pull, and outlet boxes, cabinets, or equipment enclosures where circuit connections are made. Use split terminal crimp on connectors.
- G. Wiring within enclosures: Separate power-limited and non-power-limited conductors as required by manufacturer. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, train conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the system's wiring diagrams.
- H. Network Access Control (NAC) Panels are to be wired as a circuit to the Fire Alarm Control Panel with 2-hour Fire Rated Cable. Buildings with multiple Fire Alarm Control Panels and/or Transponder Panels shall be wired as a circuit to the Command Center's Fire Alarm Control Panel with 2-hour Fire Rated Cable.
- I. Multi-conductor Non-Power-Limited Fire Alarm Cables are permitted to be installed as wiring within buildings for the following locations:
  - 1. Space used for Environmental air-handling purposes.
  - 2. In exposed or fished in concealed spaces.
  - 3. Where passing through a floor or wall in metal raceway.

4. In rigid non-metallic conduit, such as over hung ceilings and for wiring in ducts and plenums. This does not include habitable rooms or areas of buildings, in which the main purpose is not air handling. It shall be used or permitted on Fire Alarm circuits operating at 150 Volts or less.
- J. All field wiring for Fire Alarm Control Panel and accessory control panels shall enter a 4 x 4 duct (min.) located to the side or bottom of the panels. No connections other than through the side or bottom of panels and through the 4 x 4 duct shall be permitted.
- K. Nylon insulation jacketed cables are prohibited. THHN/THWN cables are prohibited for use in fire alarm systems. Flame retardant PVC jacketed cables are required. Cable shall have resistance to flame spread and reduce smoke generating properties.
- L. Cabling for the floor's fire alarm system devices, including power for 24V door holder: The cable shall not penetrate floors or ceilings (i.e. cable may only be used within a single floor).
- M. All fire alarm systems shall be grounded. The grounding shall be connected to the building's electrical grounding system.
- N. All fire alarm wiring shall be run in a ¾" minimum conduit size and conduit system separate from all other systems. Conduit compression couplings shall be required to be used for all fire alarm system conduits. The use of full wall flexible conduit shall be limited to short lengths where fire alarm appliances are mounted on suspended acoustical ceilings, tamper and flow switches and Type LA Liqueflex Flexible Conduit for wet, oily conditions (e.g. fire pump motor leads) both types shall be UL listed for use in accordance with the NEC. Do not exceed 40% conduit fill capacity.
- O. Paint all junction boxes with red paint and label "Fire Alarm".
- P. Duct mounted smoke detectors and duct mounted area detectors shall be installed in return ducts as directed by the mechanical equipment supplier under the supervision of the Division 23 Contractor, in a location that is accessible. Provide wiring to mechanical control equipment as necessary to achieve equipment control upon smoke detection. Install remote indicator lights at 60 inches above finished floor on adjacent wall in utility spaces, or in ceiling below duct detectors. Install label on each station identifying application.
- Q. Elevator Interface:
  1. Provide a smoke detector on each elevator landing centered in front of elevator cars. Provide fire alarm system control relay in elevator machine room. Wire from control relay to elevator controller to permit capture and control of all elevators during a fire. Provide connection to elevator control panel to activate visual (fireman's helmet) signal system, which shall alert passengers that the elevator recall has been activated and is returning nonstop to the designated level.
  2. Provide a smoke detector in the elevator machine room and at the top of the hoistway. Provide fire alarm system control relay in elevator machine room. Wire from control room to elevator controller to permit capture and control of all elevators during a fire. Provide connection to elevator control panel to activate the visual signal (fireman's helmet) to flash to alert firemen.

3. Heat detectors shown on plans are located schematically. Provide heat detectors, within 2 feet of each sprinkler head, in each hoistway, pit, and elevator machine room. Provide wiring from fire alarm system control relay, upon activation of the device, to activate the associated shunt trip circuit breaker. Provide the shunt trip breaker with auxiliary contacts to disable battery-lowering device.
  4. Connect auxiliary contacts of power disconnect switch to disable battery lowering unit.
  5. Connect water flow switches and tamper switches in sprinkler piping at each hoistway and machine room to fire alarm panel.
  6. Provide fire alarm speakers in elevator cars.
- R. Provide 3/4 inch conduit from digital communicator to telephone terminal board. Provide two analog phone line cables from telephone board.
- S. Monitor tamper switches on sprinkler system post indicating valves. Install addressable monitor modules inside of the building.
- T. Smoke detectors located on either side of smoke doors and smoke shutters shall be installed between 1 and 5 feet of the door and connected to release magnetic door holders. Motorized smoke shutters with electric release shall have control power run from shutter operator through relay module to electric release mechanism.
- U. Provide 120 volt branch circuits for power to fire alarm control panel, equipment racks, remote control panels, power supplies, and sprinkler system air compressors.
- V. Exterior cover of all fire alarm wiring shall be color coded.
- W. Provide wiring to sprinkler system alarm bells.
- X. The system shall be programmed by the manufacturer to operate as described in Paragraph 1.05 - System Operation. In addition, the following sensitivity shall be programmed for smoke detectors in the following areas:
- |                                       |      |
|---------------------------------------|------|
| General Areas                         | 2.5% |
| Duct Mounted Smoke Detectors          | 1.0% |
| Mechanical/Electrical/Telephone Rooms | 1.0% |
| Elevator Lobbies                      | 3.7% |
| Computer Areas                        | 1.0% |
- Y. Speaker taps shall be initially set as follows during installation:
1. Speakers in small rooms (less than 500 SF) - 1/4 watt
  2. Speakers in large rooms and corridors - 2 watts
  3. Adjustment of tap settings as required shall be the responsibility of the contractor to the satisfaction of the Fire Inspector and Engineer.
- Z. Panel shall be programmed to use slow "whoop" tone for annunciation before verbal message on voice system, "May I have your attention please. A fire alarm has been reported in the building. Please exit the building by the nearest exit or stairwell. Do not use the elevator."

- AA. Audible device (speaker) circuits shall be separately run to each of the following areas and selectivity controllable from the voice control panel:
  - 1. Elevators
  - 2. Elevator Lobbies
  - 3. Main Corridors
  - 4. Exit Stairways
  - 5. General Areas on a Floor
  - 6. Rooms exceeding 1000 square feet area
- BB. Provide wiring from fire alarm panel to Emergency Responder Radio Repeater system for monitoring of supervision of system. As a minimum, the following conditions shall be monitored:
  - 1. Antenna malfunction
  - 2. Signal booster failure
  - 3. Low battery capacity, sending a supervisory signal at 70% of battery capacity
  - 4. Loss of normal AC power
  - 5. Failure of battery charger
- CC. Provide relays and wiring connection from the fire alarm system to all security system controllers to cause stairway door locks, exterior doors, and other egress doors to be released. Coordinate location with security contractor. Existing and new Fire Alarm Systems are integrated into the Lenel Intelligent System Controller (LISC) as one common building Fire Alarm System. The Lenel Intelligent System, also reports Building Intrusion Detection Alarms and troubles.
- DD. Provide a signal to each riser of a pre-action sprinkler system upon smoke detection in areas of the building protected by that sprinkler riser. Refer to fire protection drawings for specific zone information.
- EE. Provide relays as required to connect fire alarm system to auxiliary systems as specified in other sections and noted on Drawings.
- FF. Provide conduit, wire, and addressable input control module connection to dimming system panels for override to full lighting level.
- GG. Fire alarm system shall monitor emergency generator and report failure as a trouble condition.
- HH. Smoke and heat detector bases shall have an adhesive tape label with the programmed address visible from floor when head is removed.
- II. Provide an area type smoke detector within HVAC ductwork for each HVAC smoke damper shown on the HVAC plans. Detector shall be located within 5 feet of damper at access door location. Provide two (2) smoke detectors for ducts between 36 inches and 72 inches wide. Provide three (3) smoke detectors for ducts greater than 72 inches. Provide a system relay adjacent to smoke damper for signal damper to close.
- JJ. Area smoke detectors shall be located a minimum of 36 inches away from HVAC air supply diffusers or return air grills.

- KK. Provide a System Record Document cabinet, as required by NFPA 72, located by the Fire Alarm Control Panel or at another location approved by DPS at the protected premises. All record documentation required by NFPA 72 shall be stored in the documentation cabinet (USB drive; files organized). Cabinet key shall match the Fire Alarm Control Panel's key.

### 3.04 TESTING

- A. Operate system for a minimum of seven (7) consecutive days with no trouble conditions before claiming contract completion. Complete and submit the required NFPA 72 test and inspection forms. Acceptance by the University: The system shall be scheduled by DPS to be demonstrated in the presence of the State of Ohio Fire Marshal (the authority having jurisdiction), A/E, University Project Manager, the University's Director of Maintenance, and their designated representatives, Fire System Shop. During acceptance, the contractor shall demonstrate the following to the University's designees:
1. Alarm Verification: - Report by device - Pinpoint location Device type identification and address
  2. Alarm/Trouble per device and component
  3. Full field programmability via a laptop Windows-based personal computer:
    - a. Address verify and change,
    - b. Sensitivity verify and change,
    - c. Pre-alarm level verify and change,
    - d. Field changes shall upload to central panels
    - e. Field changes shall download from central panels
  4. Single-button building system, common alarm silence, silences existing and new systems in parallel.
  5. Single-button building system, common reset, resets existing and new systems in parallel.
  6. Battery power capacity.
- B. System will not be accepted until all components and functions are demonstrated to be in full operation for a minimum of seven (7) consecutive days without trouble conditions, before claiming substantial completion.

### 3.05 SPARE PARTS

- A. Spare initiating devices (smoke detectors, heat detectors, rate-of-rise detectors, manual pull stations, flow switches, valve tamper switches, contact monitoring units, bases, etc.) and notification appliances (speaker/strobes, relays, bases, etc.) shall be furnished to the University by the contractor. Quantities shall be the larger of:
1. No less than 1 of each item, or
  2. Minimum 10 percent of each item, whichever is the greater quantity.
  3. Deliver spare materials to the Fire System Shop.
- B. Electrical Contractor shall include in his/her bid, an allowance for furnishing and installing (with average length of conduit and wire), the following, at completion of project as directed by the Architect. If not all used, remaining labor and material shall be credited to Owner:
1. Audiovisual Devices 10
  2. Manual Pull Stations 2
  3. Tamper / Waterflow switches 5
  4. Duct Smoke Detectors 7



- |                           |               |
|---------------------------|---------------|
| 5. Area Smoke Detectors   | 2             |
| 6. Heat Detectors         | 7             |
| 7. Re-Programming Time    | 24 hours      |
| 8. Shop Drawing Revisions | 3 AHJ updates |

- C. Furnish ten (10) keys to open panels, pull stations and annunciators.
- D. Obtain a signed copy of the Certificate of Material Receipt from Section 26 00 99, "Requirements for Contract Completion."

### 3.06 EQUIPMENT DEMONSTRATION

- A. After all system operational tests have been completed, schedule an instruction period with the Owner. Instruction to be provided by manufacturer's authorized field technician. Include four (4) sessions of four (4) hours. One session shall be video recorded.
- B. The instruction is to include the following:
  - 1. Location of all components of the system and explanation of their function
  - 2. Demonstration of equipment
- C. All participants shall sign the Certificate of System Completion from Section 26 00 99, "Requirements for Contract Completion."

### 3.07 EQUIPMENT TRAINING

- A. After all system operational tests have been completed, schedule an instruction period with the Owner. Instruction to be provided by manufacturer's authorized field technician. Include four sessions of four (4) hours. One session shall be video recorded.
- B. The instruction is to include the following:
  - 1. Maintenance and repair procedures
  - 2. Programming procedures
  - 3. Review of documents in Record and Information Manuals
- C. The system, devices, and applications training of the University's Operations personnel, shall allow the University to perform the "One Person Walk Tests" by area, location, device, address, or system. The tests shall include:
  - 1. Full System
  - 2. Area
  - 3. Alarm/Trouble
  - 4. Audible Modes
  - 5. Printed Record of All Tests
  - 6. Audible Appliance Type & Identification
  - 7. Auto "Timed-Out" With Warning
- D. Provide OEM hardware tools and documentation, OEM software tools and documentation, and password(s).
- E. All participants shall sign the Certificate of System Completion from Section 26 00 99, "Requirements for Contract Completion."

3.08 SMOKE DETECTOR SENSITIVITY TEST

- A. All area and duct mounted smoke detectors shall have a sensitivity test conducted at the time of completion and during the eleventh month after date of contract completion. Sensitivity test shall be conducted by the manufacturer's representative. Clean all detectors that are out of their listed sensitivity range. Provide written documentation of test results.

3.09 WARRANTY OF WORK

- A. Provide full 2-year parts and labor warranty for the entire system including batteries. Warranty shall include telephone response within 30 minutes and site response within 4 hours for emergency calls during the warranty period.
- B. Warranty period shall commence at date of signed University Acceptance. All service outside of warranty shall be under a separate contract.
- C. Date of manufacture, date of shipment, date of delivery, date of installation, etc. shall not constitute date of warranty commencement for the purpose of the project.

3.10 RECORD DRAWINGS

- A. Provide a set of as-built drawings, plastic covered, of the fire alarm system indicating wiring layout, and manufacturer's device data sheets in a three-ring folder in cabinet adjacent to FACP. Provide an additional set of record fire alarm drawings and data sheets in a folder to Facility Operations and Development's FOD's Fire System Shop. Include the fire alarm drawings and manufacturer's data sheets in the operation & maintenance manuals, and in PDF format as well. Provide a copy of the original software program and all updates of the program to FOD's Fire System Shop on a USB Flash Drive or other agreed method.
- B. Contactor shall provide updates to their BIM model and Cobie information.
- C. Record Documents including Controls, Fire Alarm Riser Diagram for the building's complete fire alarm system, etc. shall be on AutoCAD and shall be submitted to the University at substantial completion of the project and before the final payment shall be made by The University.

END OF SECTION