



Lakeland Community College Standard Requirements for Public Facility Construction (General Contracting Project)

2026 Edition

Including Standard Form Documents of
Division 00 – Procurement and Contracting Requirements
and Sections of Division 01 – General Requirements, Division 02 -
Existing Conditions, Division 03 - Concrete, Division 07 - Thermal
and Moisture Protection, Division 22 - Plumbing, Division 26 -
Electrical, and Division 31 - Earthwork

**Project Number: TK26May11
T-Building Demolition
October 2, 2026**



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Kirtland, Ohio 44094-5198
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Web site: www.lakelandcc.edu

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State of Ohio Standard Requirements for Public Facility Construction

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

Sealed bids will be received by:

Lakeland Community College
7700 Clocktower Drive
Kirtland, Ohio 44094
Attn: Tom Kirchner or Gwen Sevits
Building A, 2nd Floor Business Services Office

for the following Project:

Project TK26May11
T-Building Demolition
Lakeland Community College
Kirtland, Ohio, Lake County

in accordance with the Contract Documents prepared by:

Gandee & Associates, Inc.
8748 Brecksville Road, Unit 208
Brecksville, Ohio 44141
330-376-9360
www.gandee.net

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.

The Bidder must indicate on the 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 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**.

Bids will be received for:

<u>Trade</u>	<u>Estimate</u>
General Contracting	\$1,040,000
Alternate A (Overhead Walkway)	\$ 375,000

until **October 28, 2026, at 2:00 p.m.**, when all Bids will be opened and read aloud.

All Bidders are required to attend the MANDATORY Pre-Bid Meeting on **Wednesday, October 14, 2026, at 10:00 a.m. until approximately noon**, at the following location: Lantern at T-Building.

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 **SE Blueprint, 2035 Hamilton Avenue, Cleveland, Ohio 44114, 216-241-2250, seblue@seblueprint.com** at the non-refundable cost of \$100.00 per set, plus shipping.

END OF DOCUMENT

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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 **Bid Form** is the time for Substantial Completion 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.

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 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 scheduled bid opening.

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

2.6 Bid Form

2.6.1 Each Bid shall be submitted on the **Bid Form** and sealed in an envelope clearly marked as containing a Bid, indicating the Contracting Authority's Project number and name, and the date and time of the bid opening on the envelope. Refer to **Section 3.1.2** for requirements related to envelope markings.

2.6.1.1 Any change, alteration, omission, or addition in the wording of the **Bid Form** shall cause the Bid to be rejected as non-responsive.

2.6.1.2 All pages of the **Bid Form**, including a completed "Bidder Affirmation and Disclosure" page 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 Opening, the Bidder must provide the information requested with its **Subcontractor and Material Supplier Declaration** form.

2.6.1.3 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 blank spaces on the **Bid Form** by printing in ink or by typewriting, and not in pencil.

2.6.2.1 The Bidder shall show all bid amounts in both words and figures. In the case of a conflict between the words and figures, the amount shown in words shall govern, where the words are not ambiguous. When the Bidder's intention and the meaning of the words are clear, omissions, or misspellings of words shall not render the words ambiguous.

2.6.2.2 The Bidder shall initial alteration or erasure of items filled in on the **Bid Form**.

2.6.3 If the Bidder is a corporation, partnership, or sole proprietorship, an officer, partner or principal of the Bidder shall print or type the legal name of the Bidder on the line provided, and sign the **Bid Form**. If the Bidder is a joint venture, an officer, partner or principal, as applicable, of each member of the joint venture shall print or type the legal name of the

applicable member on the line provided, and sign the **Bid Form** on behalf of that member. All signatures must be original.

2.7 Allowances

2.7.1 If Allowances are provided on the **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 **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 **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 **Bid Form**, the Bidder shall fill in the applicable blank with an increased or decreased bid amount and indicate which by circling the word "ADD" or the word "DEDUCT" 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 "No Change" or "\$0."

2.9.1.2 Failure to make an entry or an entry of "No Bid," "N/A," or similar 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 by circling "DEDUCT," preceding the number by a minus sign, or enclosing the number in parentheses will indicate the Bidder's intent to increase the Base Bid by the amount entered in the applicable blank.

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 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 Form in a sealed envelope:

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

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 with its Bid, 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 and Material Suppliers for this Project by attaching a fully completed EDGE Affidavit 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 in writing and received by the Contracting Authority before the time scheduled for the bid opening.
- 2.11.2** Changes shall provide an amount to be added to, or subtracted from, the bid amount, so that the final bid amount may be determined only after the sealed envelope is opened.
- 2.11.3** If the Bidder's written instruction reveals the bid amount in any way prior to the bid opening, the Contracting Authority may, in its sole discretion, reject the Bid as non-responsive.

ARTICLE 3 - BID OPENING AND EVALUATION

3.1 Delivery of Bid

- 3.1.1** The Bidder shall submit its Bid to the Contracting Authority at the location indicated in **Document 00 10 00 - Solicitation** prior to the time scheduled for the bid opening.
- 3.1.2** If the sealed bid envelope is enclosed in another envelope for the purpose of delivery, the exterior envelope shall also be clearly marked as containing a Bid with the Project name and Project number, construction trade of the Bid, and the date and time of the bid opening shown on the envelope.
- 3.1.3** Bids that arrive at the location designated in **Document 00 10 00 - Solicitation** after the time set for the bid opening shall not be opened or considered.

3.2 Bid Opening

3.2.1 Sealed Bids shall be received at the location designated in **Document 00 10 00 - Solicitation** until the time stated when all Bids shall be opened, read aloud, and the tabulation made public.

3.2.2 The public opening and reading of Bids 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 bid envelope are public records and open for inspection, upon request, at any time after the bid opening, except for any information that is not defined as a public record under Ohio law.

3.3 Bid Opening Extension

3.3.1 If an Addendum is issued within 72 hours prior to the published time for the bid opening, excluding Saturdays, Sundays and legal holidays, the bid opening shall be extended 7 days. If the Contracting Authority approves, the bid opening 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 opening, excluding Saturdays, Sundays and legal holidays, only the Contracting Authority may approve a revised bid opening date 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 the Contracting Authority receives the Bid, provided the Bidder makes a request in writing and the Contracting Authority receives the request prior to the time of the bid opening, as determined by the Contracting Authority.

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 either:

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.

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 If the Contract includes plumbing; electrical; hydronics; refrigeration; and heating, ventilating and air conditioning ("HVAC") Work, the Contractor or its Subcontractors must submit proof of current licensing pursuant to Applicable Law.

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

6.1.9 Required Notice of Unresolved Findings for Recovery.

6.1.9.1 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.

6.1.10 EDGE Program – Supporting Documentation Required.

6.1.10.1 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.

6.1.11 Registered Apprentices – Supporting Documentation Required.

6.1.11.1 The Bidder shall provide evidence acceptable to the Contracting Authority of the registration of all apprentices who the Bidder or its Subcontractors intend to employ on the Project pursuant to ORC Section 4115.05.

6.1.12 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. 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 **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/Paper Bid)

State of Ohio Standard Requirements for Public Facility Construction

Certifications

These Supplementary Instructions amend and supplement the Instructions to Bidders (Multiple-Prime Contract or General Contract) 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 [Lakeland Community College](#).

Contracting Authority and Owner

[Lakeland Community College](#)
7700 Clocktower Drive
Kirtland, Ohio 44094
(440) 525-7000
www.lakelandcc.edu

MODIFICATIONS TO INSTRUCTIONS TO BIDDERS

Replace Sections 2.6.1.2 and 2.6.1.2.1 with the following:

2.6.1.2 All pages of the Bid Form, including a completed “Bidder Affirmation and Disclosure” page acknowledging that the Bidder affirms, understands, and will abide by the requirements of Executive Order 2011-12K, 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 Opening, the Bidder must provide the information requested with its Subcontractor and Material Supplier Declaration form.

Replace Section 2.10.3.2 with the following:

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, and a project name/contact Person/address/phone number for the owner and the architect or engineer for each project;

Add Section 3.1.4 as follows:

3.1.4 Bidder shall provide five hard copies of the Bid Package and an electronic copy on one USB flash drive.

Delete Section 2.10.3.9 in its entirety.

Replace Section 3.5.3.4 with the following:

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;

Delete Section 6.1.10 in its entirety.

Replace Section 6.2.1.2 with the following:

6.2.1.2 The Bidder’s Qualifications form not previously provided within 3 business days of receiving the Contracting Authority’s request.

END OF DOCUMENT

SECTION 00 31 00

AVAILABLE PROJECT INFORMATION

PART 1 - GENERAL

1.01 HISTORICAL DRAWINGS

- A. In addition to those provided with Plans for this Project (Drawing Sheets AD104 through AD108), other historical drawings that College has on record for T-Building and Overhead Walkway are provided in the following Dropbox.

https://www.dropbox.com/scl/fo/m4j0h5lljapdrtdqkmfvng/AFU8l3siOUP6_LMzaTU1D58?rlk=ey=5pfd0w7nemyvybwdtajq6tnj&st=5awat76u&dl=0

- B. Historical Drawings provided in this Dropbox:

1. 200 S-2 Foundation Details and General Notes
2. 200 S-4 3rd Floor and Low Roof Framing Plan and Details
3. 200 S-4 3rd Floor and Low Roof Framing Plan
4. 200 S-5 Roof Framing Plan

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 00 31 13

PRELIMINARY SCHEDULE

PART 1 - GENERAL

1.01 PRELIMINARY SCHEDULE

- A. Engineer's preliminary project schedule is based on Notice to Proceed being issued by College on November 30, 2026.

- 1. Document 00 31 13.13: Project Schedule dated October 1, 2026.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

Phase/Work Activity	Date	Duration (Weeks)	October 2026				November 2026				December 2026				January 2027				Febraury 2027				March 2027				April 2027				May 2027				June 2027								
			10/5-10/9	10/12-10/16	10/19-10/23	10/26-10/30	11/2-11/6	11/9-11/13	11/16-11/20	11/23-11/27	11/30-12/4	12/7-12/11	12/14-12/19	12/21-12/25	12/28-1/1	1/4-1/8	1/11-1/15	1/18-1/22	1/25-1/29	2/1-2/5	2/8-2/12	2/15-2/19	2/22-2/26	3/1-3/5	3/8-3/12	3/15-3/19	3/22-3/26	3/29-4/2	4/5-4/9	4/12-4/16	4/19-4/23	4/26-4/30	5/3-5/7	5/10-5/14	5/17-5/21	5/24-5/28	5/31-6/4	6/7-6/11	6/14-6/18	6/21-6/25	6/28-7/2		
Bid Opening	10/28/26	--				10/28/26																																					
Contract Award	11/30/26	--										11/30/26																															
Preliminary Temporary Facilities	12/14/26-1/8/27	4																																									
Building Demolition	1/1/27-3/31/27	12																																									
T-Building Site Restoration & Seeding	4/5/27-5/28/27	8																																									
Overhead Walkway Demo/Restoration	3/29/27-6/4/27	10																																									
E-Building North Vestibule Restoration	3/1/27-3/31/27	5																																									
Demobilization	6/17/27	--																																							6/17/27		
Closeout/Substantial Completion	5/24/27-6/30/27	6																																									

PRELIMINARY SCHEDULE NOTES:

1. Preliminary Temp Facilities Work includes fencing, silt fence, rest rooms, offices, site lighting, etc.
2. Demobilization and Substantial Completion does not include fencing at perimeter of the Sites (which shall not be removed until grass has achieved 80% germination).

SECTION 00 31 26

EXISTING HAZARDOUS MATERIALS INFORMATION

PART 1 - GENERAL

1.01 EXISTING CONDITIONS

- A. The following information is available to Bidders as reference material(s) and follows this Section in their entirety:
 - 1. Document 00 31 26.23: Pre-Demolition Hazardous Materials Assessment
 - 2. Document 00 31 26.26: Supplemental Inspection for Asbestos-Containing Materials
- B. Reports referenced in this Section are those used by Engineer for preparation of Drawings, Specifications, and scope of abatement portion of this Project.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION



EA GROUP

Environmental Analysis
and Management

April 30, 2026
(Revised May 15, 2026)

Mr. Jay Kahn
Lakeland Community College
7700 Clocktower Drive
Kirtland, Ohio 44094

RE: **Pre-Demolition Hazardous Materials Assessment**
T Building, Lakeland Community College, 7700 Clocktower Drive, Kirtland, Ohio
OH47191

Description of Work

EA Group, Mentor, Ohio was contracted by Lakeland Community College to conduct a pre-demolition hazardous materials assessment for T Building of Lakeland Community College at 7700 Clocktower Drive in Kirtland, Ohio. The assessment activities included a survey for asbestos-containing materials (ACMs); an inventory of non-incandescent lighting and other “universal waste” materials, and stored chemicals in large quantities and regulated refrigerants. This report provides the results of the pre-demolition hazardous materials assessment.

Assessment and sampling activities were performed by EA Group representatives Ronald McConnell and Joel McCracken during the period of March 24 to 25, 2026. Precision Pro Cut drilled multiple cores in the concrete slab floor of the building to determine if a vapor barrier was present below the concrete slab.

Asbestos Survey

EA Group’s licensed Asbestos Hazard Evaluation Specialists Ronald McConnell, ES31773, and Joel McCracken, ES552517, inspected the structure, developed a sampling strategy, and procured bulk samples of suspect ACM during a period of March 24 to 25, 2026. Homogeneous Groups of suspect ACM are identified on the *Asbestos Inspection Data Sheet* forms in Appendix A. Classification of any positively identified or assumed ACM has been made per National Emission Standard for Hazardous Air Pollutants (NESHAP) regulations, with notations for compliance with Occupational Safety and Health Administration (OSHA) regulations, if and where applicable. Room/area designations and sampling locations for the survey are provided on the schematics in Appendix A.

Objective and Limitations of the Inspection

The objective of this survey was to identify and sample suspect ACM associated with Building T of Lakeland Community College at 7700 Clocktower Drive in Kirtland, Ohio, which is planned for demolition, pursuant to NESHAP and OSHA regulations.

April 30, 2026 (Revised May 15, 2026)

Lakeland Community College

Pre-Demolition Hazardous Materials Assessment

T Building, Lakeland Community College, 7700 Clocktower Drive, Kirtland, Ohio
OH47191

Page 2

Until such time as foundation/slab demolition proceeds, some suspect materials may not be revealed, including but not limited to foundation waterproofing. If encountered during demolition, this type of material should be sampled to determine if it requires handling as ACM. If sampled and determined to be ACM, substantial additional costs may be incurred.

GENERAL LIMITATIONS

1. EA Group cannot guarantee that all ACM has been identified by this assessment.
2. Additional asbestos materials, not previously identified or quantified, are frequently encountered during renovation or demolition.
3. Actual quantities of asbestos material may vary from any estimates provided in EA Group's report due to identification of additional materials and difficulties in quantifying hidden or inaccessible materials.
4. Prior to demolition or renovation of any structure or equipment, suspect materials that were previously inaccessible or excluded from sampling should be sampled and analyzed for asbestos.

Asbestos Analysis

The bulk samples were analyzed by polarized light microscopy for asbestos content through the laboratory, which is accredited by the National Institute of Standards and Technology – National Voluntary Laboratory Accreditation Program. The United States Environmental Protection Agency requires all materials containing greater than one percent asbestos by weight to be considered asbestos-containing materials. Composite or layered analyses were performed. In all cases that at least one sample from a homogeneous group [Group] was determined to be ACM, the Group as a whole is considered ACM, regardless of the results for any other samples from that Group. Analytical results are provided in Appendix B.

Results of Asbestos Analysis

The materials that were sampled as suspect and were determined to not contain regulated amounts of asbestos are identified in Table 1, which also include materials determined to be assumed ACMs.

Estimated removal costs for the assumed ACMs, based on currently known or estimated quantities and assuming full removal, are provided in Table 2, attached. Estimated costs shown are solely for initial budgeting considerations.



April 30, 2026 (Revised May 15, 2026)

Lakeland Community College

Pre-Demolition Hazardous Materials Assessment

T Building, Lakeland Community College, 7700 Clocktower Drive, Kirtland, Ohio
OH47191

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Core drilling to investigate the potential for vapor barriers under concrete foundation slabs was conducted by Precision Pro Cut. Upon core drilling the concrete slab floor in Room T-111, a non-suspect polyethylene vapor barrier was identified beneath the slab floor. Because the sub-slab vapor barrier consists of a non-suspect material, no further action is required. Upon core drilling the concrete slab floor in Room T-129, a suspect vapor barrier was discovered, sampled, and submitted for analysis. The suspect vapor barrier material (Group Z1) was determined to be non-ACM (no asbestos detected).

If encountered during demolition, foundation waterproofing should be sampled to determine proper handling procedures. If determined to be ACM, cost of handling ACM vapor barriers could be substantial. Costs for the removal of ACM foundation waterproofing, if present and determined to be ACM, are wholly site-specific, and no reasonable cost estimate can be provided.

Any activities that involve the handling or disturbance of ACM should be carried out by a licensed abatement contractor or other appropriately trained personnel in accordance with all applicable regulations.

Non-Incandescent Lighting and “Universal Waste” Materials

The building was inspected for various universal waste-type materials that would need to be addressed prior to or as part of demolition activities. These consisted of non-incandescent lighting fixtures (fluorescent lamps and potential polychlorinated biphenyl [PCB] ballasts); suspect mercury-containing equipment (MCE) (e.g., thermostats, switches); emergency lighting/exit signs, which typically house lead-containing rechargeable batteries [gel cells, sealed lead-acid]; and, refrigerant units that may contain regulated chlorofluorocarbons (CFCs).

Commercial entities that can manage or assist with managing these types of materials can be found at the new/revised Ohio EPA website “<https://recyclesearch.com/profile/ohioepa-recycling-directory>”.

A total of approximately 203 four-foot lamps and 10 one-foot lamps, with an estimated total of 139 ballasts, which may or may not contain PCBs, were noted. If the fixtures cannot be reused, they should all be provided for reclamation because of the mercury in the lamps and possible PCBs in the ballasts.

Twenty-seven exit signs were noted. If these are to be disposed, they would need to be provided for reclamation.

April 30, 2026 (Revised May 15, 2026)

Lakeland Community College

Pre-Demolition Hazardous Materials Assessment

T Building, Lakeland Community College, 7700 Clocktower Drive, Kirtland, Ohio
OH47191

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One suspect mercury-containing thermostat was observed (Room T-134) and will need to be provided for reclamation. A number of HVAC companies provide thermostat recycling programs. Some of the companies are listed at the Ohio EPA website. The Thermostat Recycling Corporation (TRC) is a non-profit corporation that facilitates the collection of all brands of used, wall-mounted mercury-switch thermostats so that the mercury can be re-claimed. Details are available at [www.thermostat-recycle.org/]. Typically, the thermostats are taken at no cost to the owner.

The following miscellaneous chemicals were observed during the site inspection, and will need to be removed for reuse or properly disposed:

- | | | |
|--------------|------------------|------------------------|
| • Room T-217 | Chemtreating | one 5-gallon container |
| • Room T-217 | Loop Formula 21 | one 5-gallon container |
| • Room T-217 | Unknown Material | one 5-gallon container |
| • Room T-134 | Propylene Glycol | one 55-gallon drum |

Regulated Refrigerants

The property was inspected for the presence of refrigerant sources that may contain regulated chlorofluorocarbons (CFCs). At the time of assessment, three drinking fountains and one rooftop unit were observed which may contain regulated CFC refrigerant that would require special handling (extraction of CFCs) if the items are to be disposed.

Characterization of “Demolition Debris”

Representative subsamples of various painted and unpainted building components that would become “demolition debris” were secured from the building and used to form a single composite sample for the building. The sample was analyzed by a laboratory according to TCLP protocol for lead. The results for the analysis are provided in Table 3, attached, and detailed in the laboratory report in Appendix A.

As shown in Table 3, no lead was detected in the sample and, on this basis, the “demolition debris-type” material would not be characteristic hazardous waste due to lead toxicity.



April 30, 2026 (Revised May 15, 2026)

Lakeland Community College

Pre-Demolition Hazardous Materials Assessment

T Building, Lakeland Community College, 7700 Clocktower Drive, Kirtland, Ohio
OH47191

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If you have any questions or concerns regarding the above information, please contact the undersigned. Thank you for consulting EA Group.

Sincerely,

EA Group

A black ink signature of Patrick G. Herbert, consisting of a stylized 'P' followed by a horizontal line and a small flourish.

Patrick G. Herbert,
President

A blue ink signature of Ronald McConnell, written in a cursive style.

Ronald McConnell,
ES31773

A blue ink signature of Joel McCracken, written in a cursive style.

Joel McCracken,
ES552517

003126.23

Table 1 Summary of Results - Building T & Buildings A to E Walkway, Lakeland Community College, Kirtland, Ohio

Group	ID # OH47191	MATERIAL DESCRIPTION	Material Type	RESULT
A	01	12"x12" Floor Tile & mastic; Multi-color)	M/NF1	0
A	02	12"x12" Floor Tile & mastic; Multi-color)	M/NF1	0
A	03	12"x12" Floor Tile & mastic; Multi-color)	M/NF1	0
B	04	2'x4' Ceiling Panel; Horizontal Fissure	M	0
B	05	2'x4' Ceiling Panel; Horizontal Fissure	M	0
B	06	2'x4' Ceiling Panel; Horizontal Fissure	M	0
C	08	2'x4' Ceiling Panel; Deep Pinhole	M	0
C	09	2'x4' Ceiling Panel; Deep Pinhole	M	0
C	10	2'x4' Ceiling Panel; Deep Pinhole	M	0
D	11	2'x4' Ceiling Panel; Light Fissure, Pinhole	M	0
D	12	2'x4' Ceiling Panel; Light Fissure, Pinhole	M	0
D	13	2'x4' Ceiling Panel; Light Fissure, Pinhole	M	0
E	14	2'x4' Ceiling Panel; Pinhole	M	0
E	15	2'x4' Ceiling Panel; Pinhole	M	0
E	16	2'x4' Ceiling Panel; Pinhole	M	0
F	17	Computer Floor Adhesive	M/NF1	0
F	18	Computer Floor Adhesive	M/NF1	0
G	19	Joint Compound	M/NF2	0
G	20	Joint Compound	M/NF2	0
G	21	Joint Compound	M/NF2	0
H	22	Vinyl Cove Base; Tan	M/NF1	0
H	23	Vinyl Cove Base; Tan	M/NF1	0
H	24	Vinyl Cove Base; Tan	M/NF1	0
I	25	Carpet Adhesive; Dark Blue	M/NF1	0
I	26	Carpet Adhesive; Dark Blue	M/NF1	0
I	27	Carpet Adhesive; Dark Blue	M/NF1	0
J	28	Joint Compound (New Construction)	M/NF2	0
J	29	Joint Compound (New Construction)	M/NF2	0
J	30	Joint Compound (New Construction)	M/NF2	0
K	31	Gypsum Wallboard (New Construction)	M/NF2	0
K	32	Gypsum Wallboard (New Construction)	M/NF2	0
K	33	Gypsum Wallboard (New Construction)	M/NF2	0
L	34	Carpet Square Adhesive; Brown/Gray	M/NF1	0
L	35	Carpet Square Adhesive; Brown/Gray	M/NF1	0
L	36	Carpet Square Adhesive; Brown/Gray	M/NF1	0
M	37	Acoustical Wall Carpet Adhesive	M/NF2	0
M	38	Acoustical Wall Carpet Adhesive	M/NF2	0
N	39	Carpet Adhesive (Tan Carpet)	M/NF1	0
N	40	Carpet Adhesive (Tan Carpet)	M/NF1	0

Table 1 Summary of Results - Building T & Buildings A to E Walkway, Lakeland Community College, Kirtland, Ohio

Group	ID # OH47191	MATERIAL DESCRIPTION	Material Type	RESULT
O	41	Vinyl Cove Base; Dark Brown	M/NF1	0
O	42	Vinyl Cove Base; Dark Brown	M/NF1	0
P	43	Gypsum Wallboard	M/NF2	0
P	44	Gypsum Wallboard	M/NF2	0
P	45	Gypsum Wallboard	M/NF2	0
Q	46	Carpet Adhesive (Beige Carpet)	M/NF1	0
Q	47	Carpet Adhesive (Beige Carpet)	M/NF1	0
R	48	Carpet Adhesive (Brown Carpet)	M/NF1	0
R	49	Carpet Adhesive (Brown Carpet)	M/NF1	0
S	50	Vinyl Cove Base; Black	M/NF1	0
S	51	Vinyl Cove Base; Black	M/NF1	0
T	52	Vinyl Cove Base; Rose	M/NF1	0
T	53	Vinyl Cove Base; Rose	M/NF1	0
U	54	Spray-On Fireproofing	S	0
U	55	Spray-On Fireproofing	S	0
U	56	Spray-On Fireproofing	S	0
V	57	Whiteboard Mastic	M/NF2	0
V	58	Whiteboard Mastic	M/NF2	0
V	59	Whiteboard Mastic	M/NF2	0
W	61	HVAC Vibration Dampener	M/NF2	0
W	62	HVAC Vibration Dampener	M/NF2	0
X	63	Vinyl Cove Base; Dark Blue	M/NF1	0
X	64	Vinyl Cove Base; Dark Blue	M/NF1	0
X	65	Vinyl Cove Base; Dark Blue	M/NF1	0
Z	Assumed	Elevator Doors	M/NF2	[+]
Y1	66	12"x12" Floor Tile & mastic; Tan	M/NF1	0
Y1	67	12"x12" Floor Tile & mastic; Tan	M/NF1	0
Z1	68	Vapor Barrier; Slab	M/NF2	0
Z1	69	Vapor Barrier; Slab	M/NF2	0
AA	01*	Built-Up Roofing 1	M/NF1	0
AA	02*	Built-Up Roofing 1	M/NF1	0
AB	03*	Roof Flashing 1	M/NF1	0
AB	04*	Roof Flashing 1	M/NF1	0
AC	05*	Gray Asphalt Plastic Cement	M/NF1	0
AC	06*	Gray Asphalt Plastic Cement	M/NF1	0
AD	07*	Built-Up Roofing 2	M/NF1	0
AD	08*	Built-Up Roofing 2	M/NF1	0
AE	09*	Roof Flashing 2	M/NF1	0
AE	10*	Roof Flashing 2	M/NF1	0

Table 1 Summary of Results - Building T & Buildings A to E Walkway, Lakeland Community College, Kirtland, Ohio

Group	ID # OH47191	MATERIAL DESCRIPTION	Material Type	RESULT
AF	11*	Built-Up Roofing 3	M/NF1	0
AF	12*	Built-Up Roofing 3	M/NF1	0
AH	15*	Roof Flashing 3	M/NF1	0
AH	16*	Roof Flashing 3	M/NF1	0
AG	13*	Built-Up Roofing 4	M/NF1	0
AG	14*	Built-Up Roofing 4	M/NF1	0

Group = Homogeneous Group identification

Material Type: S = Surfacing

T = Thermal System Insulation

M = Miscellaneous

NF1 = Non-Friable Category I

NF2 = Non-Friable Category II

Result: 0 = non-ACM

[+] = ACM

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Table 2. Estimated Cost for Removal of Known or Assumed ACMs

Lakeland Community College

Building T & Buildings A to E Walkway, Lakeland Community College, Kirtland, Ohio

[See NOTE regarding cost estimates]

RACM & Category II Non-Friable¹	H.G.	Units	Estimated Cost Range
<i>Elevator Doors</i>	<i>Z</i>	<i>8 EA</i>	<i>\$4,000 - \$6,400</i>
Total			\$4,000 - \$6,400

H.G. = homogeneous group

RACM = Regulated ACM, by definition

¹ = specific material removal technique may exclude from classification as RACM

Materials in *ITALICS* are considered assumed ACM

**NOTE: Unit cost ranges for various materials are based on known historical bidding results.
Unit costs and estimated cost totals in this table are estimates only,
and do not represent project specific cost estimates.**

Table 3. Summary of Waste Characterization Analysis for Lead
Lakeland Community College
7700 Clocktower Drive, Kirtland, Ohio

May 7, 2026

Sample ID	Materials	TCLP Lead
OH47191- 050726 01TCLP	Demolition Debris	< 0.25

TCLP = Toxicity Characteristic Leaching Procedure

Results for TCLP Lead expressed in milligrams per liter (mg/l).

‡ = concentration exceeds TCLP Hazardous Waste Characteristic

Demolition Debris sample composite of various painted/unpainted interior & exterior materials [concrete, plaster, drywall, etc.]

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APPENDIX A

Asbestos Inspection Data Sheet(s)

General Sample Location Schematic(s)

ASBESTOS INSPECTION DATA SHEET KEY

Client and Project:	Information provided by either Work Order or Scope of Work
Building:	Name or address of building.
Functional Space:	A room, group of rooms, or homogeneous area designated by the inspector to prepare management plans, design abatement projects, or conduct response actions.
Location:	Location of homogeneous material being sampled or occurrence of homogeneous material.
Group:-	An arbitrary designation (number or letter) assigned to each homogeneous material (material that is uniform in color and texture, serves the same function, and was installed at the same time) encountered during sampling.
ID #:	A sample number assigned by the inspector which begins with the work order number (OHXXXXX) at the top of the column and then a unique sample number for each sample. May include an additional suffix (e.g., building ID, sampling date).
Material Description:	Distinguishing characteristics that may include system type, function, size, color, shape etc.
Quantity:	Defined as square feet (SF) [default], linear feet (LF), or individual number of fittings or miscellaneous items, each (EA)
Material Type:	Abbreviations provided on the form as: S Surfacing Material (troweled or sprayed-on) T Thermal System Insulation (TSI) M Miscellaneous (Friable, unless otherwise noted): NF1 - Non-friable Category I NF2 - Non-friable Category II
Material Condition:	Typically noted only for general surveys (e.g., for O&M planning purposes). ND No Damage. The material is in visibly good condition with no apparent/obvious damage. D Damage. Material has damage to less than 10% of the entire homogeneous group or less than 25% of a localized section of the homogeneous group. SD Significant Damage. Material has damage to greater than 10% of the entire homogeneous group or greater than 25% of a localized section of the homogeneous group.
Friable:	When dry, an asbestos-containing material [ACM] is considered friable if it can be crumbled, pulverized, or reduced to powder by <i>hand pressure</i>
Result:	0 = material determined to be non-ACM (no asbestos); [+] = material determined to contain a regulated amount of asbestos (confirmed ACM) Additional notations may be included for specific samples or materials for further clarification, which would be defined under "Comments"

ASBESTOS INSPECTION DATA SHEET

Client: Lakeland Community College			7700 Clocktower Drive, Kirtland, Ohio		Building: T Building and Buildings A to E Walkway				
Project: Pre-Demolition Asbestos Survey					Functional Space: T Building				
LOCATION	Group	ID # OH47191	MATERIAL DESCRIPTION	Quantity	Material		FRIABLE	RESULT	NOTES
					Type	Cond			
T Building	A	01	12"x12" Floor Tile & mastic; Multi-color)					0	
	A	02	12"x12" Floor Tile & mastic; Multi-color)					0	
	A	03	12"x12" Floor Tile & mastic; Multi-color)					0	
	B	04	2'x4' Ceiling Panel; Horizontal Fissure					0	
	B	05	2'x4' Ceiling Panel; Horizontal Fissure					0	
	B	06	2'x4' Ceiling Panel; Horizontal Fissure					0	
	C	08	2'x4' Ceiling Panel; Deep Pinhole					0	
	C	09	2'x4' Ceiling Panel; Deep Pinhole					0	
	C	10	2'x4' Ceiling Panel; Deep Pinhole					0	
	D	11	2'x4' Ceiling Panel; Light Fissure, Pinhole					0	
	D	12	2'x4' Ceiling Panel; Light Fissure, Pinhole					0	
	D	13	2'x4' Ceiling Panel; Light Fissure, Pinhole					0	
<u>MATERIALS:</u> <u>TYPE:</u> S - Surfacing T - Thermal M - Miscellaneous NF1 - Non-friable Cat. I NF2 - Non-friable Cat. II N/S = not suspect <u>CONDITION:</u> [if relevant] ND - No Damage D - Damage SD - Significant Damage		<u>QUANTITY</u> = Square Feet unless noted LF = Linear Feet; EA = each NQ = not quantified <u>FRIABLE:</u> Y = Regulated ACM (RACM) by definition N = not RACM by definition NF1/NF2 may be friable due to condition or may become friable during reno/demo <u>RESULT:</u> 0 - Non-ACM [+] = ACM [no other assessment required] B = Verified by layering/point counting		<u>COMMENTS:</u> * used to differentiate samples with same number					
EA GROUP 7118 Industrial Park Blvd. Mentor, OH 44060-5314 (440) 951-3514			EAG Technician(s): Ronald McConnell Joel McCracken		ES 31773 ES 552517		EAG OH47191		
			Survey Date(s): March 24-25, 2026 and April 7, 2026				Page 1 of 8		

ASBESTOS INSPECTION DATA SHEET

Client: Lakeland Community College			7700 Clocktower Drive, Kirtland, Ohio		Building: T Building and Buildings A to E Walkway				
Project: Pre-Demolition Asbestos Survey					Functional Space: T Building				
LOCATION	Group	ID # OH47191	MATERIAL DESCRIPTION	Quantity	Material		FRIABLE	RESULT	NOTES
					Type	Cond			
T Building	E	14	2'x4' Ceiling Panel; Pinhole					0	
	E	15	2'x4' Ceiling Panel; Pinhole					0	
	E	16	2'x4' Ceiling Panel; Pinhole					0	
	F	17	Computer Floor Adhesive					0	
	F	18	Computer Floor Adhesive					0	
	G	19	Joint Compound					0	
	G	20	Joint Compound					0	
	G	21	Joint Compound					0	
	H	22	Vinyl Cove Base; Tan					0	
	H	23	Vinyl Cove Base; Tan					0	
	H	24	Vinyl Cove Base; Tan					0	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p><u>MATERIALS:</u></p> <p><u>TYPE:</u></p> <p>S - Surfacing</p> <p>T - Thermal</p> <p>M - Miscellaneous</p> <p>NF1 - Non-friable Cat. I</p> <p>NF2 - Non-friable Cat. II</p> <p>N/S = not suspect</p> <p><u>CONDITION:</u> [if relevant]</p> <p>ND - No Damage</p> <p>D - Damage</p> <p>SD - Significant Damage</p> </div> <div style="width: 30%;"> <p><u>QUANTITY</u> = Square Feet unless noted</p> <p>LF = Linear Feet; EA = each</p> <p>NQ = not quantified</p> <p><u>FRIABLE:</u></p> <p>Y = Regulated ACM (RACM) by definition</p> <p>N = not RACM by definition</p> <p>NF1/NF2 may be friable due to condition or may become friable during reno/demo</p> <p><u>RESULT:</u></p> <p>0 - Non-ACM</p> <p>[+] = ACM [no other assessment required]</p> <p>B = Verified by layering/point counting</p> </div> <div style="width: 35%;"> <p><u>COMMENTS:</u></p> <p>* used to differentiate samples with same number</p> </div> </div>									
EA GROUP 7118 Industrial Park Blvd. Mentor, OH 44060-5314 (440) 951-3514			EAG Technician(s): Ronald McConnell Joel McCracken		ES 31773 ES 552517		EAG OH47191		
Survey Date(s): March 24-25, 2026 and April 7, 2026					Page 2 of 8				

ASBESTOS INSPECTION DATA SHEET

Client: Lakeland Community College			7700 Clocktower Drive, Kirtland, Ohio		Building: T Building and Buildings A to E Walkway				
Project: Pre-Demolition Asbestos Survey					Functional Space: T Building				
LOCATION	Group	ID # OH47191	MATERIAL DESCRIPTION	Quantity	Material		FRIABLE	RESULT	NOTES
					Type	Cond			
T Building	I	25	Carpet Adhesive; Dark Blue					0	
	I	26	Carpet Adhesive; Dark Blue					0	
	I	27	Carpet Adhesive; Dark Blue					0	
	J	28	Joint Compound (New Construction)					0	
	J	29	Joint Compound (New Construction)					0	
	J	30	Joint Compound (New Construction)					0	
	K	31	Gypsum Wallboard (New Construction)					0	
	K	32	Gypsum Wallboard (New Construction)					0	
	K	33	Gypsum Wallboard (New Construction)					0	
	L	34	Carpet Square Adhesive; Brown/Gray					0	
	L	35	Carpet Square Adhesive; Brown/Gray					0	
	L	36	Carpet Square Adhesive; Brown/Gray					0	
<u>MATERIALS:</u> <u>TYPE:</u> S - Surfacing T - Thermal M - Miscellaneous NF1 - Non-friable Cat. I NF2 - Non-friable Cat. II N/S = not suspect <u>CONDITION:</u> [if relevant] ND - No Damage D - Damage SD - Significant Damage		<u>QUANTITY</u> = Square Feet unless noted LF = Linear Feet; EA = each NQ = not quantified <u>FRIABLE:</u> Y = Regulated ACM (RACM) by definition N = not RACM by definition NF1/NF2 may be friable due to condition or may become friable during reno/demo <u>RESULT:</u> 0 - Non-ACM [+] = ACM [no other assessment required] B = Verified by layering/point counting		<u>COMMENTS:</u> * used to differentiate samples with same number					
EA GROUP 7118 Industrial Park Blvd. Mentor, OH 44060-5314 (440) 951-3514			EAG Technician(s): Ronald McConnell Joel McCracken		ES 31773 ES 552517		EAG OH47191 Page 3 of 8		
			Survey Date(s): March 24-25, 2026 and April 7, 2026						

ASBESTOS INSPECTION DATA SHEET

Client: Lakeland Community College			7700 Clocktower Drive, Kirtland, Ohio		Building: T Building and Buildings A to E Walkway				
Project: Pre-Demolition Asbestos Survey					Functional Space: T Building				
LOCATION	Group	ID # OH47191	MATERIAL DESCRIPTION	Quantity	Material		FRIABLE	RESULT	NOTES
					Type	Cond			
T Building	M	37	Acoustical Wall Carpet Adhesive					0	
	M	38	Acoustical Wall Carpet Adhesive					0	
	N	39	Carpet Adhesive (Tan Carpet)					0	
	N	40	Carpet Adhesive (Tan Carpet)					0	
	O	41	Vinyl Cove Base; Dark Brown					0	
	O	42	Vinyl Cove Base; Dark Brown					0	
	P	43	Gypsum Wallboard					0	
	P	44	Gypsum Wallboard					0	
	P	45	Gypsum Wallboard					0	
	Q	46	Carpet Adhesive (Beige Carpet)					0	
	Q	47	Carpet Adhesive (Beige Carpet)					0	
<u>MATERIALS:</u> <u>TYPE:</u> S - Surfacing T - Thermal M - Miscellaneous NF1 - Non-friable Cat. I NF2 - Non-friable Cat. II N/S = not suspect <u>CONDITION:</u> [if relevant] ND - No Damage D - Damage SD - Significant Damage		<u>QUANTITY</u> = Square Feet unless noted LF = Linear Feet; EA = each NQ = not quantified <u>FRIABLE:</u> Y = Regulated ACM (RACM) by definition N = not RACM by definition NF1/NF2 may be friable due to condition or may become friable during reno/demo <u>RESULT:</u> 0 - Non-ACM [+] = ACM [no other assessment required] B = Verified by layering/point counting		<u>COMMENTS:</u> * used to differentiate samples with same number					
EA GROUP 7118 Industrial Park Blvd. Mentor, OH 44060-5314 (440) 951-3514			EAG Technician(s): Ronald McConnell Joel McCracken		ES 31773 ES 552517		EAG OH47191 Page 5 of 8		
			Survey Date(s): March 24-25, 2026 and April 7, 2026						

ASBESTOS INSPECTION DATA SHEET

Client: Lakeland Community College			7700 Clocktower Drive, Kirtland, Ohio		Building: T Building and Buildings A to E Walkway				
Project: Pre-Demolition Asbestos Survey					Functional Space: T Building				
LOCATION	Group	ID # OH47191	MATERIAL DESCRIPTION	Quantity	Material		FRIABLE	RESULT	NOTES
					Type	Cond			
T Building	R	48	Carpet Adhesive (Brown Carpet)					0	
	R	49	Carpet Adhesive (Brown Carpet)					0	
	S	50	Vinyl Cove Base; Black					0	
	S	51	Vinyl Cove Base; Black					0	
	T	52	Vinyl Cove Base; Rose					0	
	T	53	Vinyl Cove Base; Rose					0	
	U	54	Spray-On Fireproofing		S			0	
	U	55	Spray-On Fireproofing		S			0	
	U	56	Spray-On Fireproofing		S			0	
	V	57	Whiteboard Mastic					0	
	V	58	Whiteboard Mastic					0	
	V	59	Whiteboard Mastic					0	
<u>MATERIALS:</u> <u>TYPE:</u> S - Surfacing T - Thermal M - Miscellaneous NF1 - Non-friable Cat. I NF2 - Non-friable Cat. II N/S = not suspect <u>CONDITION:</u> [if relevant] ND - No Damage D - Damage SD - Significant Damage		<u>QUANTITY</u> = Square Feet unless noted LF = Linear Feet; EA = each NQ = not quantified <u>FRIABLE:</u> Y = Regulated ACM (RACM) by definition N = not RACM by definition NF1/NF2 may be friable due to condition or may become friable during reno/demo <u>RESULT:</u> 0 - Non-ACM [+] = ACM [no other assessment required] B = Verified by layering/point counting		<u>COMMENTS:</u> * used to differentiate samples with same number					
EA GROUP 7118 Industrial Park Blvd. Mentor, OH 44060-5314 (440) 951-3514			EAG Technician(s): Ronald McConnell Joel McCracken		ES 31773 ES 552517		EAG OH47191 Page 5 of 8		
			Survey Date(s): March 24-25, 2026 and April 7, 2026						

ASBESTOS INSPECTION DATA SHEET

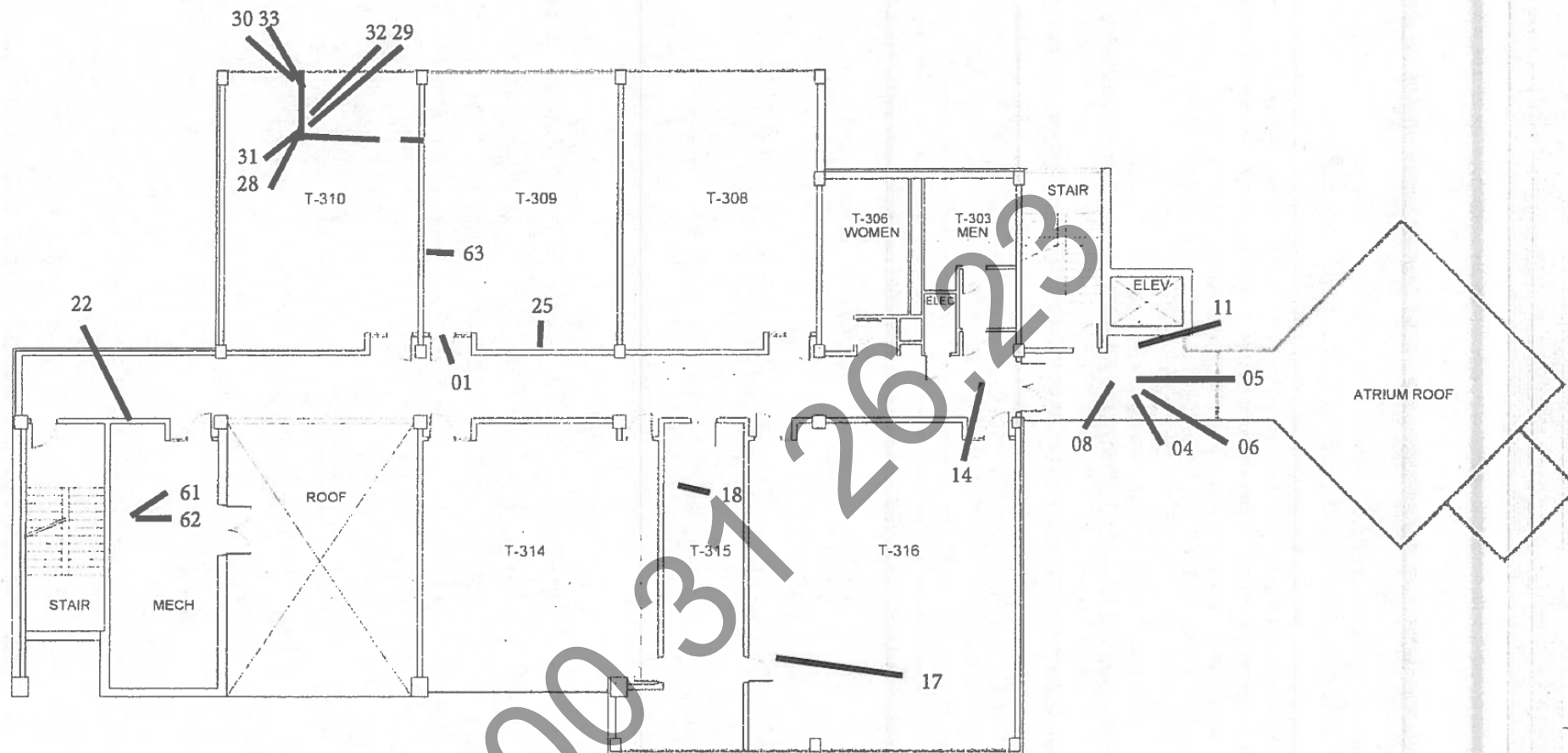
Client: Lakeland Community College			7700 Clocktower Drive, Kirtland, Ohio		Building: T Building and Buildings A to E Walkway				
Project: Pre-Demolition Asbestos Survey					Functional Space: T Building				
LOCATION	Group	ID # OH47191	MATERIAL DESCRIPTION	Quantity	Material		FRIABLE	RESULT	NOTES
					Type	Cond			
T Building	W	61	HVAC Vibration Dampener					0	
	W	62	HVAC Vibration Dampener					0	
	X	63	Vinyl Cove Base; Dark Blue					0	
	X	64	Vinyl Cove Base; Dark Blue					0	
	X	65	Vinyl Cove Base; Dark Blue					0	
	Z	Assumed	Elevator Doors	8 EA	M/NF2		N	[+]	
T-111	Y1	66	12"x12" Floor Tile & mastic; Tan					0	
T-119	Y1	67	12"x12" Floor Tile & mastic; Tan					0	
T-129	Z1	68	Vapor Barrier; Slab					0	
	Z1	69	Vapor Barrier; Slab					0	
T-110, T-112 through T-118	Y1	---	12"x12" Floor Tile & mastic; Tan					0	
<u>MATERIALS:</u> <u>TYPE:</u> S - Surfacing T - Thermal M - Miscellaneous NF1 - Non-friable Cat. I NF2 - Non-friable Cat. II N/S = not suspect <u>CONDITION:</u> [if relevant] ND - No Damage D - Damage SD - Significant Damage		<u>QUANTITY</u> = Square Feet unless noted LF = Linear Feet; EA = each NQ = not quantified <u>FRIABLE:</u> Y = Regulated ACM (RACM) by definition N = not RACM by definition NF1/NF2 may be friable due to condition or may become friable during reno/demo <u>RESULT:</u> 0 - Non-ACM [+] = ACM [no other assessment required] B = Verified by layering/point counting		<u>COMMENTS:</u> * used to differentiate samples with same number					
EA GROUP 7118 Industrial Park Blvd. Mentor, OH 44060-5314 (440) 951-3514			EAG Technician(s): Ronald McConnell Joel McCracken		ES 31773 ES 552517		EAG OH47191 Page 6 of 8		
			Survey Date(s): March 24-25, 2026 and April 7, 2026						

ASBESTOS INSPECTION DATA SHEET

Client: Lakeland Community College			7700 Clocktower Drive, Kirtland, Ohio		Building: T Building and Buildings A to E Walkway				
Project: Pre-Demolition Asbestos Survey					Functional Space: T Building - Roof				
LOCATION	Group	ID # OH47191	MATERIAL DESCRIPTION	Quantity	Material		FRIABLE	RESULT	NOTES
					Type	Cond			
3rd Floor Roof	AA	01*	Built-Up Roofing 1					0	
	AA	02*	Built-Up Roofing 1					0	
	AB	03*	Roof Flashing 1					0	
	AB	04*	Roof Flashing 1					0	
2nd Floor Roof	AC	05*	Gray Asphalt Plastic Cement					0	
	AC	06*	Gray Asphalt Plastic Cement					0	
	AD	07*	Built-Up Roofing 2					0	
	AD	08*	Built-Up Roofing 2					0	
	AE	09*	Roof Flashing 2					0	
	AE	10*	Roof Flashing 2					0	
1st Floor Roof	AF	11*	Built-Up Roofing 3					0	
	AF	12*	Built-Up Roofing 3					0	
<u>MATERIALS:</u> <u>TYPE:</u> S - Surfacing T - Thermal M - Miscellaneous NF1 - Non-friable Cat. I NF2 - Non-friable Cat. II N/S = not suspect <u>CONDITION:</u> [if relevant] ND - No Damage D - Damage SD - Significant Damage		<u>QUANTITY</u> = Square Feet unless noted LF = Linear Feet; EA = each NQ = not quantified <u>FRIABLE:</u> Y = Regulated ACM (RACM) by definition N = not RACM by definition NF1/NF2 may be friable due to condition or may become friable during reno/demo <u>RESULT:</u> 0 - Non-ACM [+] = ACM [no other assessment required] B = Verified by layering/point counting		<u>COMMENTS:</u> * used to differentiate samples with same number					
EA GROUP 7118 Industrial Park Blvd. Mentor, OH 44060-5314 (440) 951-3514			EAG Technician(s): Ronald McConnell Joel McCracken		ES 31773 ES 552517		EAG OH47191 Survey Date(s): March 24-25, 2026 and April 7, 2026		

ASBESTOS INSPECTION DATA SHEET

Client: Lakeland Community College			7700 Clocktower Drive, Kirtland, Ohio		Building: T Building and Buildings A to E Walkway				
Project: Pre-Demolition Asbestos Survey					Functional Space: T Building - Roof and Buildings A to E Walkway				
LOCATION	Group	ID # OH47191	MATERIAL DESCRIPTION	Quantity	Material		FRIABLE	RESULT	NOTES
					Type	Cond			
1st Floor Roof	AH	15*	Roof Flashing 3					0	
	AH	16*	Roof Flashing 3					0	
Connector to E-Bldg	AG	13*	Built-Up Roofing 4					0	
	AG	14*	Built-Up Roofing 4					0	
LCC Elevated Walkway Connecting Bldgs A & E									NO SUSPECT ACM
<u>MATERIALS:</u> <u>TYPE:</u> S - Surfacing T - Thermal M - Miscellaneous NF1 - Non-friable Cat. I NF2 - Non-friable Cat. II N/S = not suspect <u>CONDITION:</u> [if relevant] ND - No Damage D - Damage SD - Significant Damage			<u>QUANTITY</u> = Square Feet unless noted LF = Linear Feet; EA = each NQ = not quantified <u>FRIABLE:</u> Y = Regulated ACM (RACM) by definition N = not RACM by definition NF1/NF2 may be friable due to condition or may become friable during reno/demo <u>RESULT:</u> 0 - Non-ACM [+] = ACM [no other assessment required] B = Verified by layering/point counting			<u>COMMENTS:</u> * used to differentiate samples with same number			
EA GROUP 7118 Industrial Park Blvd. Mentor, OH 44060-5314 (440) 951-3514			EAG Technician(s): Ronald McConnell Joel McCracken		ES 31773 ES 552517		EAG OH47191 Page 8 of 8		
			Survey Date(s): March 24-25, 2026 and April 7, 2026						



T BUILDING – THIRD FLOOR

DRAWING FOR GENERAL REFERENCE PURPOSES ONLY.
 BASE PROVIDED BY CLIENT, ACTUAL ROOM CONFIGURATIONS MAY DIFFER FROM THOSE SHOWN;
 ANNOTATIONS BY EA GROUP. REFER TO SURVEY FOR DETAILS. NOT TO SCALE.

**KEY**

01 Asbestos Sample No. & General Location

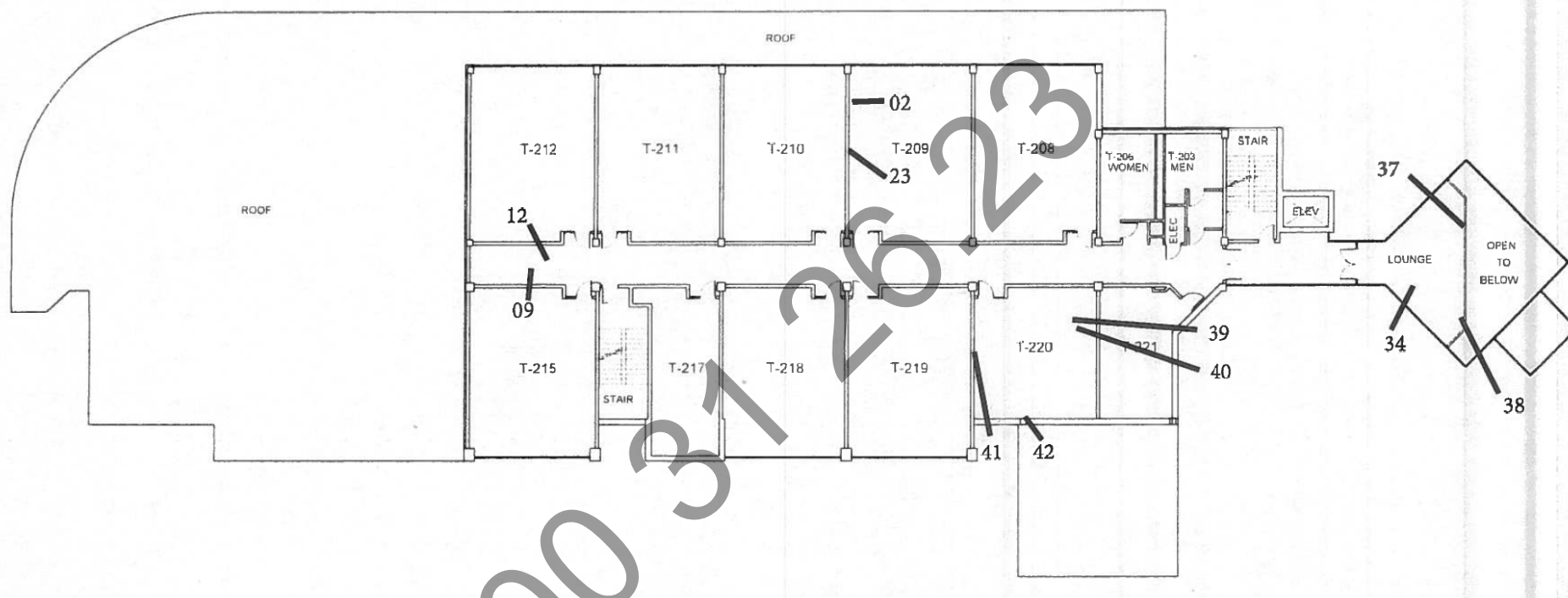
Asbestos Sampling Locations Diagram

Lakeland Community College – T Building
 7700 Clocktower Drive, Kirtland, Ohio

EAG No. OH47191

Date: April 29, 2026

Figure 1



T BUILDING – SECOND FLOOR

DRAWING FOR GENERAL REFERENCE PURPOSES ONLY.
 BASE PROVIDED BY CLIENT, ACTUAL ROOM CONFIGURATIONS MAY DIFFER FROM THOSE SHOWN;
 ANNOTATIONS BY EA GROUP. REFER TO SURVEY FOR DETAILS. NOT TO SCALE.

**KEY**

01 Asbestos Sample No. & General Location

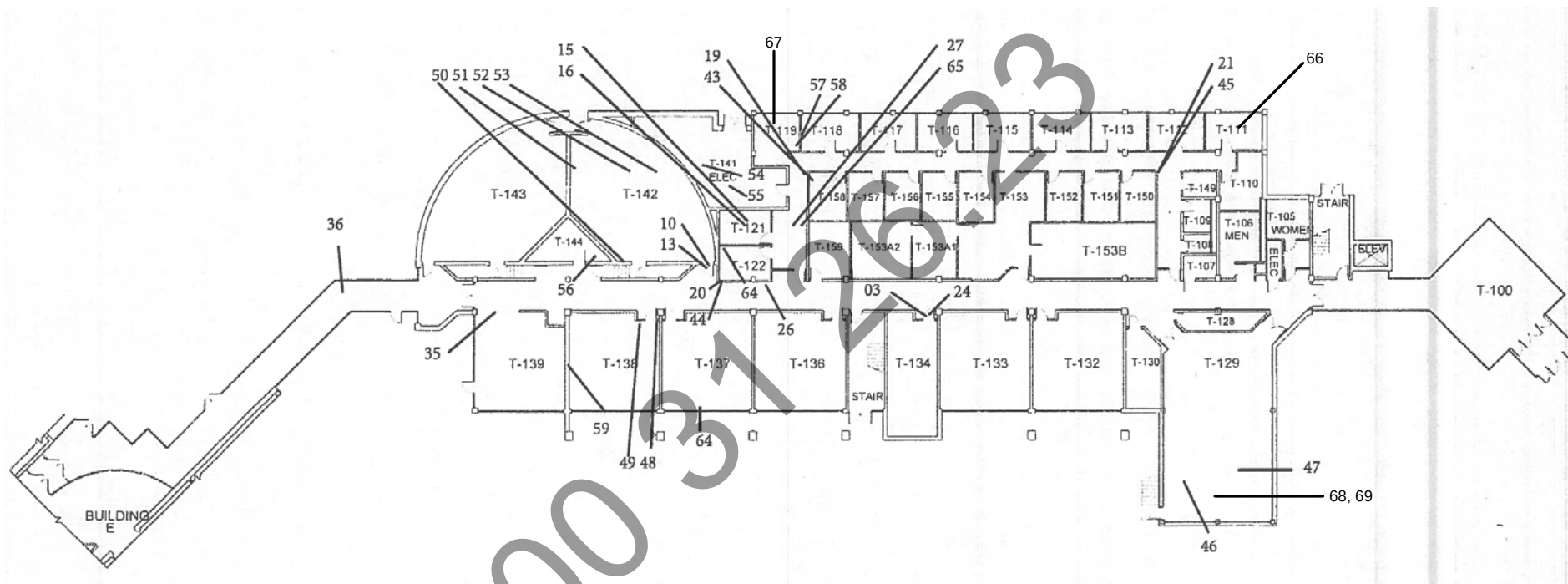
Asbestos Sampling Locations Diagram

Lakeland Community College – T Building
 7700 Clocktower Drive, Kirtland, Ohio

EAG No. OH47191

Date: April 29, 2026

Figure 2



T BUILDING – FIRST FLOOR

**DRAWING FOR GENERAL REFERENCE PURPOSES ONLY.
BASE PROVIDED BY CLIENT, ACTUAL ROOM CONFIGURATIONS MAY DIFFER FROM THOSE SHOWN;
ANNOTATIONS BY EA GROUP. REFER TO SURVEY FOR DETAILS. NOT TO SCALE.**



KEY

01 Asbestos Sample No. & General Location

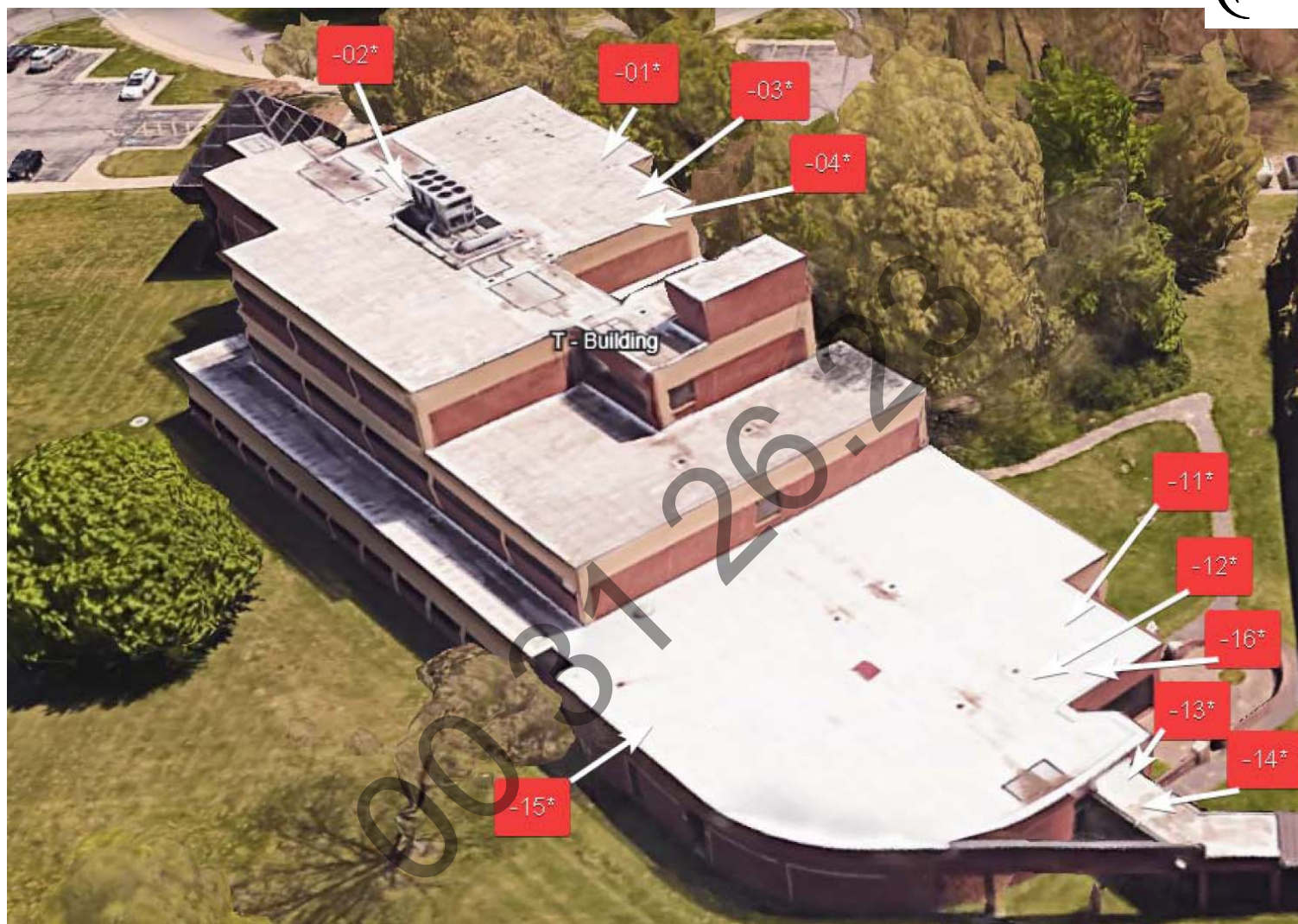
Asbestos Sampling Locations Diagram

Lakeland Community College – T Building
7700 Clocktower Drive, Kirtland, Ohio

EAG No.OH47191

Date: April 29, 2026

Figure 3



T BUILDING – ROOF

KEY

01* Asbestos Sample No. & General Location

Asbestos Sampling Locations Diagram

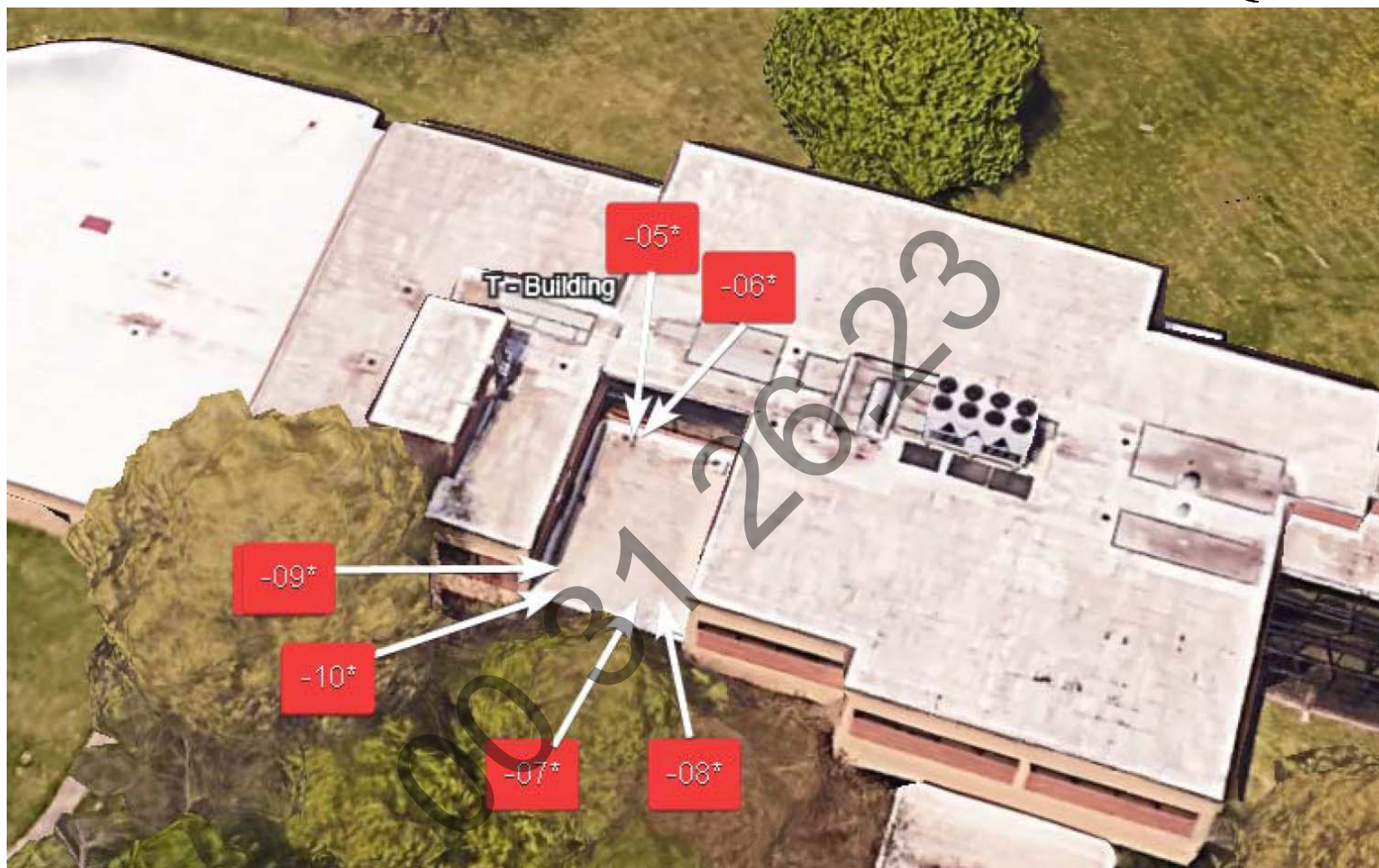
Lakeland Community College – T Building
7700 Clocktower Drive, Kirtland, Ohio

DRAWING FOR GENERAL REFERENCE PURPOSES ONLY.
ACTUAL ROOM CONFIGURATIONS MAY DIFFER FROM THOSE SHOWN; ANNOTATIONS BY EA
GROUP. REFER TO SURVEY FOR DETAILS. NOT TO SCALE.

EAG No. OH47191

Date: April 29, 2026

Figure 4



T BUILDING – ROOF

KEY

01* Asbestos Sample No. & General Location

Asbestos Sampling Locations Diagram

Lakeland Community College – T Building
7700 Clocktower Drive, Kirtland, Ohio

DRAWING FOR GENERAL REFERENCE PURPOSES ONLY.
ACTUAL ROOM CONFIGURATIONS MAY DIFFER FROM THOSE SHOWN; ANNOTATIONS BY EA
GROUP. REFER TO SURVEY FOR DETAILS. NOT TO SCALE.

EAG No. OH47191

Date: April 29, 2026

Figure 5

APPENDIX B

Laboratory Analytical Report(s)

003126.23

Report for:

Mr. Tim Bowen
EA Group
7118 Industrial Park Blvd.
Mentor, OH 44060

Regarding: Eurofins Built Environment Testing East, LLC
Project: OH 47191 - Pre-Demo HMS T Bldg & Catwalk
EML ID: 4473509

Approved by:



Approved Signatory
Frank Ehrenfeld

Dates of Analysis:
Asbestos PLM (Layer %): 04-03-2026

Service SOPs: Asbestos PLM (Layer %) (EPA 40CFR App E to Sub E of Part 763 & EPA 600/R-93-116, EBET-PLM-SOP83921)
NVLAP Lab Code 101165-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins Built Environment Testing East, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: EA Group
C/O: Mr. Tim Bowen

Date of Receipt: 03-31-2026

Re: OH 47191 - Pre-Demo HMS T Bldg & Catwalk Date of Report: 04-03-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
47191-01. A 22480588-1	Layer 1 Blue Floor Tile Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Black Mastic Homogeneity:Good	Not Detected	98% Non-Fibrous Material 2% Cellulose	
47191-02. A 22480589-1	Layer 1 Blue Floor Tile Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Black Mastic Homogeneity:Good	Not Detected	98% Non-Fibrous Material 2% Cellulose	
47191-03. A 22480590-1	Layer 1 Blue Floor Tile Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Black Mastic Homogeneity:Good	Not Detected	98% Non-Fibrous Material 2% Cellulose	
47191-04. B 22480591-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	
47191-05. B 22480592-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	
47191-06. B 22480593-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	
47191-08. C 22480594-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	
47191-09. C 22480595-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	
47191-10. C 22480596-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	
47191-11. D 22480597-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	
47191-12. D 22480598-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	
47191-13. D 22480599-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	

Comments:

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers of that type were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: EA Group
C/O: Mr. Tim Bowen

Date of Receipt: 03-31-2026

Re: OH 47191 - Pre-Demo HMS T Bldg & Catwalk Date of Report: 04-03-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
47191-14. E 22480600-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	
47191-15. E 22480601-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	
47191-16. E 22480602-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Cellulose 30% Glass Fibers 10% Non-Fibrous Material	
47191-17. F 22480603-1	Layer 1 Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-18. F 22480604-1	Layer 1 Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-19. G 22480605-1	Layer 1 White Drywall with Brown Paper Homogeneity:Good	Not Detected	90% Non-Fibrous Material 10% Cellulose	
	Layer 2 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-20. G 22480606-1	Layer 1 White Drywall with Brown Paper Homogeneity:Good	Not Detected	90% Non-Fibrous Material 10% Cellulose	
	Layer 2 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-21. G 22480607-1	Layer 1 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-22. H 22480608-1	Layer 1 Brown Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Beige Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-23. H 22480609-1	Layer 1 Brown Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Beige Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments:

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Client: EA Group
C/O: Mr. Tim Bowen

Date of Receipt: 03-31-2026

Re: OH 47191 - Pre-Demo HMS T Bldg & Catwalk Date of Report: 04-03-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
47191-24. H 22480610-1	Layer 1 Brown Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Beige Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-25. I 22480611-1	Layer 1 Transparent/ Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-26. I 22480612-1	Layer 1 Yellow/ Green Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-27. I 22480613-1	Layer 1 Green Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-28. J 22480614-1	Layer 1 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-29. J 22480615-1	Layer 1 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-30. J 22480616-1	Layer 1 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-31. K 22480617-1	Layer 1 White Drywall with Brown Paper Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Cellulose	
47191-32. K 22480618-1	Layer 1 White Drywall with Brown Paper Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Cellulose	
47191-33. K 22480619-1	Layer 1 White Drywall with Brown Paper Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Cellulose	
47191-34. L 22480620-1	Layer 1 Yellow Carpet Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-35. L 22480621-1	Layer 1 Green/ Gray Carpet Homogeneity:Good	Not Detected	85% Synthetic Fibers 15% Non-Fibrous Material	
	Layer 2 Black Mastic w/ Grey Leveling Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments:

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Client: EA Group
C/O: Mr. Tim Bowen

Date of Receipt: 03-31-2026

Re: OH 47191 - Pre-Demo HMS T Bldg & Catwalk Date of Report: 04-03-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
47191-36. L 22480622-1(cont.)	Layer 1 Green/ Gray Carpet Homogeneity:Good	Not Detected	85% Synthetic Fibers 15% Non-Fibrous Material	
	Layer 2 Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 3 Transparent Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-37. M 22480623-1	Layer 1 Gray Carpet Homogeneity:Good	Not Detected	90% Synthetic Fibers 10% Non-Fibrous Material	
	Layer 2 Tan Woven Material Homogeneity:Good	Not Detected	100% Cellulose	
	Layer 3 Tan Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 4 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-38. M 22480624-1	Layer 1 Tan Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-39. N 22480625-1	Layer 1 Multi-colored Carpet Homogeneity:Good	Not Detected	90% Synthetic Fibers 10% Non-Fibrous Material	

Comments:

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Client: EA Group
C/O: Mr. Tim Bowen

Date of Receipt: 03-31-2026

Re: OH 47191 - Pre-Demo HMS T Bldg & Catwalk Date of Report: 04-03-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
47191-39. N 22480625-1(cont.)	Layer 2 Beige Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 3 Black Mastic w/ Gray Leveling Compound Homogeneity:Moderate	Not Detected	100% Non-Fibrous Material	
47191-40. N 22480626-1	Layer 1 Multi-colored Carpet Homogeneity:Good	Not Detected	90% Synthetic Fibers 10% Non-Fibrous Material	
	Layer 2 Beige Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 3 Gray Leveling Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-41. O 22480627-1	Layer 1 Black Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Beige Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-42. O 22480628-1	Layer 1 Black Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Beige Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-43. P 22480629-1	Layer 1 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 1 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-44. P 22480630-1	Layer 1 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 White Tape Homogeneity:Good	Not Detected	100% Cellulose	

Comments:

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers of that type were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

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Client: EA Group
 C/O: Mr. Tim Bowen

Date of Receipt: 03-31-2026

Re: OH 47191 - Pre-Demo HMS T Bldg & Catwalk Date of Report: 04-03-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
47191-45. P 22480631-1	Layer 1 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 White Drywall Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-46. Q 22480632-1	Layer 1 Gray Carpet Homogeneity:Good	Not Detected	95% Synthetic Fibers 5% Non-Fibrous Material	
	Layer 2 Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-47. Q 22480633-1	Layer 1 Gray Carpet Homogeneity:Good	Not Detected	95% Synthetic Fibers 5% Non-Fibrous Material	
	Layer 2 Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-48. R 22480634-1	Layer 1 Gray Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Beige Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-49. R 22480635-1	Layer 1 Gray Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Beige Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-50. S 22480636-1	Layer 1 Black Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Beige Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments:

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: EA Group
C/O: Mr. Tim Bowen

Date of Receipt: 03-31-2026

Re: OH 47191 - Pre-Demo HMS T Bldg & Catwalk Date of Report: 04-03-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
47191-51. S 22480637-1(cont.)	Layer 1 Black Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Beige Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-52. T 22480638-1	Layer 1 Gray Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Tan Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-53. T 22480639-1	Layer 1 Gray Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Tan Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-54. U 22480640-1	Layer 1 Gray Fireproofing Homogeneity:Good	Not Detected	95% Glass Fibers 5% Non-Fibrous Material	
47191-55. U 22480641-1	Layer 1 Gray Fireproofing Homogeneity:Good	Not Detected	95% Glass Fibers 5% Non-Fibrous Material	
47191-56. U 22480642-1	Layer 1 Gray Fireproofing Homogeneity:Good	Not Detected	95% Glass Fibers 5% Non-Fibrous Material	
47191-57. V 22480643-1	Layer 1 Tan Glue Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-58. V 22480644-1	Layer 1 Tan Glue Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments:

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

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Client: EA Group
C/O: Mr. Tim Bowen

Date of Receipt: 03-31-2026

Re: OH 47191 - Pre-Demo HMS T Bldg & Catwalk Date of Report: 04-03-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
47191-59. V 22480645-1	Layer 1 Tan Glue Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-61. W 22480646-1	Layer 1 Black Vapor Barrier Homogeneity:Good	Not Detected	80% Non-Fibrous Material 20% Synthetic Fibers	
47191-62. W 22480647-1	Layer 1 Black Vapor Barrier Homogeneity:Good	Not Detected	80% Non-Fibrous Material 20% Synthetic Fibers	
47191-63. X 22480648-1	Layer 1 Blue Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Tan Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-64. X 22480649-1	Layer 1 Blue Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Tan Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
47191-65. X 22480650-1	Layer 1 Blue Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Tan Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments:

Analyst(s): Maxamillian Roselli

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

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‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: EA Group

C/O: Mr. Tim Bowen

Re: OH 47191 - Pre-Demo HMS T Bldg & Catwalk

Date of Receipt: 03-31-2026

Date of Report: 04-03-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

PROJECT ANALYST AND SIGNATORY REPORT

Project Analyst



Analyst: Maxamillian Roselli

00 31 26.23

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".



Chain of Custody

- Bulk Asbestos -

Contact Information

Client Company: EA Group
Office Address: 7118 Industrial Park Blvd
City, State, Zip: Mentor, Ohio 44060
Fax Number: 440-951-3774
Email Address: tbowen@eagroupohio.com

Project Number: OH 47191
Project Name: Pre-Demo HMS T Bldg & Catwalk
Primary Contact: Tim Bowen
Office Phone: 440-951-3514
Cell Phone:

PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- ☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- ☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- ☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

☒ PLM: Point Counting

- ☐ PC: via ELAP 198.1
- ☒ PC: 400 Points
- ☐ PC: 800 Points *
- ☐ PC: 1600 Points *

☒ PLM: Instructions for Multi-Layered Samples

- ☒ Analyze and Report All Separable Layers per EPA 600
- ☐ Report Composite for Drywall Systems per NESHAP
- ☐ Report All Layers and Composite Where Applicable
- ☐ Only Analyze and Report Specifically Noted Layer

☐ PLM: Analyze Until Positive (Positive Stop)

- ☐ AUP: by Homogenous Area as Noted
- ☐ AUP: by Material Type as Noted
- ☐ PLM: NOB via 198.6
- ☐ PLM: Friable via EPA 600 2.3
- ☐ If <1% by PLM, to TEM via 198.4 *
- ☐ If <1% by PLM, Hold for Instructions

☐ PLM: Non-Building Material *** (Dust, Wipe, Tape)

- ☐ Soil or Vermiculite Analysis
- ☐ CARB 435

Special Instructions:

* Additional charge and turnaround may be required

** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory

Turnaround Time

Preliminary Results Requested Date:

☐ Verbal ☒ Email ☐ Fax

☐ 10 Day ☒ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	R. McConnell AHES31773	Date:	03/26/2026	Time:	4:45 pm
Received (Name / IATL):		Date:		Time:	
Sample Login (Name / IATL):		Date:		Time:	
Analysis (Name(s) / IATL):		Date:		Time:	
QA/QC Review (Name / IATL):		Date:		Time:	
Archived / Released:	QA/QC InterLAB Use:	Date:		Time:	



Sample Log

—Bulk Asbestos—

Client: **EA Group**

Project: **OH 47191**

Sampling Date/Time: **03/23/2025 @ 3:00pm**

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
47191-01		A	
47191-02		A	
47191-03		A	
47191-04		B	
47191-05		B	
47191-06		B	
47191-08		C	
47191-09		C	
47191-10		C	
47191-11		D	
47191-12		D	
47191-13		D	
47191-14		E	
47191-15		E	
47191-16		E	
47191-17		F	



Sample Log

—Bulk Asbestos—

Client: **EA Group**

Project: **OH 47191**

Sampling Date/Time: **03/23/2025 @ 3:00pm**

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
47191-18		F	
47191-19		G	
47191-20		G	
47191-21		G	
47191-22		H	
47191-23		H	
47191-24		H	
47191-25		I	
47191-26		I	
47191-27		I	
47191-28		J	
47191-29		J	
47191-30		J	
47191-31		K	
47191-32		K	
47191-33		K	



Sample Log

—Bulk Asbestos—

Client: **EA Group**

Project: **OH 47191**

Sampling Date/Time: **03/23/2025 @ 3:00pm**

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
47191-34		L	
47191-35		L	
47191-36		L	
47191-37		M	
47191-38		M	
47191-39		N	
47191-40		N	
47191-41		O	
47191-42		O	
47191-43		P	
47191-44		P	
47191-45		P	
47191-46		Q	
47191-47		Q	
47191-48		R	
47191-49		R	



004473509

Sample Log

—Bulk Asbestos—

Client: **EA Group**

Project: **OH 47191**

Sampling Date/Time: **03/23/2025 @ 3:00pm**

Bulk Asbestos Sample Log			
Client Sample #	IATL #	Location/Description	Notes
47191-50		S	
47191-51		S	
47191-52		T	
47191-53		T	
47191-54		U	
47191-55		U	
47191-56		U	
47191-57		V	
47191-58		V	
47191-59		V	
47191-61		W	
47191-62		W	
47191-63		X	
47191-64		X	
47191-65		X	

Report for:

Mr. Tim Bowen
EA Group
7118 Industrial Park Blvd.
Mentor, OH 44060

Regarding: Eurofins Built Environment Testing East, LLC
Project: OH47191 - Lakeland T-Bldg.
EML ID: 4484812

Approved by:



Approved Signatory
Frank Ehrenfeld

Dates of Analysis:
Asbestos PLM (Layer %): 04-13-2026

Service SOPs: Asbestos PLM (Layer %) (EPA 40CFR App E to Sub E of Part 763 & EPA 600/R-93-116, EBET-PLM-SOP83921)
NVLAP Lab Code 101165-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins Built Environment Testing East, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: EA Group
 C/O: Mr. Tim Bowen
 Re: OH47191 - Lakeland T-Bldg.

Date of Receipt: 04-08-2026
 Date of Report: 04-13-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
OH47191-040726-66. Group Y 22541115-1	Layer 1 Olive Green Floor Tile Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Black Mastic Homogeneity:Good	Not Detected	99% Non-Fibrous Material 1% Cellulose	
	Layer 3 Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
OH47191-040726-67. Group Y 22541116-1	Layer 1 Olive Green Floor Tile Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Black Mastic Homogeneity:Good	Not Detected	99% Non-Fibrous Material 1% Cellulose	
	Layer 3 Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
OH47191-040726-68. Group Z 22541117-1	Layer 1 Black Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
OH47191-040726-69. Group Z 22541118-1	Layer 1 Black Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments:

Analyst(s): Ellen Smith

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: EA Group
C/O: Mr. Tim Bowen
Re: OH47191 - Lakeland T-Bldg.

Date of Receipt: 04-08-2026
Date of Report: 04-13-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

PROJECT ANALYST AND SIGNATORY REPORT

Project Analyst



Analyst: Ellen Smith

003126.23

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".



Chain of Custody

- Bulk Asbestos -

Contact Information

Client Company: EA Group
Office Address: 7118 Industrial Park Blvd
City, State, Zip: Mentor, Ohio 44060
Fax Number: 440-951-3774
Email Address: tbowen@eagroupohio.com

Project Number: OH 47191
Project Name: Lakeview T-Bldg
Primary Contact: Tim Bowen
Office Phone: 440-851-3514
Cell Phone: _____

PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600/R-93/116, 1993
☐ PLM: Bulk Asbestos Building Materials EPA 600/M-4782-020, 1982
☐ PLM: Bulk Asbestos Building Materials NIOSH 9802, 1985
☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009
- ☒ PLM: Point Counting:
☐ PC: via ELAP 198.1
☒ PC: 400 Points
☐ PC: 800 Points *
☐ PC: 1600 Points *
- ☒ PLM: Instructions for Multi-Layered Samples
☒ Analyze and Report All Separable Layers per EPA 600
☐ Report Composite for Drywall Systems per NESHAP
☐ Report All Layers and Composite Where Applicable
☐ Only Analyze and Report Specifically Noted Layer
- ☐ PLM: Analyze Until Positive (Positive Stop)
☐ AUP: by Homogenous Area as Noted
☐ AUP: by Material Type as Noted
☐ PLM: NOB via 198.6
☐ PLM: Reliable via EPA 600 2.3
☐ If <1% by PLM, to TEM via 198.4 *
☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material ** (Dust, Wipe, Tape)
☐ Soil or Vermiculite Analysis
☐ CARB 435

Special Instructions:

* Additional charge and turnaround may be required ** Alternative Method (ex: EPA 600/R-94/004) may be recommended by Laboratory

Turnaround Time

Preliminary Results Requested Date: 04/14/2026 { 13:00 } ☐ Verbal ☒ Email ☐ Fax

Specify date / time
☐ 10 Day ☒ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified, ** Matrix Dependent. *** Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization): EA Group Date: 04/07/2026 Time: 13:45
Received (Name / iATL): _____ Date: _____ Time: _____
Sample Login (Name / iATL): _____ Date: _____ Time: _____
Analysis (Name(s) / iATL): _____ Date: _____ Time: _____
QA/QC Review (Name / iATL): _____ Date: _____ Time: _____
Archived / Released: _____ QA/QC InterLAB Use: _____ Date: _____ Time: _____

Report for:

Mr. Tim Bowen
EA Group
7118 Industrial Park Blvd.
Mentor, OH 44060

Regarding: Eurofins Built Environment Testing East, LLC
Project: OH47191 - Lakeland T Bldg
EML ID: 4500997

Approved by:



Approved Signatory
Frank Ehrenfeld

Dates of Analysis:
Asbestos PLM (Layer %): 04-28-2026

Service SOPs: Asbestos PLM (Layer %) (EPA 40CFR App E to Sub E of Part 763 & EPA 600/R-93-116, EBET-PLM-SOP83921)
NVLAP Lab Code 101165-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins Built Environment Testing East, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: EA Group
C/O: Mr. Tim Bowen
Re: OH47191 - Lakeland T Bldg

Date of Receipt: 04-20-2026
Date of Report: 04-28-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
OH47191-041726-01. Group A 22631051-1	Layer 1 White/ Black Roofing Membrane Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Synthetic Fibers	
	Layer 2 Black Roofing Material Homogeneity:Good	Not Detected	80% Non-Fibrous Material 20% Glass Fibers	
	Layer 3 Black Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 4 Black Tar Paper Homogeneity:Good	Not Detected	60% Cellulose 40% Non-Fibrous Material	
	Layer 5 Dark Gray Roofing Felt Homogeneity:Good	Not Detected	60% Cellulose 20% Glass Fibers 20% Non-Fibrous Material	
	Layer 6 Yellow Foam Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 7 Brown Fiberboard Homogeneity:Good	Not Detected	100% Cellulose	
OH47191-041726-02. Group A 22631052-1	Layer 1 White/ Black Roofing Membrane Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Synthetic Fibers	
	Layer 2 Black Roofing Material Homogeneity:Good	Not Detected	80% Non-Fibrous Material 20% Glass Fibers	

Comments:

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: EA Group
C/O: Mr. Tim Bowen
Re: OH47191 - Lakeland T Bldg

Date of Receipt: 04-20-2026
Date of Report: 04-28-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
OH47191-041726-02. Group A 22631052-1(cont.)	Layer 3 Black Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 4 Black Tar Paper Homogeneity:Good	Not Detected	60% Cellulose 40% Non-Fibrous Material	
	Layer 5 Dark Gray Roofing Felt Homogeneity:Good	Not Detected	60% Cellulose 20% Glass Fibers 20% Non-Fibrous Material	
	Layer 6 Yellow Foam Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 7 Brown Fiberboard Homogeneity:Good	Not Detected	100% Cellulose	
OH47191-041726-03. Group B 22631053-1	Layer 1 White/ Black Roofing Membrane Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Glass Fibers	
	Layer 2 Black Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 3 Black Roofing Felt Homogeneity:Good	Not Detected	70% Non-Fibrous Material 30% Glass Fibers	
OH47191-041726-04. Group B 22631054-1	Layer 1 Silver/ Black Roofing Material Homogeneity:Good	Not Detected	80% Non-Fibrous Material 20% Glass Fibers	
	Layer 2 White/ Silver Roofing Material Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments:

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

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Client: EA Group
C/O: Mr. Tim Bowen
Re: OH47191 - Lakeland T Bldg

Date of Receipt: 04-20-2026
Date of Report: 04-28-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
OH47191-041726-05. Group C 22631055-1(cont.)	Layer 1 Silver/ Black Roof Flashing Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 White/ Black Roofing Material Homogeneity:Good	Not Detected	90% Non-Fibrous Material 10% Glass Fibers	
	Layer 3 Black Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
OH47191-041726-06. Group C 22631056-1	Layer 1 Silver/ Black Roof Flashing Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 White/ Black Roofing Material Homogeneity:Good	Not Detected	90% Non-Fibrous Material 10% Glass Fibers	
	Layer 3 Black Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
OH47191-041726-07. Group D 22631057-1	Layer 1 White/ Black Roofing Material Homogeneity:Good	Not Detected	80% Non-Fibrous Material 20% Glass Fibers	
	Layer 2 Black/White Roofing Membrane Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 3 Black Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 4 Black Roofing Felt Homogeneity:Good	Not Detected	60% Cellulose 20% Glass Fibers 20% Non-Fibrous Material	

Comments:

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: EA Group
C/O: Mr. Tim Bowen
Re: OH47191 - Lakeland T Bldg

Date of Receipt: 04-20-2026
Date of Report: 04-28-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
OH47191-041726-07. Group D 22631057-1(cont.)	Layer 5 Yellow Foam Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 6 Brown Fiberboard Homogeneity:Good	Not Detected	100% Cellulose	
OH47191-041726-08. Group D 22631058-1	Layer 1 White/ Black Roofing Material Homogeneity:Good	Not Detected	80% Non-Fibrous Material 20% Glass Fibers	
	Layer 2 Black/White Roofing Membrane Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 3 Black Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 4 Black Roofing Felt Homogeneity:Good	Not Detected	60% Cellulose 20% Glass Fibers 20% Non-Fibrous Material	
	Layer 5 Yellow Foam Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 6 Brown Fiberboard Homogeneity:Good	Not Detected	100% Cellulose	
OH47191-041726-09. Group E 22631059-1	Layer 1 White/ Black Roofing Material Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Glass Fibers	
	Layer 2 Black Roofing Felt Homogeneity:Good	Not Detected	70% Non-Fibrous Material 15% Glass Fibers 15% Synthetic Fibers	
	Layer 3 Black Roofing Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments:

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Client: EA Group
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Date of Receipt: 04-20-2026
Date of Report: 04-28-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
OH47191-041726-10. Group E 22631060-1	Layer 1 White/ Black Roofing Material Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Glass Fibers	
	Layer 2 Black Roofing Felt Homogeneity:Good	Not Detected	70% Non-Fibrous Material 15% Glass Fibers 15% Synthetic Fibers	
	Layer 3 Black Roofing Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
OH47191-041726-11. Group F 22631061-1	Layer 1 Black Roofing Membrane Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 White/ Black Roofing Material Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Glass Fibers	
	Layer 3 Black Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 4 Black Roofing Felt Homogeneity:Good	Not Detected	60% Cellulose 20% Glass Fibers 20% Non-Fibrous Material	
	Layer 5 Yellow Foam Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 6 Brown Fiberboard Homogeneity:Good	Not Detected	100% Cellulose	
OH47191-041726-12. Group F 22631062-1	Layer 1 Black Roofing Membrane Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments:

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Client: EA Group
 C/O: Mr. Tim Bowen
 Re: OH47191 - Lakeland T Bldg

Date of Receipt: 04-20-2026
 Date of Report: 04-28-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
OH47191-041726-12. Group F 22631062-1(cont.)	Layer 2 White/ Black Roofing Material Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Glass Fibers	
	Layer 3 Black Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 4 Black Roofing Felt Homogeneity:Good	Not Detected	60% Cellulose 20% Glass Fibers 20% Non-Fibrous Material	
	Layer 5 Yellow Foam Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 6 Brown Fiberboard Homogeneity:Good	Not Detected	100% Cellulose	
OH47191-041726-13. Group G 22631063-1	Layer 1 White/ Black Roofing Membrane Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Glass Fibers	
	Layer 2 Black Roofing Membrane Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 3 Black Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 4 Dark Gray Roofing Felt Homogeneity:Good	Not Detected	60% Cellulose 20% Glass Fibers 20% Non-Fibrous Material	

Comments:

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Client: EA Group
C/O: Mr. Tim Bowen
Re: OH47191 - Lakeland T Bldg

Date of Receipt: 04-20-2026
Date of Report: 04-28-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
OH47191-041726-13. Group G 22631063-1(cont.)	Layer 5 Yellow Foam Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 6 Brown Fiberboard Homogeneity:Good	Not Detected	100% Cellulose	
OH47191-041726-14. Group G 22631064-1	Layer 1 White/ Black Roofing Membrane Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Glass Fibers	
	Layer 2 Black Roofing Membrane Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 3 Black Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 4 Dark Gray Roofing Felt Homogeneity:Good	Not Detected	60% Cellulose 20% Glass Fibers 20% Non-Fibrous Material	
	Layer 5 Yellow Foam Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 6 Brown Fiberboard Homogeneity:Good	Not Detected	100% Cellulose	
OH47191-041726-15. Group H 22631065-1	Layer 1 White/ Black Roofing Material Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Glass Fibers	
	Layer 2 Black Roofing Material Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Glass Fibers	

Comments:

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Client: EA Group
C/O: Mr. Tim Bowen
Re: OH47191 - Lakeland T Bldg

Date of Receipt: 04-20-2026
Date of Report: 04-28-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
OH47191-041726-15. Group H 22631065-1(cont.)	Layer 3 Black Roofing Tar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 4 Gray Cementitious Material Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 5 Tan Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
OH47191-041726-16. Group H 22631066-1	Layer 1 White/ Black Roofing Material Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Glass Fibers	

Comments:

Analyst(s): Maxamillian Roselli

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Client: EA Group
C/O: Mr. Tim Bowen
Re: OH47191 - Lakeland T Bldg

Date of Receipt: 04-20-2026
Date of Report: 04-28-2026

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

PROJECT ANALYST AND SIGNATORY REPORT

Project Analyst



Analyst: Maxamillian Roselli

003126.23

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".



Chain of Custody

- Bulk Asbestos -

Contact Information

Client Company: EA Group
Office Address: 7118 Industrial Park Blvd
City, State, Zip: Mentor, Ohio 44060
Fax Number: 440-951-3774
Email Address: tbowen@eagroupohio.com

Project Number: OH 47191
Project Name: Lakeland T. Bldg
Primary Contact: Tim Bowen
Office Phone: 440-951-3514
Cell Phone: _____

PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009
- ☒ PLM: Point Counting
☐ PC: via ELAP 198.1
☒ PC: 400 Points
☐ PC: 800 Points *
☐ PC: 1600 Points *
- ☒ PLM: Instructions for Multi-Layered Samples
☒ Analyze and Report All Separable Layers per EPA 600
☐ Report Composite for Drywall Systems per NESHAP
☐ Report All Layers and Composite Where Applicable
☐ Only Analyze and Report Specifically Noted Layer
- ☐ PLM: Analyze Until Positive (Positive Stop)
☐ AUP: by Homogenous Area as Noted
☐ AUP: by Material Type as Noted
☐ PLM: NOB via 198.6
☐ PLM: Friable via EPA 600 2.3
☐ If <1% by PLM, to TEM via 198.4 *
☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material*** (Dust, Wipe, Tape)
☐ Soil or Vermiculite Analysis
☐ CARB 435

Special Instructions:

* Additional charge and turnaround may be required. ** Alternative Method (ex: EPA 600/R-04/00-0) may be recommended by Laboratory

Turnaround Time

Preliminary Results Requested Date: 04-26-2020 1300 ☐ Verbal ☒ Email ☐ Fax

Specific date / time
☐ 10 Day ☒ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. *** Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization): <u>JAN/EA Group</u>	Date: <u>04-26-2020</u>	Time: <u>10:15 AM</u>
Received (Name / iATL): _____	Date: _____	Time: _____
Sample Login (Name / iATL): _____	Date: _____	Time: _____
Analyst(s) (Name(s) / iATL): _____	Date: _____	Time: _____
QA/QC Review (Name / iATL): _____	Date: _____	Time: _____
Archived / Released: _____	QA/QC InterLAB Use: _____	Date: _____

004500997

Sample Log

-Bulk Asbestos-

Client: **EA Group**

Project: **OH 47191**

Sampling Date/Time: **04-17-26 / 10:00**

Bulk Asbestos Sample Log			
Client Sample #	IATL #	Location/Description	Notes
047191-041726-01		Group A	
-02		↓	
-03		Group B	
-04		↓	
-05		Group C	
-06		↓	
-07		Group D	
-08		↓	
-09		Group E	
-10		↓	
-11		Group F	
-12		↓	
-13		Group G	
-14		↓	
-15		Group H	
-16		↓	

ANALYTICAL REPORT

PREPARED FOR

Attn: Tim Bowen
EA Group
7118 Industrial Park Blvd
Mentor, Ohio 44060

Generated 5/14/2026 11:12:53 PM

JOB DESCRIPTION

Lakeland CC OH47191

JOB NUMBER

240-250104-1

Eurofins Cleveland

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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5/14/2026 11:12:53 PM

Authorized for release by
Nicole Kalis, Project Manager I
Nicole.Kalis@et.eurofinsus.com
(330)497-9396

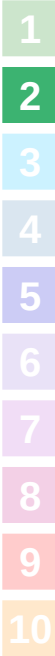


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Client Sample Results	6
Lab Chronicle	7
Certification Summary	8
Method Summary	9
Sample Summary	10
Chain of Custody	11

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Definitions/Glossary

Client: EA Group
Project/Site: Lakeland CC OH47191

Job ID: 240-250104-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: EA Group
Project: Lakeland CC OH47191

Job ID: 240-250104-1

Job ID: 240-250104-1

Eurofins Cleveland

Job Narrative 240-250104-1

The analytical test results presented in this report meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page, unless otherwise noted. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable. Regulated compliance samples (e.g. SDWA, NPDES) must comply with associated agency requirements/permits.

- Matrix-specific batch QC (e.g., MS, MSD, SD) may not be reported when insufficient sample volume is available or when site-specific QC samples are not submitted. In such cases, a Laboratory Control Sample Duplicate (LCSD) may be analyzed to provide precision data for the batch.
- For samples analyzed using surrogate and/or isotope dilution analytes, any recoveries falling outside of established acceptance criteria are re-prepared and/or re-analyzed to confirm results, unless the deviation is due to sample dilution or otherwise explained in the case narrative.

Receipt

The sample was received on 5/8/2026 11:00 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 22.1°C.

Metals

Method 6020B - TCLP: The following sample was diluted due to the nature of the sample matrix: OH47191-050726-01TCLP (240-250104-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Eurofins Cleveland

Client Sample Results

Client: EA Group
Project/Site: Lakeland CC OH47191

Job ID: 240-250104-1

Client Sample ID: OH47191-050726-01TCLP

Lab Sample ID: 240-250104-1

Date Collected: 05/07/26 15:00

Matrix: Solid

Date Received: 05/08/26 11:00

Method: SW846 6020B - Metals (ICP/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.250		mg/L		05/12/26 14:00	05/13/26 20:42	5

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Lab Chronicle

Client: EA Group
Project/Site: Lakeland CC OH47191

Job ID: 240-250104-1

Client Sample ID: OH47191-050726-01TCLP

Lab Sample ID: 240-250104-1

Date Collected: 05/07/26 15:00

Matrix: Solid

Date Received: 05/08/26 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			701400	DRJ	EET CLE	05/11/26 17:35 - 05/12/26 09:40 ¹
TCLP	Prep	3010A			701489	MN7X	EET CLE	05/12/26 14:00
TCLP	Analysis	6020B		5	701745	AJC	EET CLE	05/13/26 20:42

¹ This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:
EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

003126.23

Accreditation/Certification Summary

Client: EA Group
Project/Site: Lakeland CC OH47191

Job ID: 240-250104-1

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Connecticut	State	PH-0806	09-30-26
Georgia	State	4062	02-27-27
Illinois	NELAP	200004	08-31-26
Iowa	State	421	06-01-27
Kansas	NELAP	E-10336	01-31-27
Kentucky (UST)	State	112225	02-28-27
Kentucky (WW)	State	KY98016	12-31-26
Michigan	State	9135	01-10-27
Minnesota	NELAP	039-999-348	12-31-26
New Hampshire	NELAP	2250	09-30-26
New Jersey	NELAP	OH001	06-30-26
New York	NELAP	10975	04-01-27
Ohio	State	8303	02-28-27
Ohio VAP	State	ORELAP 4062	02-28-27
Oregon	NELAP	4062	02-27-27
Pennsylvania	NELAP	68-00340	08-31-26
Texas	NELAP	T104704517	08-31-26
US Fish & Wildlife	US Federal Programs	A26406	02-28-27
USDA	US Federal Programs	525-24-5-34740	01-05-27
Virginia	NELAP	460175	09-30-26
West Virginia DEP	State	210	12-31-26
Wisconsin	State	399167560	08-31-26

Method Summary

Client: EA Group
Project/Site: Lakeland CC OH47191

Job ID: 240-250104-1

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	EET CLE
1311	TCLP Extraction	SW846	EET CLE
3010A	Preparation, Total Metals	SW846	EET CLE

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

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Sample Summary

Client: EA Group
Project/Site: Lakeland CC OH47191

Job ID: 240-250104-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Sample Origin
240-250104-1	OH47191-050726-01TCLP	Solid	05/07/26 15:00	05/08/26 11:00	Ohio

003126.23

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

Barberton, OH 44203-3543
phone 330.497.9396 fax 330.497.0772

phone 330.497.9396 fax 330.497.0772

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Eurofins Environment Testing America

[illegible]

Eurofins - Cleveland Sample Receipt Form/Narrative		Login # : _____	
Barberton Facility			
Client <u>EA Group</u>		Site Name _____	
Cooler Received on <u>5/8/26</u>		Opened on <u>5/8/26</u>	
FedEx: 1 st Grd (Exp) <u>UPS</u> FAS Waypoint Client Drop Off Eurofins Courier Other _____		Cooler unpacked by: <u>IM</u>	
Receipt After-hours: Drop-off Date/Time _____		Storage Location _____	
Eurofins Cooler # <u>EC-103</u>		Foam Box Client Cooler Box Other <u>Envelope</u>	
Packing material used: Bubble Wrap Foam Plastic Bag None Other _____			
COOLANT: Wet Ice Blue Ice Dry Ice Water None			
1 Cooler temperature upon receipt _____		☐ See Multiple Cooler Form	
IR GUN # <u>2</u> (CF <u>0.1</u> °C) Observed Cooler Temp. <u>22.2</u> °C		Corrected Cooler Temp. <u>22.1</u> °C	
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____		Yes ☒ No ☐	
-Were the seals on the outside of the cooler(s) signed & dated?		Yes ☐ No ☒ NA	
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		Yes ☐ No ☒ NA	
-Were tamper/custody seals intact and uncompromised?		Yes ☐ No ☒ NA	
3 Shippers' packing slip attached to the cooler(s)?		Yes ☐ No ☒	
4 Did custody papers accompany the sample(s)?		Yes ☐ No ☒	
5 Were the custody papers relinquished & signed in the appropriate place?		Yes ☐ No ☒	
6 Was/were the person(s) who collected the samples clearly identified on the COC?		Yes ☐ No ☒	
7 Did all bottles arrive in good condition (Unbroken)?		Yes ☐ No ☒	
8 Could all bottle labels (ID/Date/Time) be reconciled with the COC?		Yes ☐ No ☒	
9 For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?		Yes ☐ No ☒	
10 Were correct bottle(s) used for the test(s) indicated?		Yes ☐ No ☒	
11 Sufficient quantity received to perform indicated analyses?		Yes ☐ No ☒	
12 Are these work share samples and all listed on the COC?		Yes ☐ No ☒	
If yes, Questions 13-17 have been checked at the originating laboratory			
13 Were all preserved sample(s) at the correct pH upon receipt?		Yes ☐ No ☒ NA pH Strip Lot# HC574455	
14 Were VOAs on the COC?		Yes ☐ No ☒ NA	
15 Were air bubbles >6 mm in any VOA vials? ☒ Larger than this.		Yes ☐ No ☒ NA	
16 Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____		Yes ☐ No ☒	
17 Was a LL Hg or Me Hg trip blank present?		Yes ☐ No ☒	
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____			
Concerning _____			

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page		Labeled by: _____
		Labels Verified by: _____
19. SAMPLE CONDITION		
Sample(s) _____ were received after the recommended holding time had expired.		
Sample(s) _____ were received in a broken container		
Sample(s) _____ were received with bubble >6 mm in diameter (Notify PM)		
20. SAMPLE PRESERVATION		
Sample(s) _____ were further preserved in the laboratory		
Time preserved _____ Preservative(s) added/Lot number(s) _____		
VOA Sample Preservation - Date/Time VOAs Frozen. _____		

Temperature readings _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u>		<u>Preservation</u>	<u>Preservation</u>
			<u>pH</u>	<u>Temp</u>	<u>Added</u>	<u>Lot Number</u>
OH47191-050726-01TCLP	240-250104-A-1	Plastic Bag	_____	_____	_____	_____

003126.23

August 21, 2026

Mr. Jay Kahn
Lakeland Community College
7700 Clocktower Drive
Kirtland, Ohio 44094
(440) 353-1166

Re: Supplemental Inspection for Asbestos-Containing Materials
T-Building and E-Building Northwest Vestibule
Project Number GA26-062

Dear Mr. Kahn:

In accordance with our Agreement, we completed a supplemental pre-demolition inspection for asbestos-containing materials at T-Building and Northwest Vestibule of E-Building. Scope of work included the following: review of EA Group's Pre-Demolition Hazardous Materials Assessment (Revised May 15, 2026); sampling suspect asbestos-containing materials that were not included in EA Group's Report; sampling of suspect materials found E-Building's Northwest Vestibule (attached to covered walkway to T-Building); and sampling of cement board tabletops in E-Building. **As noted on attached bulk sample records, samples of the following materials were analyzed and found to contain asbestos: cement board tabletops in E-Building; and interior storefront window glazing tape found in both E-Building's Northwest Vestibule and T-Building First Floor Main Corridor.** All other suspect materials included in scope of this supplemental inspection were analyzed and found not to contain asbestos.

Attached bulk samples records (BSRs) have been provided to report our asbestos findings. Locations (based on drawings provided in EA Group's Report) of procured samples are designated on BSRs. These records also characterize suspect materials in terms of sampling areas based on their visual characteristics, location in a facility, date of installation, and constituents as determined by laboratory analyses.

When concluded that a material does or does not contain asbestos, based on laboratory analyses of samples procured, we are stating that there is likelihood that constituents of suspect materials are accurately characterized by samples procured. It cannot be categorically concluded that sampled materials are represented by analyzed samples. If one sample of a homogeneous material is found to contain asbestos, the material is judged accordingly. However, if sampling and laboratory analyses indicate that no asbestos was detected, it cannot be guaranteed that this material is asbestos-free.

Laboratory reports for analyzed samples, signatures of laboratory technician(s) who analyzed samples, laboratory accreditation information, synopsis of applicable asbestos regulations for demolition work, and credentials of Inspector are also attached. A copy of this Report and EA Group's Report should be kept onsite during demolition and renovation work.

Should you have any questions, please do not hesitate to contact us.

Sincerely,

Matt Wodkowski

Matt Wodkowski
Ohio-Certified Asbestos Hazard Evaluation Specialist No. ES33827

Attachments

Bulk Sample Record Summary

E & T Buildings Lakeland Community College

Bulk Sample Record No.	Material Type	Construction Unit	Reported Asbestos Content
01	cement board	E-Building (circa 1985)	15%
02	mastic	E-Building (circa 1985)	NAD
03	glazing tape	E-Building (circa 1985)	5%
04	caulking	E-Building (circa 1985)	NAD
05	resilient floor covering	E-Building (circa 1985)	NAD
06	mastic	E-Building (circa 1985)	NAD
07	resilient floor covering	E-Building (circa 1985)	NAD
08	mastic	E-Building (circa 1985)	NAD
09	gypsum board system	E-Building (circa 1985)	NAD
10	glazing tape	T-Building (1989)	4%
11	mastic	T-Building (1989)	NAD
12	other	T-Building (1989)	NAD
13	firestopping	T-Building (1989)	NAD
14	mastic	T-Building (1989)	NAD
15	caulking	T-Building (1989)	NAD

Bulk Sample Record No.	Material Type	Construction Unit	Reported Asbestos Content
16	resilient floor covering	T-Building (1989)	NAD
17	fire door	T-Building (1989)	NAD
18	preformed block insulation	T-Building (1989)	NAD

ABBREVIATIONS

AACM: assumed asbestos-containing material

AAFM: assumed asbestos-free material

ACM: asbestos-containing material

NAD: no asbestos detected

BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	01
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	E-Building (circa 1985)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Cement board		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Laboratory tabletops. Estimated quantity is that provided by Owner to account for all tables they would like to have removed and properly disposed.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	15%
ESTIMATED QUANTITY OF MATERIAL:	120 ct
SAMPLE DATA:	

Sample Number	Sample Location	Lab Results	PLM	PT CT	TEM
26-062-01-1001	Science Lab	15% Chrys.	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	02
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	E-Building (circa 1985)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Mastic		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Carpet square adhesive. Carpet squares are green. Mastic is black. At locations from which samples were procured and/or as observed during field work, carpet was applied to concrete. Additional substrates may be present.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL:	Not Estimated
SAMPLE DATA:	

Sample Number	Sample Location	Lab Results	PLM	PT CT	TEM
26-062-01-1002	Northwest Vestibule	NAD	☒	☐	☐
26-062-01-1003	Northwest Vestibule	NAD	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	03
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	E-Building (circa 1985)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Glazing tape		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Seals associated with one interior storefront assembly within Northwest Vestibule. Glazing tape is black.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	5%
ESTIMATED QUANTITY OF MATERIAL:	5 sf
SAMPLE DATA:	

<u>Sample Number</u>	<u>Sample Location</u>	<u>Lab Results</u>	<u>PLM</u>	<u>PT CT</u>	<u>TEM</u>
26-062-01-1004	Northwest Vestibule	5% Chrys.	☒	☐	☐
26-062-01-1005	Northwest Vestibule	NA	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	04
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	E-Building (circa 1985)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Caulking		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Sealant associated with interior and exterior storefront assemblies. Caulking is black.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL:	Not Estimated

SAMPLE DATA:					
Sample Number	Sample Location	Lab Results	PLM	PT CT	TEM
26-062-01-1006	Northwest Vestibule	NAD	☒	☐	☐
26-062-01-1007	Exterior (outside Northwest Vestibule)	NAD	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	05
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	E-Building (circa 1985)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	12" x 12" Resilient floor covering; tile (T) & mastic (M)		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Floor covering system. Tiles are blue-green. Mastic is a mixture of yellow and black. At locations from which samples were procured and/or as observed during field work, tiles were applied to concrete. Additional substrates may be present.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL:	Not Estimated
SAMPLE DATA:	

Sample Number	Sample Location	Lab Results	PLM	PT CT	TEM
26-062-01-1008	Northwest Vestibule	NAD (T); NAD (M)	☒	☐	☐
26-062-01-1009	Northwest Vestibule	NAD (T); NAD (M)	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	06
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	E-Building (circa 1985)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Mastic		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Carpet square adhesive. Carpet squares are grey. Mastic is yellow. At locations from which samples were procured and/or as observed during field work, carpet was applied to concrete. Additional substrates may be present.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL:	Not Estimated
SAMPLE DATA:	

Sample Number	Sample Location	Lab Results	PLM	PT CT	TEM
26-062-01-1010	Northwest Vestibule	NAD	☒	☐	☐
26-062-01-1011	Northwest Vestibule	NAD	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	07
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	E-Building (circa 1985)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Sheet resilient floor covering; sheeting (S) & mastic (M)		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Floor covering system. Sheeting is light grey. Mastic is yellow. At locations from which samples were procured and/or as observed during field work, sheeting was applied to concrete. Additional substrates may be present.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL:	Not Estimated
SAMPLE DATA:	

Sample Number	Sample Location	Lab Results	PLM	PT CT	TEM
26-062-01-1012	Northwest Vestibule	NAD (S); NAD (M)	☒	☐	☐
26-062-01-1013	Northwest Vestibule	NAD (S); NAD (M)	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER: Lakeland Community College
FACILITY: E & T Buildings
CONSTRUCTION UNIT: E-Building (circa 1985)
TYPE OF MATERIAL: Mastic
CLASSIFICATION OF MATERIAL: Miscellaneous Material

SAMPLE RECORD NUMBER: 08
DATE: 8/4/2026
INSPECTOR: Matt Wodkowski

DESCRIPTION OF SAMPLING AREA:

Resilient wall base adhesive. Base is 4" grey. Mastic is yellow.

MANUFACTURER IDENTIFICATION: Unknown
REPORTED ASBESTOS CONTENT: No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL: Not Estimated

SAMPLE DATA:

<u>Sample Number</u>	<u>Sample Location</u>	<u>Lab Results</u>	<u>PLM</u>	<u>PT CT</u>	<u>TEM</u>
26-062-01-1014	Northwest Vestibule	NAD	☒	☐	☐
26-062-01-1015	Northwest Vestibule	NAD	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	09
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	E-Building (circa 1985)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Gypsum board (G) with compound (C)		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Wall system. At locations from which samples were procured and/or as observed during field work, gypsum board was installed over studs. Additional gypsum board system components may be present.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL:	Not Estimated
SAMPLE DATA:	

Sample Number	Sample Location	Lab Results	PLM	PT CT	TEM
26-062-01-1016	Northwest Vestibule	NAD (G); NAD (C)	☒	☐	☐
26-062-01-1017	Northwest Vestibule	NAD (G); NAD (C)	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	10
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	T-Building (1989)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Glazing tape		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Seals associated with one interior storefront assembly in Corridor (1st Flr.). Glazing tape is black. This material is Category II nonfriable material and can be treated as a non-regulated asbestos-containing material that do not have to be removed prior to demolition if standard demolition procedures will be used.

MANUFACTURER IDENTIFICATION: Unknown

REPORTED ASBESTOS CONTENT: 4%

ESTIMATED QUANTITY OF MATERIAL: 5 sf

SAMPLE DATA:

Sample Number	Sample Location	Lab Results	PLM	PT CT	TEM
26-062-01-1018	Corridor (1st Flr.)	4% Chrys.	☒	☐	☐
26-062-01-1019	Corridor (1st Flr.)	NA	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER: Lakeland Community College
FACILITY: E & T Buildings
CONSTRUCTION UNIT: T-Building (1989)
TYPE OF MATERIAL: Mastic
CLASSIFICATION OF MATERIAL: Miscellaneous Material

SAMPLE RECORD NUMBER: 11
DATE: 8/4/2026
INSPECTOR: Matt Wodkowski

DESCRIPTION OF SAMPLING AREA:

Lag seal on ends of glass fiber pipe insulation (Y). Mastic is white (M).

MANUFACTURER IDENTIFICATION: Unknown
REPORTED ASBESTOS CONTENT: No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL: Not Estimated

SAMPLE DATA:

<u>Sample Number</u>	<u>Sample Location</u>	<u>Lab Results</u>	<u>PLM</u>	<u>PT CT</u>	<u>TEM</u>
26-062-01-1020	Room T-134	NAD (Y); NAD (M)	☒	☐	☐
26-062-01-1021	Room T-315	NAD (Y); NAD (M)	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER: Lakeland Community College
FACILITY: E & T Buildings
CONSTRUCTION UNIT: T-Building (1989)
TYPE OF MATERIAL: EIFS
CLASSIFICATION OF MATERIAL: Miscellaneous Material

SAMPLE RECORD NUMBER: 12
DATE: 8/4/2026
INSPECTOR: Matt Wodkowski

DESCRIPTION OF SAMPLING AREA:

Exterior finish.

MANUFACTURER IDENTIFICATION: Unknown
REPORTED ASBESTOS CONTENT: No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL: Not Estimated

SAMPLE DATA:

<u>Sample Number</u>	<u>Sample Location</u>	<u>Lab Results</u>	<u>PLM</u>	<u>PT CT</u>	<u>TEM</u>
26-062-01-1022	Exterior (outside Room T-138)	NAD	☒	☐	☐
26-062-01-1023	Exterior (outside Room T-133)	NAD	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	13
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	T-Building (1989)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Firestopping		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Material associated with penetrations for conduits. Firestopping is red.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL:	Not Estimated
SAMPLE DATA:	

<u>Sample Number</u>	<u>Sample Location</u>	<u>Lab Results</u>	<u>PLM</u>	<u>PT CT</u>	<u>TEM</u>
26-062-01-1024	Room T-315	NAD	☒	☐	☐
26-062-01-1025	Room T-217	NAD	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	14
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	T-Building (1989)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Mastic		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Duct seam sealant. Mastic is grey.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL:	Not Estimated

SAMPLE DATA:					
<u>Sample Number</u>	<u>Sample Location</u>	<u>Lab Results</u>	<u>PLM</u>	<u>PT CT</u>	<u>TEM</u>
26-062-01-1026	Room T-315	NAD	☒	☐	☐
26-062-01-1027	Room T-315	NAD	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

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BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	15
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	T-Building (1989)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Caulking		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Sealant associated with exterior storefront and window assemblies. Caulking is black.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL:	Not Estimated

SAMPLE DATA:					
<u>Sample Number</u>	<u>Sample Location</u>	<u>Lab Results</u>	<u>PLM</u>	<u>PT CT</u>	<u>TEM</u>
26-062-01-1028	Exterior (outside Room T-139)	NAD	☒	☐	☐
26-062-01-1029	Exterior (outside Room T-136)	NAD	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

Print Date 8/25/2026

BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	16
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	T-Building (1989)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Sheet resilient floor covering; sheeting (S) & mastic (M)		
CLASSIFICATION OF MATERIAL:	Miscellaneous Material		
DESCRIPTION OF SAMPLING AREA:			

Stairwell landing system. Sheeting is grey. Mastic is tan. At locations from which samples were procured and/or as observed during field work, sheeting was applied to concrete. Additional substrates may be present.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL:	Not Estimated
SAMPLE DATA:	

Sample Number	Sample Location	Lab Results	PLM	PT CT	TEM
26-062-01-1030	Stairwell North (2nd Flr.)	NAD (S); NAD (M)	☒	☐	☐
26-062-01-1031	Stairwell North (1st Flr.)	NAD (S); NAD (M)	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

Print Date 8/25/2026

BULK SAMPLE RECORD

OWNER: Lakeland Community College
FACILITY: E & T Buildings
CONSTRUCTION UNIT: T-Building (1989)
TYPE OF MATERIAL: Fire door

SAMPLE RECORD NUMBER: 17
DATE: 8/4/2026
INSPECTOR: Matt Wodkowski

CLASSIFICATION OF MATERIAL: Miscellaneous Material

DESCRIPTION OF SAMPLING AREA:

Fire door core insulation. Insulation is white.

MANUFACTURER IDENTIFICATION: Unknown

REPORTED ASBESTOS CONTENT: No Asbestos Detected

ESTIMATED QUANTITY OF MATERIAL: Not Estimated

SAMPLE DATA:

<u>Sample Number</u>	<u>Sample Location</u>	<u>Lab Results</u>	<u>PLM</u>	<u>PT CT</u>	<u>TEM</u>
26-062-01-1032	Main Corridor (1st Flr.)	NAD	☒	☐	☐
26-062-01-1033	Main Corridor (1st Flr.)	NAD	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

Print Date 8/25/2026

BULK SAMPLE RECORD

OWNER:	Lakeland Community College	SAMPLE RECORD NUMBER:	18
FACILITY:	E & T Buildings	DATE:	8/4/2026
CONSTRUCTION UNIT:	T-Building (1989)	INSPECTOR:	Matt Wodkowski
TYPE OF MATERIAL:	Preformed block		
CLASSIFICATION OF MATERIAL:	Thermal System Insulation		
DESCRIPTION OF SAMPLING AREA:			

Emergency generator exhaust insulation. Preformed block is white.

MANUFACTURER IDENTIFICATION:	Unknown
REPORTED ASBESTOS CONTENT:	No Asbestos Detected
ESTIMATED QUANTITY OF MATERIAL:	Not Estimated

SAMPLE DATA:

Sample Number	Sample Location	Lab Results	PLM	PT CT	TEM
26-062-01-1034	Room T-141	NAD	☒	☐	☐
26-062-01-1035	Room T-141	NAD	☒	☐	☐
26-062-01-1036	Room T-141	NAD	☒	☐	☐

ABBREVIATIONS

AC: above ceiling	Croc.: crocidolite asbestos	NAD: no asbestos detected	RR: Rest Room
Actin.: actinolite asbestos	flrs.: floors	PC: Pipe Chase	TEM: transmission electron microscopy
Amos.: amosite asbestos	JC: Janitor's Closet	PLM: polarized light microscopy	Trem.: tremolite asbestos
Chrys.: chrysotile asbestos	NA: not analyzed	pt. ct.: point count	

Print Date 8/25/2026



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and
40 CFR, Part 763, Subpart E, App.E



Customer: Gandee and Associates
5676 State Route 521 Ste A
Delaware, OH 43015

Attn: Jill Lawrenz

Lab Order ID: 10114994

Analysis: PLM

Date Received: 08/06/2026

Date Reported: 08/10/2026

Project: Lakeland CC

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
26-062-01-1001	Cement board	15% Chrysotile		85% Other	Black Non-Fibrous Homogeneous
10114994_0001					Ashed
26-062-01-1002	Mastic	None Detected		100% Other	Black Non-Fibrous Homogeneous
10114994_0002					Ashed
26-062-01-1003	Mastic	None Detected		100% Other	Black Non-Fibrous Homogeneous
10114994_0003					Ashed
26-062-01-1004	Glazing tape	5% Chrysotile		95% Other	Black Non-Fibrous Homogeneous
10114994_0004					Ashed
26-062-01-1005	Glazing tape	Not Analyzed			
10114994_0005					
26-062-01-1006	Caulk	None Detected		100% Other	Black Non-Fibrous Homogeneous
10114994_0006					Ashed
26-062-01-1007	Caulk	None Detected		100% Other	Black Non-Fibrous Homogeneous
10114994_0007					Ashed
26-062-01-1008 - A	Resilient floor covering; tile and mastic	None Detected		100% Other	Blue Non-Fibrous Homogeneous
10114994_0008	floor covering				Dissolved

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommend that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Analytical uncertainty available upon request. Scientific Analytical Institute participates in the NVLAP Proficiency Testing program. Unless otherwise noted blank sample correction was not performed. Estimated MDL is 0.1%.

Leo Shaffer (44)

Analyst

Nathaniel J. Durham

Approved Signatory



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and
40 CFR, Part 763, Subpart E, App.E



Customer: Gandee and Associates
5676 State Route 521 Ste A
Delaware, OH 43015

Attn: Jill Lawrenz

Lab Order ID: 10114994

Analysis: PLM

Date Received: 08/06/2026

Date Reported: 08/10/2026

Project: Lakeland CC

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
26-062-01-1008 - B	Resilient floor covering; tile and mastic	None Detected		100% Other	Black, Yellow Non-Fibrous Homogeneous
10114994_0037	mixed mastic				Dissolved
26-062-01-1009 - A	Resilient floor covering; tile and mastic	None Detected		100% Other	Black Non-Fibrous Homogeneous
10114994_0009	floor covering				Dissolved
26-062-01-1009 - B	Resilient floor covering; tile and mastic	None Detected		100% Other	Yellow Non-Fibrous Homogeneous
10114994_0038	mastic				Dissolved
26-062-01-1010	Mastic	None Detected		100% Other	Tan Non-Fibrous Homogeneous
10114994_0010					Ashed
26-062-01-1011	Mastic	None Detected		100% Other	Tan Non-Fibrous Homogeneous
10114994_0011					Ashed
26-062-01-1012 - A	Sheet flooring and mastic	None Detected		100% Other	Beige Non-Fibrous Homogeneous
10114994_0012	sheet flooring				Ashed
26-062-01-1012 - B	Sheet flooring and mastic	None Detected		100% Other	Yellow Non-Fibrous Homogeneous
10114994_0039	mastic				Ashed
26-062-01-1013 - A	Sheet flooring and mastic	None Detected		100% Other	Beige Non-Fibrous Homogeneous
10114994_0013	sheet flooring				Ashed

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Leo Shaffer (44)

Analyst

Nathaniel J. Durham

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Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and
40 CFR, Part 763, Subpart E, App.E



Customer: Gandee and Associates
5676 State Route 521 Ste A
Delaware, OH 43015

Attn: Jill Lawrenz

Lab Order ID: 10114994

Analysis: PLM

Date Received: 08/06/2026

Date Reported: 08/10/2026

Project: Lakeland CC

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
26-062-01-1013 - B	Sheet flooring and mastic	None Detected		100% Other	Yellow Non-Fibrous Homogeneous
10114994_0040	mastic				Ashed
26-062-01-1014	Mastic	None Detected		100% Other	Yellow Non-Fibrous Homogeneous
10114994_0014					Ashed
26-062-01-1015	Mastic	None Detected		100% Other	Yellow Non-Fibrous Homogeneous
10114994_0015					Ashed
26-062-01-1016	Gypsum board and compound	None Detected	10% Cellulose	90% Other	White Non-Fibrous Homogeneous
10114994_0016	gypsum board: none detected; joint compound: none detected				Crushed
26-062-01-1017	Gypsum board and compound	None Detected	10% Cellulose	90% Other	White Non-Fibrous Homogeneous
10114994_0017	gypsum board: none detected; joint compound: none detected				Crushed
26-062-01-1018	Glazing tape	4% Chrysotile		96% Other	Black Non-Fibrous Homogeneous
10114994_0018					Ashed
26-062-01-1019	Glazing tape	Not Analyzed			
10114994_0019					
26-062-01-1020 - A	Mastic	None Detected		100% Other	White Non-Fibrous Homogeneous
10114994_0020	mastic				Ashed

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Leo Shaffer (44)

Analyst

Nathaniel Durham

Approved Signatory



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and
40 CFR, Part 763, Subpart E, App.E



Customer: Gandee and Associates
5676 State Route 521 Ste A
Delaware, OH 43015

Attn: Jill Lawrenz

Lab Order ID: 10114994

Analysis: PLM

Date Received: 08/06/2026

Date Reported: 08/10/2026

Project: Lakeland CC

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
26-062-01-1020 - B	Mastic	None Detected	90% Fiber Glass	10% Other	Yellow Fibrous Homogeneous
10114994_0041	insulation				Ashed
26-062-01-1021 - A	Mastic	None Detected		100% Other	White Non-Fibrous Homogeneous
10114994_0021	mastic				Ashed
26-062-01-1021 - B	Mastic	None Detected	90% Fiber Glass	10% Other	Yellow Fibrous Homogeneous
10114994_0042	insulation				Ashed
26-062-01-1022	EIFS	None Detected	10% Fiber Glass	90% Other	Tan, Gray Non-Fibrous Homogeneous
10114994_0022					Crushed, Ashed
26-062-01-1023	EIFS	None Detected	10% Fiber Glass	90% Other	Tan, Gray Non-Fibrous Homogeneous
10114994_0023					Crushed, Ashed
26-062-01-1024	Firestopping	None Detected		100% Other	Red Non-Fibrous Homogeneous
10114994_0024					Ashed
26-062-01-1025	Firestopping	None Detected		100% Other	Red Non-Fibrous Homogeneous
10114994_0025					Ashed
26-062-01-1026	Mastic	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10114994_0026					Ashed

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Analyst

Nathaniel Durham

Approved Signatory



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and
40 CFR, Part 763, Subpart E, App.E



Customer: Gandee and Associates
5676 State Route 521 Ste A
Delaware, OH 43015

Attn: Jill Lawrenz

Lab Order ID: 10114994

Analysis: PLM

Date Received: 08/06/2026

Date Reported: 08/10/2026

Project: Lakeland CC

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
26-062-01-1027	Mastic	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10114994_0027					Ashed
26-062-01-1028	Caulk	None Detected		100% Other	Black Non-Fibrous Homogeneous
10114994_0028					Ashed
26-062-01-1029	Caulk	None Detected		100% Other	Black Non-Fibrous Homogeneous
10114994_0029					Ashed
26-062-01-1030 - A	Sheet flooring and mastic	None Detected		100% Other	Beige Non-Fibrous Homogeneous
10114994_0030	sheet flooring				Ashed
26-062-01-1030 - B	Sheet flooring and mastic	None Detected		100% Other	Yellow Non-Fibrous Homogeneous
10114994_0043	mastic				Ashed
26-062-01-1031 - A	Sheet flooring and mastic	None Detected		100% Other	Beige Non-Fibrous Homogeneous
10114994_0031	sheet flooring				Ashed
26-062-01-1031 - B	Sheet flooring and mastic	None Detected		100% Other	Yellow Non-Fibrous Homogeneous
10114994_0044	mastic				Ashed
26-062-01-1032	Insulation	None Detected		100% Other	White Non-Fibrous Homogeneous
10114994_0032					Crushed

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Leo Shaffer (44)

Analyst

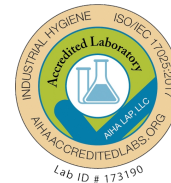
Nathaniel Durham

Approved Signatory



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and
40 CFR, Part 763, Subpart E, App.E



Customer: Gandee and Associates
5676 State Route 521 Ste A
Delaware, OH 43015

Attn: Jill Lawrenz

Lab Order ID: 10114994

Analysis: PLM

Date Received: 08/06/2026

Date Reported: 08/10/2026

Project: Lakeland CC

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
26-062-01-1033	Insulation	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10114994_0033					Crushed
26-062-01-1034	Preformed block	None Detected	30% Cellulose	70% Other	White Fibrous Homogeneous
10114994_0034					Crushed
26-062-01-1035	Preformed block	None Detected	30% Cellulose	70% Other	White Fibrous Homogeneous
10114994_0035					Crushed
26-062-01-1036	Preformed block	None Detected	30% Cellulose	70% Other	White Fibrous Homogeneous
10114994_0036					Crushed

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Leo Shaffer (44)

Analyst

Approved Signatory

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 200664-0

Scientific Analytical Institute
Greensboro, 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).*

2026-01-01 through 2026-12-31

Effective Dates



A handwritten signature in blue ink, appearing to read "R. K. Knech", written over a horizontal line.

For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Scientific Analytical Institute

4604 Dundas Drive
Greensboro, NC 27407
Mr. Nathaniel Durham
Phone: 336-292-3888 Fax: 336-292-3313
Email: ndurham@sailab.com
www.sailab.com

ASBESTOS FIBER ANALYSIS

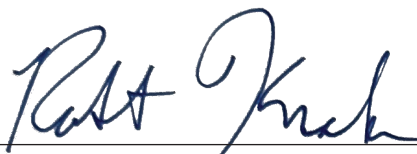
NVLAP LAB CODE 200664-0

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



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

Scientific Analytical Institute, Inc.

4604 Dundas Dr., Greensboro, NC 27407

Laboratory ID: LAP-173190

Issue Date: 01/09/2025

Expire Date: 11/01/2026

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 03/01/2007

IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter, characteristic, material, or product tested
Asbestos/Fiber Microscopy Core	Phase Contrast Microscopy (PCM)	-	NIOSH 7400	Asbestos/Fibers
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)	-	40 CFR 763, Sub. E, Appendix E	Asbestos
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)	-	Interim Method for the Determination of Asbestos in Bulk Insulation Samples	Asbestos/Fibers
Asbestos/Fiber Microscopy Core	Transmission Electron Microscopy (TEM)	-	NIOSH 7402	Asbestos
Asbestos/Fiber Microscopy Core	Transmission Electron Microscopy (TEM)	-	40 CFR 763, Sub. E, Appendix A (AHERA)	Asbestos
Chromatography Core	Ion Chromatography (IC)	-	NIOSH 7605	Hexavalent Chromium
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-215 (Version 2)	Hexavalent Chromium
Chromatography Core	Ion Chromatography (IC)	-	NIOSH 7600	Hexavalent Chromium
Miscellaneous Core	Gravimetric	-	NIOSH 0500	Total Dust
Miscellaneous Core	Gravimetric	-	NIOSH 0600	Respirable Dust
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009	Mercury
Spectrometry Core	Atomic Absorption	CVAA	OSHA ID-140	Mercury
Spectrometry Core	Atomic Absorption	FAA	NIOSH 7082	Lead
Spectrometry Core	Inductively-Coupled Plasma	ICP/AES	NIOSH 7300	Metals
Spectrometry Core	Inductively-Coupled Plasma	ICP/AES	NIOSH 7303	Metals
Spectrometry Core	X-ray Diffraction (XRD)	-	NIOSH 7500	Silica

Effective: 10/24/2023

Revision: 10

Page 1 of 2



**Environmental
Protection
Agency**

EPA.Ohio.gov

Mike DeWine, Governor Jim Tressel, Lt. Governor John Logue, Director

5/28/2026

Matt Wodkowski
Gandee & Associates, Inc.
5676 State Route 521, Suite A
Delaware, OH 43015

RE: Evaluation Specialist
Certification Number: ES33827
Expiration Date: 6/11/2027

Dear Matt Wodkowski:

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.

Sincerely,

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

State of Ohio
Environmental Protection Agency
Asbestos Program

Asbestos Hazard Evaluation Specialist

**Matt
Wodkowski**

Gandee & Associates, Inc.
5676 State Route 521, Suite A
Delaware OH 43015

Certification Number Expiration Date
ES33827 6/11/27



TSI

TRAINING SERVICES INTERNATIONAL

Asbestos Building Inspector Refresher

Certificate

This is to certify

Matt Wodkowski

XXXX-XX-4047



has attended and successfully completed the Asbestos Hazard Emergency Response Act mandatory course for the Asbestos Building Inspector Refresher and has passed an examination in that course with a minimum score of 70% or better. Training was in accordance with 40 CFR Part 763 (AHERA). The above student received the requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act, State of Indiana requirements under 326 IAC 18-2, Chapter 3745-22 Ohio Administrative Code and State of Michigan MCL Section 338.340.

Robert J. Wodkowski

9/26/2026

Training Manager

Expiration Date

9/26/2025

Date(s) of Course

9/26/2025

Examination Date

Online Webinar

Course Location

33150 Lakeland Blvd.
Cleveland, OH 44095
www.TSItraining.com

Course Certificate No.

25 TSI 601732 ir

TSI

TRAINING SERVICES INTERNATIONAL

Asbestos Management Planner Refresher

Certificate

This is to certify

Matt Wodkowski

XXXX-XX-4047



has attended and successfully completed the Asbestos Hazard Emergency Response Act mandatory course for the Asbestos Management Planner Refresher and has passed an examination in that course with a minimum score of 70% or better. Training was in accordance with 40 CFR Part 763 (AHERA). The above student received the requisite training for asbestos accreditation under Title II of the Toxic Substances Control Act and State of Indiana requirements under 326 IAC 18-2 and Chapter 3745-22 Ohio Administrative Code.

Robert J. Wodkowski

9/26/2026

Training Manager

Expiration Date

9/26/2025

Date(s) of Course

9/26/2025

Examination Date

Online Webinar

Course Location

33150 Lakeland Blvd.
Cleveland, OH 44095
www.TSItraining.com

Course Certificate No.

25 TSI 601814 mpr

The InService Training Network

Asbestos Building Inspector Initial Course

Matt D. Wodkowski

0037-4047

has successfully completed the Asbestos Building Inspector Initial Course and passed by at least 70% the course examination for accreditation under Section 206 of the Toxic Substance Control Act, Title II, provided by:
The InService Training Network, 6813 Flagg Center Dr., Columbus, OH 43229 (614) 895-9323

Course Dates: April 3 - 5, 2000

Examination Date: April 5, 2000

Course Director:


Kurt Varga

Expiration: April 5, 2001

Certificate Number: ITN-II-1107

The InService Training Network

Asbestos Management Planner Initial Course

Matt Wodkowski

4047

has successfully completed the Asbestos Management Planner Initial Course and passed by at least 70% the course examination for accreditation under Section 206 of the Toxic Substance Control Act, Title II, provided by:
The InService Training Network, 6813 Flagg Center Dr., Columbus, OH 43229 (614) 895-9323

Course Dates: April 6 - 7, 2000

Examination Date: April 7, 2000

Course Director:

Kurt Varga
Kurt Varga

Expiration: April 7, 2001

Certificate Number: ITN-MI-1107

Document 00 41 13 - Bid Form (General Contracting Project)

State of Ohio Standard Requirements for Public Facility Construction

Sealed bids will be received by the **Lakeland Community College** at 7700 Clocktower Drive, Kirtland, Ohio 44094, Building A, 2nd Floor Business Service Office for:

Project TK26May11
T-Building Demolition

at

7700 Clocktower Drive
Kirtland, Ohio, Lake County

for the

Lakeland Community College

The time for Substantial Completion of all Work is **213** consecutive days from the Notice to Proceed.

Having read and examined the proposed Contract Documents prepared by the Architect/Engineer for the above-referenced Project and the following Addenda:

Addendum Number

Date Received

The undersigned Bidder proposes to perform all Work for the applicable Contract in accordance with the proposed Contract Documents, for the following sum(s):

Bid Package 101 – GENERAL CONTRACT

ALLOWANCES (Include Allowance amounts in the Base Bid below. The Contractor's Fee and costs for unloading and handling on the Site, labor, installation costs, and other expenses contemplated for the Allowances are included in the Base Bid and not in the Allowance.)

Item	Description	Amount
Allowance A-1	Additional Work	\$45,000

BASE BID (Including Allowances above):

ALL LABOR AND MATERIALS, for the sum of \$ _____

Sum in words: _____

_____ and _____ /100 dollars.

Alternate A - Overhead Walkway (Circle appropriate choice below and insert amount)

If Alternate is accepted, ADD TO / DEDUCT FROM Base Bid: \$ _____

Sum in words: _____ and _____ /100 dollars.

BIDDER AFFIRMATION AND DISCLOSURE

Bidder acknowledges that by signing the Bid Form on the Bidder Signature and Information page, that it 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, Zip)
----------------------	--------------------

Name / Principal location of business of Subcontractor(s), if known at time of Bid Opening:

(Subcontractor Name)	(Address, City, State, Zip)
----------------------	-----------------------------

(Subcontractor Name)	(Address, City, State, Zip)
----------------------	-----------------------------

(Subcontractor Name)	(Address, City, State, Zip)
----------------------	-----------------------------

(Subcontractor Name)	(Address, City, State, Zip)
----------------------	-----------------------------

2. Location where services will be performed by Contractor (Project Sites):

(Address)	(City, State, Zip)
-----------	--------------------

(Address)	(City, State, Zip)
-----------	--------------------

Name(s) / Location(s) where services will be performed by Subcontractors (Project Sites):

(Subcontractor Name)	(Address, City, State, Zip)
----------------------	-----------------------------

(Subcontractor Name)	(Address, City, State, Zip)
----------------------	-----------------------------

(Subcontractor Name)	(Address, City, State, Zip)
----------------------	-----------------------------

(Subcontractor Name)	(Address, City, State, Zip)
----------------------	-----------------------------

3. Location where State data will be located by Contractor:

(Address)	(City, State, Zip)

Locations where State data will be located by Subcontractor(s), if known at time of Bid Opening:

(Subcontractor Name)	(Address, City, State, Zip)
(Subcontractor Name)	(Address, City, State, Zip)
(Subcontractor Name)	(Address, City, State, Zip)
(Subcontractor Name)	(Address, City, State, Zip)
(Subcontractor Name)	(Address, City, State, Zip)

Bidder also affirms, understands and agrees that Bidder and its subcontractors are under a duty to disclose to the State any change or shift in location of services performed by Bidder 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 Bidder to perform the services outside the United States.

On behalf of the Bidder, I acknowledge that I am duly authorized to execute this 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.

BIDDER'S CERTIFICATIONS

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

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 signing 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 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.
8. 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.
9. 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.
10. 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.
11. The Bidder agrees to furnish any information requested by the Contracting Authority or Architect/Engineer to evaluate the responsibility of the Bidder.
12. 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.
13. When the Bidder is a corporation, partnership or sole proprietorship, an officer, partner or principal of the Bidder, as applicable, shall print or type the legal name of the Bidder on the line provided, and **sign the Bid Form**.
14. When the Bidder is a joint venture, an officer, partner or principal, as applicable, of each member of the joint venture shall print or type the legal name of the applicable member on the line provided, and **sign the Bid Form**.
15. Bidder acknowledges that by signing the Bid Form on the following Bidder Signature and Information page that it is signing the actual Bid and when submitted as a part of its bid package, shall serve as the Bidder's authorization for the further consideration and activity in the bidding and contract process.
16. All signatures must be original.

-- remainder of page left blank intentionally --

BIDDER SIGNATURE AND INFORMATION**Bidder's Authorized Signature:** _____**Please print or type the following:**

Name of Bidder's Authorized Signatory _____

Title: _____

Company Name: _____

Mailing Address: _____

Telephone Number: _____

Facsimile Number: _____

Email Address: _____

State of Incorporation: _____

Federal Tax ID 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 ADDITIONAL BIDDER SIGNATURE & INFORMATION**Joint Venture Bidder's Authorized Signature:** _____**Please print or type the following:**

Name of Joint Venture Bidder's Authorized Signatory _____

Title: _____

Company Name: _____

Mailing Address: _____

Telephone Number: _____

Facsimile Number: _____

Email Address: _____

State of Incorporation: _____

Federal Tax ID 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: _____

END OF DOCUMENT

Document 00 43 13 - Bid Security Form

State of Ohio Standard Requirements for Public Facility Construction

(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: **TK26May11**

Project Name: **T-Building Demolition**

Contract Description: _____
(e.g., General Contractor/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:**SURETY:**

Signature

Signature

By: _____
Name

By: _____
Attorney-in-Fact

Title

SURETY INFORMATION:**SURETY AGENT'S INFORMATION:**

Name

Name

Address 1

Address 1

Address 2

Address 2

City State Zip

City State Zip

Telephone

Telephone

Email

Email

END OF DOCUMENT

Document 00 45 13 - Bidder's Qualifications

State of Ohio Standard Requirements for Public Facility Construction

Project Number: TK26May11

Project Name: T-Building Demolition

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. 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 52 00 - Agreement Form (College 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 College, and the Contractor in connection with the Project.

This Agreement is made as of the date set forth below between the College, and the Contractor in connection with the Project.

Project Number: TK26May11
Project Name: T-Building Demolition
Site Address: 7700 Clocktower Drive
Kirtland, Ohio 44094
Lake County

Owner ("College"): Lakeland Community College
Owner's Representative: Joseph (Jay) Kahn, AIA
Address: 7700 Clocktower Drive
Kirtland, Ohio 44094-5198

Contracting Authority: The College above
Project Manager: Joseph (Jay) Kahn, AIA

Contractor: «insert name»
Contractor's Principal Contact: «insert name»
Address: «insert street address»
«insert city, state zip code»

Architect/Engineer ("A/E"): Gandee & Associates, Inc.
A/E's Principal Contact: Phillip T. Harrison, P.E.
Address: 8748 Brecksville Road, Unit 208
Brecksville, Ohio 44141

ARTICLE 1 - SCOPE OF WORK

1.1 The Contractor shall perform and provide all of the Work described in the Contract. The Work is allocated to the below-identified Phases.

Phase	Scope of Work
«insert Phase name»	«insert Phase description»
«insert Phase name»	«insert Phase description»
«insert Phase name»	«insert Phase description»
«insert Phase name»	«insert Phase description»

1.2 The project delivery method for this Project shall be [General Contracting](#).

ARTICLE 2 - COMPENSATION

2.1 The Owner 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) to which Liquidated Damages apply	Contract Time	Projected Date (as of the date of this Agreement)
Base Bid Work - Building Demolition, Site Work, & Demobilization	200 calendar days from “Notice to Proceed”	
Alternate A - Removal of Overhead Walkway between A- and E-Buildings & Related Restoration Work	200 calendar days from “Notice to Proceed”	
1. Refer to Section 00 31 13 for additional information. 2. Project shall be ready for final payment within 30 calendar days of Substantial Completion Date.		

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 **November 30, 2026**; 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.

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 College’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 College gives the Contractor written notice that such funds are available from the College’s funding source.

5.1.3 Subject to **Section 5.1.1**, the Contract shall become binding and effective upon execution by the College, Contractor, and if the total estimated Project cost is \$250,000 or more, upon approval of the 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 College 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.

5.2.8 All non-residential contractors, subcontractors, and labor brokers shall comply with the E-Verify Workforce Integrity Act's requirements as set forth in sections 4151.02 and 4151.03 of the Revised Code.

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.

TREASURER'S CERTIFICATION

This signature certifies the amount required to meet the obligation in the fiscal year in which this Agreement is made has been lawfully appropriated for such purpose and is in the treasury or in process of collection to the credit of an appropriate fund free from any previous encumbrances.

Signature

Printed Name

Chief Financial Officer

SIGNATURES

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date set forth below:

«INSERT CONTRACTOR'S NAME»
by «insert Joint Venturer/Member's name»

LAKELAND COMMUNITY COLLEGE

Signature

Signature

Printed Name

Printed Name

Title

Title

by «insert Joint Venturer/Member's name»

OHIO ATTORNEY GENERAL
Approval as to Form

Signature

Signature

Printed Name

Printed Name

Title

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:	TK26May11
Project Name:	T-Building Demolition
Site Address:	7700 Clocktower Drive Kirtland, Ohio, Lake 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:	Lakeland Community College
Public Authority Contact:	Joseph (Jay) Kahn, AIA
Address:	7700 Clocktower Drive Kirtland, Ohio 44094-5198

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 Single Prime General Contractor.

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

(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 Oblige(e)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 Oblige(e), 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: TK26May11
Project Name: T-Building Demolition
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
Oblige(e) 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 Oblige(e) 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 61 13.19 - Acknowledgement of Surety (General Contracting)
State of Ohio Standard Requirements for Public Facility Construction

Project Number: TK26May11
Project Name: T-Building Demolition
Owner: Lakeland Community College
Contracting Authority: _____
Contractor: _____
Surety Name: _____
Performance & Payment Bond No.: _____
Original Penal Sum: _____

As required under the Contract between the State of Ohio, acting by and through the Contracting Authority, and the Contractor in connection with the Project, the Surety hereby acknowledges that the Penal Sum of the above-mentioned Bond has been increased to \$_____ (*must be not less than 100% of the Contract Sum*).

SURETY:

SURETY INFORMATION:

_____ Surety Signature	_____ Street
By: _____ Attorney-in-Fact	_____ City State Zip
_____ Date	_____ Telephone Number

SURETY AGENT'S INFORMATION:

Agency Name

Street

City State Zip

Telephone Number

END OF DOCUMENT

Document 00 71 00 - Contracting Definitions (GC/MP/CMa Project)

State of Ohio Standard Requirements for Public Facility Construction

Acceptable Component	A component listed in the Specifications after the Basis of Design Component.
Addenda or Addendum	Written or graphic instrument issued prior to the bid opening which modifies or interprets the proposed Contract Documents by additions, deletions, clarifications, or corrections.
ADR	See “Alternative Dispute Resolution.”
A/E	See “Architect/Engineer.”
Agreement	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.
Allowance	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.
Alternate	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.
Alternative Dispute Resolution	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.
Applicable Law	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.
Architect/Engineer	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 (1) registered architect holding a license and certificate of authorization issued by the Ohio Architects Board pursuant to ORC Chapter 4703, (2) landscape architect holding a license and certificate of authorization issued by the Ohio Landscape Architects Board pursuant to ORC Chapter 4703, or (3) 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.
As-Built Documents	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.
Base Bid	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.

Basis of Design	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.
Basis of Design Component	A component listed first in the Specifications.
Bid	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.
Bidder	A Person that submitted a Bid.
Bidding Documents	The advertisement or invitation to bid; instructions to bidders; Bid Guaranty; Bid Form with any supplements; and the proposed Contract Documents (including all Addenda).
Bid Form	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.
Bid Guaranty	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.
BIM	See "Building Information Model."
Bond	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.
Building Information Model	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.
Certificate of Contract Completion	A form used to document the Contractor's achievement of Contract Completion. This form may also be used to document partial Contract Completion.
Certificate of Substantial Completion	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.
Change Directive	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.
Change Order	A document recommended by the A/E and executed by the Contracting Authority, Owner, and Contractor that modifies the Contract.

Change Request	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.
Claim	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.
CM	See “Construction Manager.” <i>(not applicable to General Contracting or Multiple Prime project delivery system)</i>
Combined Bid	A Bid that combines bid items for separate Contracts stated on the Bid Form. <i>(not applicable to General Contracting project delivery system)</i>
Commission	See “Ohio Facilities Construction Commission.”
Commissioning Agent	The Person identified by the Contracting Authority who leads, plans, schedules, and coordinates the commissioning team to implement the Commissioning Process for the Project.
Commissioning Plan	A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the Commissioning Process.
Commissioning Process	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.
Commissioning Report	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.
Conformed Documents	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.
Construction Budget	The budget for Construction Cost.
Construction Cost	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, CM fees (if applicable), the cost of the land, right-of-way acquisition costs, financing costs, or Owner’s contingencies.
Construction Manager	A Person responsible, under the Multiple-Prime/CM Adviser version of the Commission’s General Conditions, for providing administration, management, and related services as required for scheduling the Project, coordinating the Contractors, and providing other services as provided in the Contract Documents. Under the Multiple-Prime/CM Adviser project delivery system, the CM is not be responsible for performance of Work on the Project. <i>(not applicable to General Contracting project delivery system)</i>

Construction Progress Schedule	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 Contractors, Subcontractors, A/E, CM (if any), Contracting Authority, and Owner; and the Contractors' resource and cost loading information; as periodically updated during the performance of the Work.
Contract	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.
Contract Completion	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 or certificate of completion (as appropriate) has been granted and issued to the Owner by the appropriate governmental authorities, (3) the Contractor's Work is 100 percent complete, (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.
Contract Documents	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.
Contract Sum	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.
Contract Times	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.
Contracting Authority	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.

Contractor	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.
Contractor's Documents	All Project-related documents, including those in electronic form, prepared by the Contractor and its Subcontractors.
Contractor's Fee	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.
Contractor Payment Request	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.
Contractor's Punch List	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.
Coordination Drawings	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.
Correction Period	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.
CxA	See "Commissioning Agent."
Date of Commencement	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.
day	A calendar day of 24 hours measured from midnight to midnight, unless otherwise expressly specified to mean a business day.
Defective Work	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.

Delegated Design	A form of collaboration between the A/E and the Contractor whereby (1) the A/E defines the performance and design criteria for specifically identified systems, materials, equipment, or details included in the Work; and (2) 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.
Differing Site Condition	Either (1) a subsurface or otherwise concealed physical condition encountered at the Site that differs materially from the conditions indicated in the Contract Documents or (2) 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.
Drawings	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.
Electronic File	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.
Enclosure, Permanent	The condition in which the permanent exterior walls and roofs are in place, insulated and weathertight, and permanent windows and entrances are in place.
Enclosure, Temporary	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.
Estimated Construction Cost	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.
Extra Materials	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.
Fee	See "Contractor's Fee."
Field Meeting	A meeting between the Contracting Authority, Owner, and Contractor to review and endeavor to resolve a Change Directive, Change Request, or other matter.
Final Inspection	The final review of the Work of the Contractor by the A/E to determine whether issuance of the Certificate of Contract Completion is appropriate.
furnish	Supply and deliver to the Site, or other specified location, ready for installation.

General Conditions	The State's Standard General Conditions in effect as of the date of the Agreement.
General Conditions Costs	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 (1) Bond premiums; (2) premiums for subcontractor default insurance to the extent incurred on account of Subcontractors enrolled for the Project; and (3) 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).
Hazardous Materials	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, 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.
Indemnified Parties	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.
install	Put into use or place in final position, complete and ready for intended service or use.
Institutional Designee	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.
Institution of Higher Education	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.

Lead Contractor	The Contractor identified by the Architect/Engineer, under the Multiple-Prime version of the Commission's General Conditions, when a CM is not involved in the Project, responsible for scheduling the Project, coordinating the Contractors, and providing other services identified in the Contract Documents. <i>(not applicable to General Contracting or CM Advisor project delivery system)</i>
Legal Holiday	Legal Holidays are as follows: (1) New Year's Day – First Day in January; (2) Martin Luther King Jr. Day – Third Monday in January; (3) Washington-Lincoln (President's) Day – Third Monday in February; (4) Memorial Day – Last Monday in May; (5) Juneteenth National Independence Day (Juneteenth) – Nineteenth day of June; (6) Independence Day – Fourth day of July; (7) Labor Day – First Monday in September; (8) Columbus Day – Second Monday in October; (9) Veterans' Day – Eleventh Day of November; (10) Thanksgiving Day – Fourth Thursday of November; and (11) 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.
Liquidated Damages	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.
Material Supplier	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.
mediation	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.
Milestone	A principal event specified in the Contract relating to a completion date or time.
Modification	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.
negotiation	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.
Neutral Facilitator	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.
Notice of Commencement	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.

Notice of Intent to Award	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.
Notice to Proceed	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.
OAC	Ohio Administrative Code.
Ohio Facilities Construction Commission	The authorized contracting agent for public improvement projects in accordance with ORC Chapters 123 and 153, acting by and through its Executive Director.
ORC	Ohio Revised Code.
Overhead	The term "Overhead" includes all of the following costs: (1) 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; (2) 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; (3) 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; (4) 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; (5) all costs related to insurance provided by the Contractor, whether required under the Contract or not, except (a) premiums for subcontractor default insurance in the Construction Stage if those insurance premiums are included as a General Conditions Cost and (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); (6) all travel, lodging, and parking costs, except where specifically allowed as a pre-approved General Conditions Cost; (7) all applicable taxes of every kind (including but not limited to commercial activity tax ("CAT")) except where otherwise specifically allowed; (8) 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.

Owner	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.
Owner's Project Requirements	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.
Partial Occupancy	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.
partnering	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.
Payment Request	See "Contractor Payment Request."
Person	An individual, corporation, business trust, estate, partnership, association, or other public or private entity.
Phase	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.
Product Data	Manufacturer's standard illustrations, schedules, diagrams, performance charts, instructions, and brochures that illustrate physical appearance, size, and other characteristics of materials and equipment.
Progress Status Report	A monthly progress report prepared by the Contractor and containing the following information for each Phase of the Work: (1) the updated Construction Progress Schedule; (2) progress photos; (3) an executive summary; (4) a discussion of pending items and existing or anticipated problems and status of RFIs; (5) a safety and accident report; (6) 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; (7) 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; (8) information on compliance with the EDGE participation goals established for the Project; (9) status of compliance with required LEED components, if applicable; and (10) such other relevant information as may be reasonably required by the Owner from time to time.
Project	The public improvement, of which the Work performed under the Contract Documents may be the whole or a part.
Project Manager	A permanent employee of the Contracting Authority assigned to the Project and authorized to perform specific responsibilities.

Project Manual	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.
Proposal	The offer of a Contractor to perform the Work set forth in a Change Request or Proposal Request.
Proposal Request	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.
provide	Furnish and install, complete and ready for intended use.
Punch List Milestone	The date 30 days after the achievement of Substantial Completion of all or a portion of the Work.
Record Documents	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.
Record Drawings	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.
Record Model	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.
Record Project Manual	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.
Request for Information	A written request to the A/E seeking an interpretation or clarification of the Contract Documents.
RFI	See "Request for Information."
Samples	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.
Schedule Consultant	If the Project does not involve a CM, the Person qualified to create and keep current the Construction Progress Schedule and schedule of submittals for the Project provided by the Lead Contractor. <i>(not applicable to General Contracting or CM Advisor project delivery system)</i>

Schedule Manager	The Person responsible to create and keep current the Construction Progress Schedule and schedule of submittals for the Project under the Multiple-Prime version of the Standard Requirements. If the Estimated Construction Cost for the Project is less than \$500,000, the Lead Contractor shall be the Schedule Manager. If the Estimated Construction Cost for the Project is \$500,000 or more, the Schedule Consultant shall be the Schedule Manager. If the Contracting Authority contracted with a Schedule Consultant either directly or through the A/E, the Schedule Consultant is the Schedule Manager. <i>(not applicable to General Contracting or CM Advisor project delivery system)</i>
Schedule of Values	A full, accurate, and detailed statement furnished by the Contractor reflecting a defined breakdown of the Contract Sum.
School District	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.
School District Board	The board of education of a School District.
Separate Consultant	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.
Separate Contract	The contract between the Owner or Contracting Authority and a Separate Consultant or Separate Contractor.
Separate Contractor	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.
Shop Drawings	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.
Site	The location designated for the Project.
Specifications	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.
Stage	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.
Standard Requirements	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.

State	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.
Subcontract	Any contract or agreement between the Contractor and a Subcontractor for performance of a portion of the Work.
Subcontract Form	The State of Ohio Subcontract Form prescribed by OAC Section 153:1-3-02 and required for use with the General Contracting method of project delivery.
Subcontractor	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.
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, 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.
Substantially Complete	See "Substantial Completion."
Substitution	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.
Supplementary Conditions	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.
Supplementary Instructions	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.

Surety	A Person providing a Bid Guaranty or a Bond to a Bidder or a Contractor, as applicable.
Systems Manual	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.
Unit Price	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:

Month	Expected Number of Work Days Lost Due to Weather
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 (General Contracting Project)

State of Ohio Standard Requirements for Public Facility Construction

Certifications

These Supplementary Conditions amend and supplement the General Conditions 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 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 [Lakeland Community College](#).

Contracting Authority and Owner

[Lakeland Community College](#)
[7700 Clocktower Drive](#)
[Kirtland, Ohio 44094](#)
[\(440\) 525-7000](#)
www.lakelandcc.edu

MODIFICATIONS TO GENERAL CONDITIONS

Delete Section 1.8 in its entirety.

Replace Section 9.3.1 with the following:

9.3.1 Within ten days of receipt of the Notice to Proceed, or other period as mutually agreed by the Contractor and the 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. All costs shall indicate labor and material cost associated with each item specified on the cost breakdown.

Delete Section 9.3.1.1 in its entirety.

Delete Section 9.4.2.7 in its entirety.

Delete Section 9.8.2.6 in its entirety.

END OF DOCUMENT

Document 00 73 43 - Wage Rate Requirements

State of Ohio Standard Requirements for Public Facility Construction

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 after this Section along with related forms from the Ohio Department of Commerce.

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: <https://pwr.com.ohio.gov/>.

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

BID TABULATION SHEET

Please print and complete this form. Keep it with your records until the contract has been awarded. Once the contract has been officially awarded, select which company was awarded the contract for the project and send a copy to Wage & Hour at webmaster@wagehour.com.state.oh.us

Contracting Public Authority:
Public Authority County:

Project Name:

Project No.

Bid Date:

Estimate:

Contract Description: ☐ General ☐ HVAC ☐ Electrical ☐ Plumbing ☐ Asbestos ☐ Other _____

[illegible]

Submitted By

Print Name:

Title:

Telephone No.:

FAX:

Signature:

Date:

INSTRUCTIONS FOR PREPARING CERTIFIED PAYROLL REPORTS

General:

Contractors and subcontractors are required by law to submit certified payroll reports for work on projects covered by Ohio's Prevailing Wage Law. This form meets the reporting requirements established by Ohio Revised Code Chapter 4115. The use of this form is not mandatory; employers may submit their own forms if all of the required information is included. This form may be reproduced, or additional copies obtained from:

Ohio Department of Commerce
Division of Industrial Compliance
Bureau of Wage and Hour Administration
6606 Tussing Road, P.O. Box 4009
Reynoldsburg, Ohio 43068-9009
614-644-2239
www.com.ohio.gov

Certified Payroll Heading:

Employer name and address: Company's full name and address...Indicate if the company is a subcontractor.

Subcontractor: Check and list the name of the General Contractor or Prime.

Project: Name and location of the project, including county.

Contracting Public Authority: Name and address of the contracting public authority... (Owner of the project).

Week Ending: Month, day, and year for last day of reporting period.

Payroll #: Indicates first, second, third, etc. payroll filed by the company for the project.

Page indicator: number of pages included in the report.

Project Number: Determined by the public authority...If there is no number leave blank.

Payroll Information by column:

1. Employee Name, Address and Social Security number: This information must be provided for all employees that perform physical labor on the project. The Social Security number is required; the last four digits may be permitted by the public authority. Corporate officers, partners, and salaried employees are considered employees and must be paid the prevailing rate. Individual sole proprietors do not have to pay themselves prevailing rate but must report their hours on the project.
2. Work Class: List classification of work performed by employee. If unsure of work classification, consult the Ohio Department of Commerce-Division of Industrial Compliance & Labor-Bureau of Wage and Hour Administration. Employees working more than one classification should have separate line entries for each classification. Indicate what year/level for Apprentices. Be specific when using laborer and operator classifications; for example, Backhoe Operator or Asphalt Laborer or by "Group".
3. Hours Worked, Day & Date: In the first row of column 3, enter days of the company's pay period for example; M T W TH F S S. The second row is for the date that corresponds with each day for the pay period. In the employee information section, enter the number of hours worked on the prevailing wage project and which day the hours were worked. Separate rows are labeled for (ST) straight time hours and (OT) overtime hours. All hours worked after 40, must be paid at the appropriate overtime rate.
4. Project Total Hours: Total the hours entered for pay period.
5. Base Rate: Enter actual rate per hour paid to the employee. The overtime hourly rate is time and one-half the base rate listed in the prevailing wage schedule plus fringe benefits at straight time rate. The prevailing wage schedule lists the base rate plus fringe benefit amounts. These amounts added together equal the total prevailing wage rate. Employers must pay this total amount in one of three ways.
 - 1) Total rate may be paid in entirety in the base rate to the employee; in which case, the cash designation will be checked for fringe benefits.
 - 2) Total rate may be paid as listed in prevailing wage rate schedule with total fringe amounts paid approved plans.
 - 3) Total rate may be paid with a combination of base rate and fringe payments to approved plans in amounts other than those listed in schedule.
6. Project Gross: Enter total gross wages earned on the project for straight time and overtime. Project hours "X" base rate should equal project gross.
7. Fringes: If fringe benefits are paid in the hourly base rate, indicate this by marking the **Cash** space. If fringe benefits are paid to approved plans as listed in the prevailing wage rate schedule, mark the space **Approved Plans**. If fringe benefits are paid partially in the base rate and partially to approved plans, mark the space **Cash & Approved Plans**. List the hourly amount paid to approved plans for each fringe. If payments are not made on a per hour basis, **calculate the hourly fringe credit by dividing the yearly employer contribution by** the lesser of: hours actually worked in the year (these must be documented) or **2080**. Fringe benefits include: **Employer's share** of health insurance, life insurance, retirement plan, bonus/profit sharing, sick pay, holiday pay, personal leave, vacation, and education/training programs. If unsure of a possible fringe benefit, contact the Ohio Department of Commerce-Division of Industrial Compliance & Labor-Bureau of Wage and Hour Administration.
8. Total Hours All Jobs: Total all hours worked during the pay period including non-prevailing wage jobs.
9. Total Gross All Jobs: Gross amount earned in the pay period for all hours worked.
10. Self-explanatory.
11. Self-explanatory.

Certified Payroll Report

Report for:

Company:¹⁾

Address:

City, State, Zip

Phone No:

☐ Check if Subcontractor¹⁾

If Sub, GC/Prime Contractor Name:

Public Authority (Owner):

Contract No:

Project Name & Location:

Payroll No:

Week Ending:

Sheet:²⁾ of

1. Employee Name, Address, & SS# (Last 4 digits if permitted)	2.Work Class ³⁾	3.Prevaling Wage Project Hours Worked - Day & Date								4.Total Hours	5.Base Rate	6.Project Gross	Fringes: ☐ Cash ☐ Approved Plans ☐ Cash & Approved Plans						Weekly Payroll Amount			
													Fringe Rate Your Company Pays Per Hour						8.Total Hrs for all Jobs	9. Total Gross on All Jobs	10. Total Deductions	11. Net Pay on All Jobs
									H&W	Pens	Vac	Hol	Other	Total								
		OT																				
		ST																				
		OT																				
		ST																				
		OT																				
		ST																				
		OT																				
		ST																				
		OT																				
		ST																				

1) By signing below, I certify that: (1) I pay, or supervise the payment of the employees shown above; (2) during the pay period reported on this form, all hours worked on this project have been paid at the appropriate prevailing wage rate for the class of work done; (3) the fringe benefits have been paid as indicated above; (4) no rebates or deductions have been or will be made, directly or indirectly from the total wages earned, other than permissible deductions as defined in ORC Chapter 4115; and (5) apprentices are registered with the U.S. Dept. of Labor, Bureau of Apprenticeship and Training. I understand that the willful falsification of any of the above statements may subject the Contractor or Subcontractor to civil or criminal prosecution.

Type or Print Name and Title

Signature

Date



**Department of
Commerce**

Division of Industrial Compliance

Affidavit of Compliance

Prevailing Wages

I, _____
(Name of person signing affidavit) (Title)

do hereby certify that the wages paid to all employees of

(Company Name)

for all hours worked on the

(Project name and location)

project, during the period from _____ to _____ are in
(Project Dates)

compliance with prevailing wage requirements of Chapter 4115 of the Ohio Revised Code. I further
certify that no rebates or deductions have been or will be made, directly or indirectly, from any wages
paid in connection with this project, other than those provided by law.

(Signature of Officer or Agent)

Sworn to and subscribed in my presence this _____ day of _____, 20_____.

_____ (Notary Public)

The above affidavit must be executed and sworn to by the officer or agent of the contractor or subcontractor who supervises the payment of employees. This affidavit must be submitted to the owner (public authority) before the surety is released or final payment due under the terms of the contract is made.



Prevailing Wage Complaint

PROJECT INFORMATION		DO NOT WRITE IN THIS AREA	
Project Name:		Approved ☐ Yes ☐ No Rejected ☐ Yes ☐ No Denied ☐ Yes ☐ No	Investigator Assigned:
Project Address:			
City:			
ZIP:	County:		
Project: ☐ Ongoing ☐ Completed (☐ Over 2 years ago ☐ Less than 2 years ago) ☐ New Construction ☐ Reconstruction, Alteration or Repair			

INCOMPLETE COMPLAINT FORMS WILL BE RETURNED

PUBLIC AUTHORITY INFORMATION				
Public Authority Name:		Address:		Website/Email Address:
City:	State:	Zip:	County:	Telephone:
Prevailing Wage Coordinator Name:		Address:		Website/Email Address:
City:	State:	Zip:	County:	Telephone:
Type of funding: ☐ Public Funds ☐ IRB ☐ Other (attach explanation)			Project Dates: From ____/____/____ To: ____/____/____	
Were Prevailing Wage Rates issued? ☐ Yes ☐ No		Date Issued: ____/____/____ Certified Payrolls Filed? ☐ Yes ☐ No		Rates posted at project site: ☐ Yes ☐ No

CONTRACTOR INFORMATION (List name of contractor complaint is against in Name(1))

Name (1):		Address:		
City:	State:	Zip:	County:	Telephone:
Email / Website:				
☐ General ☐ Prime ☐ Subcontractor If Subcontractor, list name and address of General/Prime in name (2)				
Name (2):		Address: :		
City:	State:	Zip:	County:	Telephone:
Email / Website:				

COMPLAINANT INFORMATION

Name:		Address:		
City:	State:	Zip:	County:	Telephone:
Other phone #'s:		Email:		
COMPLAINT STATUS:		ALL PARTIES MUST ALEDGE A SPECIFIC COMPLAINT AND PROVIDE SUFFICIENT EVIDENCE FOR EACH REASON SELECTED FOR FILING THE COMPLAINT		
☐ Employee ☐ Former Employee ☐ Prevailing Wage Coordinator ☐ *Interested Party		☐ Prevailing wage not paid ☐ Wages not paid ☐ Fringe Benefits not paid ☐ Overtime ☐ Misclassifications ☐ CPR Incorrect/missing information ☐ No CPR's filed		
Attach any information that will substantiate your claim				

*To allege Interested Party status, you **MUST** attach with the complaint sufficient evidence that you have either bid on the public improvement or are a subcontractor or a bidder, labor organization representing current employees of a bidder, or association which presently has any of the above named persons as members, R.C. Sec.4115.03(F)

Enclose sufficient evidence to justify each reason selected on your complaint



INCOMPLETE OR UNSUBSTANTIATED COMPLAINTS MAY BE RETURNED

Work Classification(s)

(Apprentices show level/year)

Hourly Rate Paid? _____

P.W Rate: _____

Total hours on project?

Regular Hours _____

OT Hours _____

Dates Worked: From ____ / ____ / ____ To ____ / ____ / ____

YES NO

- ☐ ☐ Were you paid time and ½ for hours worked over 40 per week?
- ☐ ☐ Did employer provide written notice of job classification?
- ☐ ☐ Did employer provide written notice of Prevailing Wage Rate?
- ☐ ☐ Did employer provide written notice of name of the Prevailing Wage Coordinator?
- ☐ ☐ Were you threatened, intimidated, or coerced into giving up any of your pay?

What Fringe Benefits did the company pay? ☐ None

FRINGE	AMOUNT	FRINGE	AMOUNT
☐ Health Insurance	_____	☐ Life Insurance	_____
☐ Paid Vacation	_____	☐ Paid Holidays	_____
☐ Paid Sick Leave	_____	☐ Pension	_____
☐ Bonus	_____	☐ Other	_____
☐ Training	_____		

Hours worked recorded by:

- ☐ timecard / sheet ☐ called into office
- ☐ recorded by foreman ☐ other

List names of employees you worked with on this project:

ADDITIONAL COMMENTS TO ASSIST IN THE INVESTIGATION:

SIGNATURE AND NOTARY Complaints will be returned if not complete, substantiated or signed

Affiant is further informed that Section 2921.13 of the Ohio Revised Code provides a penalty of a misdemeanor of the first degree and that prosecution will be pursued against those persons who “knowingly swear and affirm the truth of a false statement when....the statement is sworn or affirmed before a notary public...”

Sworn to before me and subscribed by the said:

in my presence this _____ day of _____, 20_____

Notary Public

I hereby certify that this is a true statement to the best of my knowledge and belief.

Signature _____

Date _____

Return via Mail, Email, or Fax To:

Ohio Department of Commerce
Bureau of Wage and Hour Administration
6606 Tussing Road, P.O. Box 4009
Reynoldsburg, OH 43068-9009

Office: 614-644-2239

Fax: 614-728-8639

Email: webmaster@wagehour.com.state.oh.us

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 3 Heat & Frost Insulators

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Asbestos Worker

Effective Date:
8/12/2026

Effective Date:
8/12/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Asbestos Insulation Worker	\$47.13		\$17.30	\$11.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$75.78	\$99.34
Fire Stop Specialist	\$47.13		\$17.30	\$11.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$75.78	\$99.34
Fire Stop Technician	\$38.82		\$17.30	\$4.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$60.62	\$80.03
Apprentice	BHR	Percent										
1st year	\$26.67	\$56.58	\$17.30	\$1.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.47	\$58.81
2nd year	\$29.46	\$62.50	\$17.30	\$2.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$49.26	\$63.99
3rd year	\$32.27	\$68.47	\$17.30	\$3.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$53.07	\$69.20
4th year	\$38.82	\$82.36	\$17.30	\$4.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$60.62	\$80.03

(*)Special Calculation Note :

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula*, Cuyahoga, Erie*, Geauga, Huron, Lake, Lorain

Special Jurisdictional Note :

Ashtabula: the townships of Ashtabula, Austinburg, Geneva, Jefferson, Plymouth & Saybrook
Erie: to Sandusky limits

Details :

Mechanics & apprentices engaged in the manufacture, fabrication, assembling, molding, handling, erection, spraying, pouring, mixing, hanging, clean-up, preparation, application, adjusting, alteration, repairing, dismantling, reconditioning, testing & maintenance of Heat & Frost Insulation such as Magnesite, Asbestos, Hair Felt, Wool Felt, Cork, Mineral Wool, Infusorial Earth, Mercerized Silk, Flax, Fiber, Fire Felt, Asbestos Paper, Asbestos Curtain, Asbestos Millboard, Fiberglass, Foam glass, Styrofoam, Polyurethane, fire stopping, smoke stopping, all recyclable material, soundproofing, all penetrations, any flexible or rigid fireproofing, all jacketing systems including metal, lead, and PVC or other material.

Prevailing Wage Rate Skilled Crafts

Name of Union: Boilermaker Local 744

Type of Rate: Commercial

Change #:
LCN01-2024ib

Craft:
Boilermaker

Effective Date:
6/5/2024

Effective Date:
6/5/2024

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Boilermaker	\$42.70		\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$78.19	\$99.54
Apprentice	BHR	Percent										
1st 6 months	\$29.89	\$70.00	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$65.38	\$80.33
2nd 6 months	\$30.96	\$72.50	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$66.45	\$81.93
3rd 6 months	\$32.03	\$75.00	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$67.52	\$83.53
4th 6 months	\$33.09	\$77.50	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$68.58	\$85.13
5th 6 months	\$34.16	\$80.00	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$69.65	\$86.73
6th 6 months	\$36.30	\$85.00	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$71.79	\$89.93
7th 6 months	\$38.43	\$90.00	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$73.92	\$93.14
8th 6 months	\$40.57	\$95.00	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$76.06	\$96.34

(*)Special Calculation Note :

Other: Training Fund

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Carroll, Coshocton, Cuyahoga, Geauga, Harrison, Holmes, Lake, Lorain, Mahoning, Medina, Portage, Stark, Summit, Trumbull, Tuscarawas, Wayne

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 23 (Cleveland Marble Finisher)

Type of Rate: Commercial

Change #:
LCN01-2024ib

Craft:
Bricklayer

Effective Date:
5/1/2024

Effective Date:
5/1/2024

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Bricklayer Tile Marble Finisher	\$30.52		\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$47.73	\$62.99
Apprentice	BHR	Percent										
1st 6 months	\$18.31	\$60.00	\$11.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29.71	\$38.87
2nd 6 months	\$21.36	\$70.00	\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.57	\$49.26
3rd 6 months	\$22.89	\$75.00	\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$40.10	\$51.55
4th 6 months	\$24.42	\$80.00	\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.63	\$53.83
5th 6 months	\$25.94	\$85.00	\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$43.15	\$56.12
6th 6 months	\$27.47	\$90.00	\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$44.68	\$58.41

(*)Special Calculation Note :

Classification title contains "Bricklayer" because contract originates within the Bricklayer Local. Note that the classification description is clarified after the local union number at the top of the page.

Ratio :

1-2 Journeymen to 1 Apprentice 3- 4 Journeymen to 2 Apprentice 5-6 Journeymen to 3 Apprentice 7-8 Journeymen to 4 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, Summit

Special Jurisdictional Note :

Details :

Tile Finishers:do all the cleaning, acid washing,grouting,by any methods or means. Also unpacking of all tiles,opening of all mastic containers,mixing of all mortar,thin-set and epoxy materials,also the distribution of it. They shall handle and distribute all materials such as sand,cement,lime,tile,all types of tile panels,prefabricated tile units, plastic materials and protective covering of all tile.Clean up and removal of always used in connection of said work. Terrazzo Finishers:Assisting in grinding, and handling of material whether by hand or wheel barrow, or power buggies, including sand Portland cement, resinous cement and admixtures, aggregates of marble, stone or other compositions, bonding adhesives, sealers, waxes, and coatings used for Terrazzo Mosaic work, preparing, mixing by hand or machine, and distributing (spreading) all kinds of underbed or underlayment necessary and all scratch coat used for terrazzo and mosaic work. Also the rubbing, grinding, cleaning, sealing and polishing same either by hand or machine. will assist in the installation of the sand bed, tar paper, wire lath, divider strips, and rolling procedures and acid etching of all concrete floors that require it before installation. Shall handle all materials and assist in the installation of all types of terrazzo floors whether conventional or thin-set variety. Marble Finishers>Loading and unloading handling and distributing of marble materials including the mixing of all materials used for the installation of marble, such as cement underbeds for the floors, thin-set or epoxies including but not limited to plastic materials. Clean up and removal of all waster material of said work. Cleaning and grouting of all marble and slate, and all polishing of marble and slate floors.

Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 23 (Cleveland Marble Mason)

Type of Rate: Commercial

Change #:
LCN01-2024ib

Craft:
Bricklayer

Effective Date:
5/1/2024

Effective Date:
5/1/2024

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Bricklayer Horizontal Marble Mason	\$27.16		\$11.40	\$9.45	\$0.67	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$48.68	\$62.26
Masonary Maintenan ce Specialist	\$13.58		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$13.58	\$20.37
Apprentice	BHR	Percent										
1st 6 Months	\$16.30	\$60.00	\$11.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.70	\$35.84
2nd 6 Months	\$17.65	\$65.00	\$11.40	\$1.60	\$0.67	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.32	\$40.15
3rd 6 Months	\$19.01	\$70.00	\$11.40	\$9.45	\$0.67	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$40.53	\$50.04
4th 6 Months	\$20.37	\$75.00	\$11.40	\$9.45	\$0.67	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.89	\$52.08
5th 6 Months	\$21.73	\$80.00	\$11.40	\$9.45	\$0.67	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$43.25	\$54.11
6th 6 Months	\$23.09	\$85.02	\$11.40	\$9.45	\$0.67	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$44.61	\$56.16
MASON TRAINEE S	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1st 90 Days	\$12.22	\$45.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.22	\$18.33
1st year after 90 Days	\$12.22	\$45.00	\$11.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23.62	\$29.73
2nd Year	\$13.58	\$50.00	\$11.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.98	\$31.77

(*)Special Calculation Note :

No special calculations for this skilled craft wage rate are required at this time. Classification title contains "Bricklayer" because contract originates within the Bricklayer Local.

Ratio :

1-2 Journeyman to 1 Apprentice 3-4 Journeyman to 2 Apprentices 5-6 Journeyman to 2 Apprentices 6-10 Journeyman to 3 Apprentices 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) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, Summit

Special Jurisdictional Note :**Details :**

In the mutual interest of both Employer and Union and to promote the masonry industry, it is agreed that the Employer may work with the Union and the Local Educational Partners in the jurisdiction of this agreement to employ School to work students provided that no conflicts exist with any Federal or State Laws. Employer must be party to a bonified Apprenticeship and Training program registered with the State of Ohio (OSAC). It is further agreed by both parties that the wages for the Masonry Maintenance Specialist shall be forty-five percent (45%) of the journeyman rate with no fringe benefits or as specified by the Local Educational Partner in the jurisdiction of the agreement.

Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 23 (Cleveland Marble, Terrazzo, & Mosaic)

Type of Rate: Commercial

Change #:
LCN01-2024ib

Craft:
Bricklayer

Effective Date:
5/1/2024

Effective Date:
5/1/2024

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Bricklayer Marble, Terrazzo, Mosaic	\$37.96		\$11.40	\$9.45	\$0.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$59.59	\$78.57
Swing Scaffold Workers	\$38.96		\$11.40	\$9.45	\$0.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$60.59	\$80.07
Stack	\$38.46		\$11.40	\$9.45	\$0.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$60.09	\$79.32
Masonary Maintenance	\$17.08		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$17.08	\$25.62
Apprentice	BHR	Percent										
1st 6 months	\$22.78	\$60.00	\$11.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34.18	\$45.56
2nd 6 months	\$24.67	\$65.00	\$11.40	\$9.45	\$0.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$46.30	\$58.64
3rd 6 months	\$26.57	\$70.00	\$11.40	\$9.45	\$0.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$48.20	\$61.49
4th 6 months	\$28.47	\$75.00	\$11.40	\$9.45	\$0.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50.10	\$64.34
5th 6 months	\$30.37	\$80.00	\$11.40	\$9.45	\$0.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$52.00	\$67.18
6th 6 months	\$32.27	\$85.02	\$11.40	\$9.45	\$0.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$53.90	\$70.04
7th 6 months	\$34.16	\$90.00	\$11.40	\$9.45	\$0.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$55.79	\$72.88
8th 6 months	\$36.06	\$95.00	\$11.40	\$9.45	\$0.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$57.69	\$75.72
MASON TRAINEES 1st 90 Days	\$17.08	\$45.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$17.08	\$25.62
1st Year after 90 Days	\$17.08	\$45.00	\$11.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.48	\$37.02
2nd Year	\$18.98	\$50.00	\$11.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.38	\$39.87

(*)Special Calculation Note :

Classification title contains "Bricklayer" because contract originates within the Bricklayer Local.

Ratio :

1-2 Journeyman to 1 Apprentice 3-4 Journeyman to 2 Apprentices 5-6 Journeyman to 3 Apprentices 7-10
Journeyman to 4 Apprentices 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) :

Ashtabula, Geauga, Lake, Portage, Summit

Special Jurisdictional Note :

Details :

In the mutual interest of both Employer and Union and to promote the masonry industry, it is agreed that the Employer may work with the Union and the Local Educational Partners in the jurisdiction of this agreement to employ School to work students provided that no conflicts exist with any Federal or State Laws. Employer must be party to a bonified Apprenticeship and Training program registered with the State of Ohio (OSAC). It is further agreed by both parties that the wages for the Masonry Maintenance Specialist shall be forty-five percent (45%) of the journeyman rate with no fringe benefits or as specified by the Local Educational Partner in the jurisdiction of the agreement.

Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 23 (Cleveland Terrazzo Finisher)

Type of Rate: Commercial

Change #:
LCN01-2024ib

Craft:
Bricklayer

Effective Date:
5/1/2024

Effective Date:
5/1/2024

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Bricklayer Terrazzo Finisher	\$30.52		\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$47.73	\$62.99
Apprentice	BHR	Percent										
1st 6 months	\$18.31	\$60.00	\$11.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29.71	\$38.87
2nd 6 months	\$21.36	\$70.00	\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.57	\$49.26
3rd 6 months	\$22.89	\$75.00	\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$40.10	\$51.55
4th 6 months	\$24.42	\$80.00	\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.63	\$53.83
5th 6 months	\$25.94	\$85.00	\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$43.15	\$56.12
6th 6 months	\$27.47	\$90.00	\$11.40	\$5.15	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$44.68	\$58.41

(*)Special Calculation Note :

Classification title contains "Bricklayer" because contract originates within the Bricklayer Local. Note that the classification description is clarified after the local union number at the top of the page.

Ratio :

1-2 Journeymen to 1 Apprentice 3- 4 Journeymen to 2 Apprentices 5- 6 Journeymen to 3 Apprentices 7- 8 Journeymen to 4 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, Summit

Special Jurisdictional Note :

Details :

Tile Finishers:do all the cleaning, acid washing,grouting,by any methods or means. Also unpacking of all tiles,opening of all mastic containers,mixing of all mortar,thin-set and epoxy materials,also the distribution of it. They shall handle and distribute all materials such as sand,cement,lime,tile,all types of tile panels,prefabricated tile units, plastic materials and protective covering of all tile.Clean up and removal of always used in connection of said work. Terrazzo Finishers:Assisting in grinding, and handling of material whether by hand or wheel barrow, or power buggies, including sand Portland cement, resinous cement and admixtures, aggregates of marble, stone or other compositions, bonding adhesives, sealers, waxes, and coatings used for Terrazzo Mosaic work, preparing, mixing by hand or machine, and distributing (spreading) all kinds of underbed or underlayment necessary and all scratch coat used for terrazzo and mosaic work. Also the rubbing, grinding, cleaning, sealing and polishing same either by hand or machine. will assist in the installation of the sand bed, tar paper, wire lath, divider strips, and rolling procedures and acid etching of all concrete floors that require it before installation. Shall handle all materials and assist in the installation of all types of terrazzo floors whether conventional or thin-set variety. Marble Finishers>Loading and unloading handling and distributing of marble materials including the mixing of all materials used for the installation of marble, such as cement underbeds for the floors, thin-set or epoxies including but not limited to plastic materials. Clean up and removal of all waster material of said work. Cleaning and grouting of all marble and slate, and all polishing of marble and slate floors.

Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 23 (Cleveland Zone 1 Tile Finisher)

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Bricklayer

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												
Bricklayer Tile Finisher	\$33.25		\$10.20	\$6.37	\$0.76	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50.58	\$67.20
Apprentice	BHR	Percent										
1st 6 months	\$19.95	\$60.00	\$10.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.15	\$40.13
2nd 6 months	\$23.28	\$70.02	\$10.20	\$6.37	\$0.76	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$40.61	\$52.25
3rd 6 months	\$24.94	\$75.00	\$10.20	\$6.37	\$0.76	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$42.27	\$54.74
4th 6 months	\$26.60	\$80.00	\$10.20	\$6.37	\$0.76	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$43.93	\$57.23
5th 6 months	\$28.26	\$85.00	\$10.20	\$6.37	\$0.76	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.59	\$59.72
6th 6 months	\$29.93	\$90.00	\$10.20	\$6.37	\$0.76	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$47.26	\$62.22

(*)Special Calculation Note :

Ratio :

1-4 Journeymen to 1 Apprentice
5-10 Journeymen to 2 Apprentices
11-16 Journeymen to 3 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina

Special Jurisdictional Note :

Details :

Tile Finishers: do all the cleaning, acid washing, grouting, by any methods or means. Also unpacking of all tiles, opening of all mastic containers, mixing of all mortar, thin-set and epoxy materials, also the distribution of it. They shall handle and distribute all materials such as sand, cement, lime, tile, all types of tile panels, prefabricated tile units, plastic materials and protective covering of all tile. Clean up and removal of always used in connection of said work.

Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 23 (Cleveland Zone 1 Tile Layer)

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Bricklayer

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												
Bricklayer Tile Layer	\$38.22		\$10.30	\$2.43	\$0.84	\$0.00	\$7.12	\$0.00	\$0.00	\$0.00	\$58.91	\$78.02
Apprentice	BHR	Percent										
1st 30 days	\$22.93	\$60.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.93	\$34.39
1st 6 months	\$22.93	\$60.00	\$10.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$33.23	\$44.69
2nd 6 months	\$24.84	\$65.00	\$10.30	\$2.43	\$0.84	\$0.00	\$7.12	\$0.00	\$0.00	\$0.00	\$45.53	\$57.95
3rd 6 months	\$26.75	\$70.00	\$10.30	\$2.43	\$0.84	\$0.00	\$7.12	\$0.00	\$0.00	\$0.00	\$47.44	\$60.81
4th 6 months	\$28.67	\$75.02	\$10.30	\$2.43	\$0.84	\$0.00	\$7.12	\$0.00	\$0.00	\$0.00	\$49.36	\$63.70
5th 6 months	\$30.58	\$80.00	\$10.30	\$2.43	\$0.84	\$0.00	\$7.12	\$0.00	\$0.00	\$0.00	\$51.27	\$66.56
6th 6 months	\$32.49	\$85.00	\$10.30	\$2.43	\$0.84	\$0.00	\$7.12	\$0.00	\$0.00	\$0.00	\$53.18	\$69.42
7th 6 months	\$34.40	\$90.00	\$10.30	\$2.43	\$0.84	\$0.00	\$7.12	\$0.00	\$0.00	\$0.00	\$55.09	\$72.29
8th 6 months	\$36.31	\$95.00	\$10.30	\$2.43	\$0.84	\$0.00	\$7.12	\$0.00	\$0.00	\$0.00	\$57.00	\$75.16

(*)Special Calculation Note :

Ratio :

1-4 Journeymen to 1 Apprentice
5-10 Journeymen to 2 Apprentices
11-16 Journeymen to 3 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 23 (Mentor)

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Bricklayer

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												
Bricklayer	\$40.73		\$10.78	\$8.94	\$0.90	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$64.35	\$84.72
Cement & Stone Masons	\$40.73		\$10.78	\$8.94	\$0.90	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$64.35	\$84.72
Pointer Caulker Cleaner	\$40.73		\$10.78	\$8.94	\$0.90	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$64.35	\$84.72
Plasterers	\$40.73		\$10.78	\$8.94	\$0.90	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$64.35	\$84.72
Mason Trainees	\$		\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1-90 Days	\$24.44		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.44	\$36.66
91-365 Days	\$24.44		\$10.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.22	\$47.44
366 plus days	\$28.51		\$10.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$39.29	\$53.55
Apprentice	BHR	Percent										
1st 6 months	\$24.44	\$60.00	\$10.78	\$0.00	\$0.90	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.12	\$48.34
2nd 6 months	\$26.47	\$65.00	\$10.78	\$8.94	\$0.90	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$50.09	\$63.32
3rd 6 months	\$28.51	\$70.00	\$10.78	\$8.94	\$0.90	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$52.13	\$66.38
4th 6 months	\$30.55	\$75.00	\$10.78	\$8.94	\$0.90	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$54.17	\$69.44
5th 6 months	\$32.58	\$80.00	\$10.78	\$8.94	\$0.90	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$56.20	\$72.49
6th 6 months	\$34.62	\$85.00	\$10.78	\$8.94	\$0.90	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$58.24	\$75.55
7th 6 months	\$36.66	\$90.00	\$10.78	\$8.94	\$0.90	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$60.28	\$78.61
8th 6 months	\$38.69	\$95.00	\$10.78	\$8.94	\$0.90	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$62.31	\$81.66

(*)Special Calculation Note :

Apprentices must be employed prior to hiring Mason Finisher(s).

Ratio :

1-3 Journeymen to 1 Apprentice
4-6 Journeymen to 2 Apprentices
7-9 Journeymen to 3 Apprentices
10-12 Journeymen to 4 Apprentices

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

*Apprentices must be employed prior to hiring Mason Finisher(s).

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Geauga, Lake

Special Jurisdictional Note :

Details :

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 Bricklayer Sewer Water 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 Bricklayer Power Plants Tunnels Amuseme nt 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 Commercial Zone NEO 1A

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Carpenter

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												
Carpenter	\$39.54		\$9.59	\$10.98	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$65.28	\$85.05
Apprentice	BHR	Percent										
1st 3 months	\$23.72	\$60.00	\$9.59	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$33.31	\$45.17
2nd 3 months	\$23.72	\$60.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$38.48	\$50.34
2nd 6 months	\$25.70	\$65.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$40.46	\$53.31
3rd 6 months	\$27.68	\$70.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$42.44	\$56.28
4th 6 months	\$29.66	\$75.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$44.42	\$59.25
5th 6 months	\$31.63	\$80.00	\$9.59	\$8.78	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$55.17	\$70.98
6th 6 months	\$33.61	\$85.00	\$9.59	\$9.33	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$57.70	\$74.50
7th 6 months	\$35.59	\$90.00	\$9.59	\$9.88	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$60.23	\$78.03
8th 6 months	\$37.56	\$95.00	\$9.59	\$10.43	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$62.75	\$81.53

(*)Special Calculation Note :

*Other is International Training

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Floorlayer Zone NEO 1A

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Carpenter

Effective Date:
7/1/2026

Effective Date:
7/1/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter Floorlayer	\$39.54		\$9.59	\$10.98	\$0.82	\$0.00	\$4.19	\$0.18	\$0.00	\$0.00	\$65.30	\$85.07
Apprentice	BHR	Percent										
1st 3 months	\$23.72	\$60.00	\$9.59	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$33.31	\$45.17
2nd 3 months	\$23.72	\$60.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.19	\$0.18	\$0.00	\$0.00	\$38.50	\$50.36
2nd 6 months	\$25.70	\$65.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.19	\$0.18	\$0.00	\$0.00	\$40.48	\$53.33
3rd 6 months	\$27.68	\$70.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.19	\$0.18	\$0.00	\$0.00	\$42.46	\$56.30
4th 6 months	\$29.66	\$75.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.19	\$0.18	\$0.00	\$0.00	\$44.44	\$59.27
5th 6 months	\$31.63	\$80.00	\$9.59	\$8.78	\$0.82	\$0.00	\$4.19	\$0.18	\$0.00	\$0.00	\$55.19	\$71.00
6th 6 months	\$33.61	\$85.00	\$9.59	\$9.33	\$0.82	\$0.00	\$4.19	\$0.18	\$0.00	\$0.00	\$57.72	\$74.53
7th 6 months	\$35.59	\$90.00	\$9.59	\$9.88	\$0.82	\$0.00	\$4.19	\$0.18	\$0.00	\$0.00	\$60.25	\$78.05
8th 6 months	\$37.56	\$95.00	\$9.59	\$10.43	\$0.82	\$0.00	\$4.19	\$0.18	\$0.00	\$0.00	\$62.77	\$81.55

(*)Special Calculation Note :

Other: International Training

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Hev Hwy Zone NHH C1-B

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Carpenter

Effective Date:
7/1/2026

Effective Date:
7/1/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter	\$39.55		\$9.59	\$10.98	\$0.82	\$0.00	\$4.19	\$0.15	\$0.00	\$0.00	\$65.28	\$85.05
Apprentice	BHR	Percent										
1st 3 Months	\$23.73	\$60.00	\$9.59	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$33.32	\$45.19
2nd 3 Months	\$23.73	\$60.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.19	\$0.15	\$0.00	\$0.00	\$38.48	\$50.34
2nd 6 Months	\$25.71	\$65.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.19	\$0.15	\$0.00	\$0.00	\$40.46	\$53.31
3rd 6 Months	\$27.68	\$70.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.19	\$0.15	\$0.00	\$0.00	\$42.43	\$56.27
4th 6 Months	\$29.66	\$75.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.19	\$0.15	\$0.00	\$0.00	\$44.41	\$59.24
5th 6 Months	\$31.64	\$80.00	\$9.59	\$8.78	\$0.82	\$0.00	\$4.19	\$0.15	\$0.00	\$0.00	\$55.17	\$70.99
6th 6 Months	\$33.62	\$85.00	\$9.59	\$9.33	\$0.82	\$0.00	\$4.19	\$0.15	\$0.00	\$0.00	\$57.70	\$74.51
7th 6 Months	\$35.59	\$90.00	\$9.59	\$9.88	\$0.82	\$0.00	\$4.19	\$0.15	\$0.00	\$0.00	\$60.22	\$78.02
8th 6 Months	\$37.57	\$95.00	\$9.59	\$10.43	\$0.82	\$0.00	\$4.19	\$0.15	\$0.00	\$0.00	\$62.75	\$81.53

(*)Special Calculation Note :

Other: Training

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake

Special Jurisdictional Note :

Details :

Any construction work as performed within the definitions listed here below, all of which, taken together are "Heavy-Highway Construction" work:

"HIGHWAY CONSTRUCTION" work is defined as work performed to provide a facility to accommodate vehicular or pedestrian traffic and includes, but is not limited to, the construction of all streets, roads, expressways, turnpikes, bridges, drainage structures, grade separations, parking lots, rest areas, alleys, sidewalks, guardrails, fences, and sound barriers, but shall not include construction of buildings. "AIRPORT CONSTRUCTION" work is defined as including site preparation, grading, paving, drainage, fences, sidewalks, driveways, parking areas and similar work incidental to the construction of airfields but shall not include the construction of buildings. "HEAVY CONSTRUCTION" work is defined as including, but not limited to grade separations, foundations (does not include building foundations), abutments, retaining walls, shafts, tunnels, subways, elevators, drainage projects, flood control projects, reclamation projects, reservoirs, water supply projects, water development projects, hydro-electric development, utility transmission lines, including right-of-way clearing, locks, dams, dikes, levees, revetments, channels, channel cutoffs, intakes, dredging projects, jetties, breakwater, docks, harbors; and all municipal and utility construction except construction classified as building construction.

"RAILROAD CONSTRUCTION" work is defined as including, grading, drainage, placing of rails, crossties, ballast and the construction of bridges, and other incidentals for railroads, street railways construction projects and rapid transit system projects, but shall not include the construction of buildings.

"SEWER WATERWORKS AND UTILITY CONSTRUCTION" work is defined as including construction of all storm sewers, sanitary sewers, supplying and distributing waterlines, gas lines, telephone and television conduit, underground electrical lines, and similar utility construction. Main waterline and trunk sewers connecting water works and/or sewage disposal plants are included within this definition.

"SUPPORTIVE EXCAVATION AND DEEP FOUNDATIONS" work is all driven and drilled foundations within the building site.

"POWER PLANT SITE" work is defined as all work which is inside the property line, but outside the actual building construction. Such work shall include, but is not limited to, the grading and installation of sewer lines, drainage lines, gas lines, telephone and television conduit, underground electrical lines and similar utility construction, parking lots, bridges, roads, streets, sidewalks, reservoirs, ash pits, storage tanks, ramps and other such construction work performed on the work site, but shall not include the actual excavation for the buildings, foundations or footers or construction of the buildings.

"POLLUTION CONTROL, SEWAGE PLANT, WASTE PLANT AND WATER TREATMENT FACILITIES CONSTRUCTION" WORK shall be all work in construction of pumping stations, waste and sewage disposal plants, incinerator plants, water treatment plants, filtration plants, solid waste disposal and similar pollution control facilities.

"SOLAR & WIND FARM" WORK is considered "HEAVY CONSTRUCTION" and includes all work in the construction of solar fields/farms and wind fields/farms (not installations on buildings).

Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Insulation Zone NEO 1A

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Carpenter

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												
Carpenter Insulation	\$31.63		\$9.59	\$10.98	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$57.37	\$73.19
Apprentice	BHR	Percent										
1st 3 months	\$18.98	\$60.00	\$9.59	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.57	\$38.06
2nd 3 months	\$18.98	\$60.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$33.74	\$43.23
2nd 6 months	\$20.56	\$65.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$35.32	\$45.60
3rd 6 months	\$22.14	\$70.00	\$9.59	\$0.00	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$36.90	\$47.97
4th 6 months	\$23.73	\$75.02	\$9.59	\$0.00	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$38.49	\$50.35
5th 6 months	\$25.30	\$80.00	\$9.59	\$8.78	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$48.84	\$61.49
6th 6 months	\$26.89	\$85.00	\$9.59	\$9.33	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$50.98	\$64.42
7th 6 months	\$28.47	\$90.00	\$9.59	\$9.88	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$53.11	\$67.34
8th 6 month	\$30.05	\$95.00	\$9.59	\$10.43	\$0.82	\$0.00	\$4.20	\$0.15	\$0.00	\$0.00	\$55.24	\$70.27

(*)Special Calculation Note :

*Other is Training

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Millwright NE Zone M1-A

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Carpenter

Effective Date:
7/1/2026

Effective Date:
7/1/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter Millwright	\$37.41		\$9.60	\$11.33	\$0.82	\$0.00	\$6.87	\$0.20	\$0.00	\$0.00	\$66.23	\$84.94
Certified Welder	\$38.41		\$9.60	\$11.33	\$0.82	\$0.00	\$6.87	\$0.20	\$0.00	\$0.00	\$67.23	\$86.44
Layout man on Monorail	\$40.22		\$9.60	\$11.33	\$0.82	\$0.00	\$6.87	\$0.20	\$0.00	\$0.00	\$69.04	\$89.15
Apprentice	BHR	Percent										
1st 6 months	\$22.45	\$60.00	\$9.60	\$11.33	\$0.82	\$0.00	\$6.87	\$0.20	\$0.00	\$0.00	\$51.27	\$62.49
2nd 6 months	\$24.32	\$65.00	\$9.60	\$11.33	\$0.82	\$0.00	\$6.87	\$0.20	\$0.00	\$0.00	\$53.14	\$65.30
3rd 6 months	\$26.19	\$70.00	\$9.60	\$11.33	\$0.82	\$0.00	\$6.87	\$0.20	\$0.00	\$0.00	\$55.01	\$68.11
4th 6 months	\$28.06	\$75.00	\$9.60	\$11.33	\$0.82	\$0.00	\$6.87	\$0.20	\$0.00	\$0.00	\$56.88	\$70.91
5th 6 months	\$29.93	\$80.00	\$9.60	\$11.33	\$0.82	\$0.00	\$6.87	\$0.20	\$0.00	\$0.00	\$58.75	\$73.72
6th 6 months	\$31.80	\$85.00	\$9.60	\$11.33	\$0.82	\$0.00	\$6.87	\$0.20	\$0.00	\$0.00	\$60.62	\$76.52
7th 6 months	\$33.67	\$90.00	\$9.60	\$11.33	\$0.82	\$0.00	\$6.87	\$0.20	\$0.00	\$0.00	\$62.49	\$79.33
8th 6 months	\$35.54	\$95.00	\$9.60	\$11.33	\$0.82	\$0.00	\$6.87	\$0.20	\$0.00	\$0.00	\$64.36	\$82.13

(*)Special Calculation Note :

Other is Training

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashland, Ashtabula, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Medina, Portage, Richland, Summit

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, under ground 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; hoists; 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 drives 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, planing, extruder, ball, dust collectors, equipment in meat packing plants, splicing of 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, drilling 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 trial run of any equipment or machinery installed by the Millwrights. It is agreed the Millwrights shall use the layout tools and optic equipment necessary to perform their work.

Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Pile Driver Hev Hwy Zone NHH P2-B

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Carpenter

Effective Date:
7/1/2026

Effective Date:
7/1/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter Pile Driver	\$37.35		\$9.55	\$11.33	\$0.82	\$0.00	\$6.98	\$0.20	\$0.00	\$0.00	\$66.23	\$84.91
Diver	\$56.03		\$9.55	\$11.33	\$0.82	\$0.00	\$6.98	\$0.20	\$0.00	\$0.00	\$84.91	\$112.93
Certified Welder	\$38.40		\$9.55	\$11.33	\$0.82	\$0.00	\$6.98	\$0.20	\$0.00	\$0.00	\$67.28	\$86.48
Apprentice	BHR	Percent										
1st 6 months	\$22.41	\$60.00	\$9.55	\$11.33	\$0.82	\$0.00	\$6.98	\$0.20	\$0.00	\$0.00	\$51.29	\$62.50
2nd 6 months	\$24.28	\$65.00	\$9.55	\$11.33	\$0.82	\$0.00	\$6.98	\$0.20	\$0.00	\$0.00	\$53.16	\$65.30
3rd 6 months	\$26.14	\$70.00	\$9.55	\$11.33	\$0.82	\$0.00	\$6.98	\$0.20	\$0.00	\$0.00	\$55.02	\$68.09
4th 6 months	\$28.01	\$75.00	\$9.55	\$11.33	\$0.82	\$0.00	\$6.98	\$0.20	\$0.00	\$0.00	\$56.89	\$70.90
5th 6 months	\$29.88	\$80.00	\$9.55	\$11.33	\$0.82	\$0.00	\$6.98	\$0.20	\$0.00	\$0.00	\$58.76	\$73.70
6th 6 months	\$31.75	\$85.00	\$9.55	\$11.33	\$0.82	\$0.00	\$6.98	\$0.20	\$0.00	\$0.00	\$60.63	\$76.50
7th 6 months	\$33.62	\$90.00	\$9.55	\$11.33	\$0.82	\$0.00	\$6.98	\$0.20	\$0.00	\$0.00	\$62.50	\$79.31
8th 6 months	\$35.48	\$95.00	\$9.55	\$11.33	\$0.82	\$0.00	\$6.98	\$0.20	\$0.00	\$0.00	\$64.36	\$82.10

(*)Special Calculation Note :

*Other is Training

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashland, Ashtabula, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Medina, Portage, Richland, Summit

Special Jurisdictional Note :

Details :

Pile Drivers duties shall include but not limited to: Pile driving, milling, fashioning, joining assembling, erecting, fastening, or dismantling of all material of wood, plastic, metal, fiber, cork and composition and all other substitute materials: pile driving, cutting, fitting and placing of lagging, and the handling, cleaning, erecting, installing and dismantling of machinery, equipment and erecting pre-engineered metal buildings. Pile Drivers work but not limited to: unloading, assembling, erection, repairs, operation, signaling, dismantling and reloading all equipment that is used for pile driving including pile butts is defined as sheeting or scrap piling. Underwater work that may be required in connection with the installation of piling. The driver and his tender work as a team and shall arrive at their own financial arrangements with the contractor. Any configuration of wood, steel, concrete or composite that is jetted, driven or vibrated onto the ground by conventional pile driving equipment for the purpose of supporting a future load that may be permanent or temporary. The construction of all wharves and docks, including the fabrication and installation of floating docks. Driving bracing, plumbing, cutting off and capping of all piling whether wood, metal, pipe piling or composite, loading, unloading, erecting, framing, dismantling, moving and handling of pile driving equipment piling used in the construction and repair of all wharves, docks, piers, trestles, caissons, cofferdams and erection of all sea walls and breakwaters. All underwater and marine work on 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. Rate shall include carpenters, acoustic and ceiling installers, drywall installers, pile drivers and floorlayers.

Prevailing Wage Rate Skilled Crafts

Name of Union: Cement Mason Local 404

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Cement Mason

Effective Date:
8/19/2026

Effective Date:
8/19/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Cement Mason	\$38.58		\$10.15	\$7.50	\$0.78	\$0.00	\$6.20	\$0.08	\$0.00	\$0.07	\$63.36	\$82.65
Apprentice	BHR	Percent										
1st yr	\$22.39	\$58.03	\$10.15	\$7.50	\$0.78	\$0.00	\$3.10	\$0.08	\$0.00	\$0.07	\$44.07	\$55.27
2nd yr	\$28.18	\$73.04	\$10.15	\$7.50	\$0.78	\$0.00	\$3.10	\$0.08	\$0.00	\$0.07	\$49.86	\$63.95
3rd yr	\$32.04	\$83.04	\$10.15	\$7.50	\$0.78	\$0.00	\$3.10	\$0.08	\$0.00	\$0.07	\$53.72	\$69.74
4th yr	\$37.82	\$98.03	\$10.15	\$7.50	\$0.78	\$0.00	\$3.10	\$0.08	\$0.00	\$0.07	\$59.50	\$78.41

(*)Special Calculation Note :

OTHER: Training Fund
MISC: Substance Abuse Testing (\$0.04) & Respirator Safety (\$0.03)

Ratio :

5 Journeymen to 1 Apprentice
2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Cement Mason Local 404 Hev Hwy

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	\$37.29		\$9.50	\$8.05	\$0.75	\$0.00	\$3.74	\$0.08	\$0.00	\$0.00	\$59.41	\$78.06
Apprentice	BHR	Percent										
1st Year	\$26.10	\$70.00	\$9.50	\$8.05	\$0.75	\$0.00	\$3.74	\$0.08	\$0.00	\$0.00	\$48.22	\$61.27
2nd Year	\$29.83	\$80.00	\$9.50	\$8.05	\$0.75	\$0.00	\$3.74	\$0.08	\$0.00	\$0.00	\$51.95	\$66.86
3rd Year	\$33.56	\$90.00	\$9.50	\$8.05	\$0.75	\$0.00	\$3.74	\$0.08	\$0.00	\$0.00	\$55.68	\$72.46
4th Year	\$35.43	\$95.00	\$9.50	\$8.05	\$0.75	\$0.00	\$3.74	\$0.08	\$0.00	\$0.00	\$57.55	\$75.26

(*)Special Calculation Note :

Other: International Training Fund

Ratio :

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

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

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 673 Inside

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Electrical

Effective Date:
3/4/2026

Effective Date:
3/4/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrician	\$41.00		\$7.83	\$8.98	\$0.70	\$0.00	\$6.00	\$1.23	\$0.00	\$0.00	\$65.74	\$86.24
Welder	\$45.10		\$7.83	\$8.98	\$0.70	\$0.00	\$6.00	\$1.35	\$0.00	\$0.00	\$69.96	\$92.51
Apprentice	BHR	Percent										
1st Period	\$18.45	\$45.00	\$7.83	\$0.00	\$0.70	\$0.00	\$0.00	\$0.55	\$0.00	\$0.00	\$27.53	\$36.75
2nd Period	\$20.50	\$50.00	\$7.83	\$0.00	\$0.70	\$0.00	\$0.00	\$0.62	\$0.00	\$0.00	\$29.65	\$39.90
3rd Period	\$22.55	\$55.00	\$7.83	\$8.98	\$0.70	\$0.00	\$6.00	\$0.68	\$0.00	\$0.00	\$46.74	\$58.02
4th Period	\$26.65	\$65.00	\$7.83	\$8.98	\$0.70	\$0.00	\$6.00	\$0.80	\$0.00	\$0.00	\$50.96	\$64.28
5th Period	\$30.75	\$75.00	\$7.83	\$8.98	\$0.70	\$0.00	\$6.00	\$0.92	\$0.00	\$0.00	\$55.18	\$70.56
6th Period	\$34.85	\$85.00	\$7.83	\$8.98	\$0.70	\$0.00	\$6.00	\$1.05	\$0.00	\$0.00	\$59.41	\$76.84

(*)Special Calculation Note :

Other: National Electrical Benefit Fund

Ratio :

1 to 3 Journeymen to 2 Apprentices
4 to 6 Journeymen to 4 Apprentices
7 to 9 Journeymen to 6 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula*, Geauga*, Lake

Special Jurisdictional Note :

The following townships In Ashtabula County are EXCLUDED: Orwell, Colebrook, Williamsfield, Wayne and Windsor.

In Geauga County the following townships are INCLUDED: Burton, Chardon, Claridon, Hambden, Huntsburg, Montville, Munson, Newbury and Thompson.

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 673 Inside Lt Commercial Northern

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Electrical

Effective Date:
3/4/2026

Effective Date:
3/4/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrician	\$41.00		\$7.83	\$8.98	\$0.70	\$0.00	\$6.00	\$1.23	\$0.00	\$0.00	\$65.74	\$86.24
Welder	\$45.10		\$7.83	\$8.98	\$0.70	\$0.00	\$6.00	\$1.35	\$0.00	\$0.00	\$69.96	\$92.51
CE-3 12,001-14,000 Hrs	\$31.71		\$6.99	\$0.00	\$0.95	\$0.00	\$0.95	\$0.95	\$0.00	\$0.10	\$41.65	\$57.50
CE-2 10,001-12,000 Hrs	\$24.92		\$6.99	\$0.00	\$0.95	\$0.00	\$0.75	\$0.75	\$0.00	\$0.10	\$34.46	\$46.92
CE-1 8,001-10,000 Hrs	\$22.65		\$6.99	\$0.00	\$0.95	\$0.00	\$0.68	\$0.68	\$0.00	\$0.10	\$32.05	\$43.37
CW-4 6,001-8,000 Hrs	\$20.39		\$6.99	\$0.00	\$0.95	\$0.00	\$0.61	\$0.61	\$0.00	\$0.10	\$29.65	\$39.84
CW-3 4,001-6,000 Hrs	\$18.12		\$6.99	\$0.00	\$0.95	\$0.00	\$0.54	\$0.54	\$0.00	\$0.10	\$27.24	\$36.30
CW-2 2,001-4,000 Hrs	\$16.99		\$6.99	\$0.00	\$0.95	\$0.00	\$0.51	\$0.51	\$0.00	\$0.10	\$26.05	\$34.55
CW-1 0-2,000 Hrs	\$15.86		\$6.99	\$0.00	\$0.95	\$0.00	\$0.48	\$0.48	\$0.00	\$0.10	\$24.86	\$32.79
Apprentice	BHR	Percent										
1st Period	\$18.45	\$45.00	\$7.83	\$0.50	\$0.70	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.48	\$36.70
2nd Period	\$20.51	\$50.02	\$7.83	\$0.56	\$0.70	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29.60	\$39.86
3rd Period	\$22.55	\$55.00	\$7.83	\$9.59	\$0.70	\$0.00	\$5.46	\$0.00	\$0.00	\$0.00	\$46.13	\$57.41
4th Period	\$26.65	\$65.00	\$7.83	\$9.71	\$0.70	\$0.00	\$5.46	\$0.00	\$0.00	\$0.00	\$50.35	\$63.67
5th Period	\$30.75	\$75.00	\$7.83	\$9.82	\$0.70	\$0.00	\$5.46	\$0.00	\$0.00	\$0.00	\$54.56	\$69.94
6th Period	\$34.85	\$85.00	\$7.83	\$9.93	\$0.70	\$0.00	\$5.46	\$0.00	\$0.00	\$0.00	\$58.77	\$76.20

(*)Special Calculation Note :

Other: National Electrical Benefit Fund
Misc: Central Collection Admin Fee

Ratio :

1 to 3 Journeymen to 2 Apprentices
4 to 6 Journeymen to 4 Apprentices
7 to 9 Journeymen to 6 Apprentices

Construction Electrician and Construction Wireman Ratio There shall be a minimum ratio of one inside Journeyman Wireman to every (4) employees of different classifications per jobsite. An Inside Journeyman Wireman is required on the project as the fifth (5th) worker or when apprentices are used

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula*, Geauga*, Lake

Special Jurisdictional Note :

The following townships In Ashtabula County are EXCLUDED: Orwell, Colebrook, Williamsfield, Wayne and Windsor.

In Geauga County the following townships are INCLUDED: Burton, Chardon, Claridon, Hambden, Huntsburg, Montville, Munson, Newbury and Thompson.

Details :

The scope of work for the light commercial agreement shall apply to the following small medical clinics, stand-alone doctor and dentist offices with up to 600 amp service (not attached to a hospital), gas stations/convenience stores, fast food restaurants and franchised chain restaurants including independent bars and taverns, places of worship, funeral homes, nursing homes, assisted living facilities and day-care facilities under 15,000 sq ft, small office, retail/wholesale facilities under 15,000 sq ft with less than 10 units attached, storage units, car washes, express hotels and motels (4 stories or less) without conference or restaurants facilities, residential units (subject to Davis Bacon Rates) small stand-alone manufacturing facilities when free standing and not part of a larger facility (less than 15,000 sq ft) solar projects (500 panels or less) unless other wise covered under this 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.

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 673 Lightning Rod

Type of Rate: Commercial

Change #:
OCR01-2022sks

Craft:
Electrical

Effective Date:
11/10/2022

Effective Date:
11/10/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lightning Protection	\$30.44		\$7.50	\$0.91	\$0.00	\$2.84	\$1.83	\$0.00	\$0.00	\$0.00	\$43.52	\$58.74
Apprentice	BHR	Percent										
Lightning Protection Installer 1st day-6 months	\$15.22	\$50.00	\$7.50	\$0.46	\$0.00	\$0.41	\$0.92	\$0.00	\$0.00	\$0.00	\$24.51	\$32.12
Lightning Protection Installer 2nd 6 months	\$16.74	\$55.00	\$7.50	\$0.50	\$0.00	\$0.45	\$1.01	\$0.00	\$0.00	\$0.00	\$26.20	\$34.57
Lightning Protection Installer 3rd 6th months	\$18.26	\$60.00	\$7.50	\$0.55	\$0.00	\$0.89	\$1.10	\$0.00	\$0.00	\$0.00	\$28.30	\$37.44
Lightning Protection Installer 4th 6 months months	\$19.79	\$65.00	\$7.50	\$0.59	\$0.00	\$0.97	\$1.19	\$0.00	\$0.00	\$0.00	\$30.04	\$39.93
Lightning Protection Installer 3rd Year	\$21.31	\$70.00	\$7.50	\$0.64	\$0.00	\$1.52	\$1.28	\$0.00	\$0.00	\$0.00	\$32.25	\$42.90
Lightning Protection Installer 4th Year	\$24.35	\$80.00	\$7.50	\$0.73	\$0.00	\$1.73	\$1.46	\$0.00	\$0.00	\$0.00	\$35.77	\$47.95
Lightning Protection Installer 5th Year	\$27.40	\$90.00	\$7.50	\$0.82	\$0.00	\$1.95	\$1.65	\$0.00	\$0.00	\$0.00	\$39.32	\$53.01

(*)Special Calculation Note :

Ratio :

1- 3 Journeyman to 2 Trainee 4-6 Journeyman to 4 Trainee 7-9 Journeyman to 6 Trainee

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Geauga, Lake

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 673 Voice Data Video

Type of Rate: Commercial

Change #:
LCN01-2023ib

Craft:
Electrical

Effective Date:
6/14/2023

Effective Date:
6/14/2023

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Installer Technician	\$28.95		\$10.98	\$0.87	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$42.86	\$57.34
Communication Technician	\$30.20		\$10.98	\$0.91	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$44.15	\$59.25
Senior Technician	\$31.17		\$10.98	\$0.93	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$45.14	\$60.73
Security Tech Level I	\$28.95		\$10.98	\$0.87	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$42.86	\$57.34
Security Tech Level II	\$30.20		\$10.98	\$0.91	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$44.15	\$59.25
Security Tech Level III	\$31.17		\$10.98	\$0.93	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$45.14	\$60.73
Audio Visual Tech Level I	\$28.95		\$10.98	\$0.87	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$42.86	\$57.34
Audio Visual Tech Level II	\$30.20		\$10.98	\$0.91	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$44.15	\$59.25
Audio Visual Tech Level III	\$31.17		\$10.98	\$0.93	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$45.14	\$60.73
Apprentice	BHR	Percent										
1st 6 Months	\$15.92	\$55.00	\$10.98	\$0.48	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$29.44	\$37.40
2nd 6 Months	\$18.82	\$65.00	\$10.98	\$0.56	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$32.42	\$41.83
2nd Year	\$21.71	\$75.00	\$10.98	\$0.65	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$35.40	\$46.26
3rd Year	\$23.16	\$80.00	\$10.98	\$0.69	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$36.89	\$48.47
4th Year	\$24.61	\$85.00	\$10.98	\$0.74	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$38.39	\$50.69
5th Year	\$26.06	\$90.00	\$10.98	\$0.78	\$0.70	\$0.00	\$1.36	\$0.00	\$0.00	\$0.00	\$39.88	\$52.90

(*)Special Calculation Note :

No special calculations for this skilled craft wage rate are required at this time.

Ratio :

1 to 3 Journeyman to 2 Apprentice 4 to 6 Journeyman to 4 Apprentice 7 to 9 Journeyman to 6 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula*, Geauga*, Lake

Special Jurisdictional Note :

In Ashtabula County the following townships are excluded: (Orwell, Colebrook, Williamsfield, Wayne and Windsor). In Geauga County the following townships are included: (Burton, Chardon, Claridon, Hambden, Huntsburg, Montville, Munson, Newbury and Thompson)

Details :

The following work is EXCLUDED from the Teledata Technician work scope: The installation of computer systems in industrial applications such as assembly lines, robotics, computer controller manufacturing systems. The installation of conduit and/ or raceways shall be installed by Inside Wireman . On sites where there is no Inside Wireman employed, the Teledata Technician may install raceway, or conduit not greater than 10 ft. Fire Alarm work is excluded on all new construction sites or wherever the fire alarm system is installed in conduit All HVAC control work. *Installer Technician: Successful completion of the Installer/Technician Apprenticeship Program or have been certified by the IBEW/NECA Joint Apprenticeship and Training Program as an Installer/Technician. *Communications Technician: At least 2 years experience as a Installer/Technician and a minimum of 12 hours continuous related education or have been certified by an IBEW/NECA Joint Apprenticeship Training Program as a Communication Technician.

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 71 Cleveland Commercial Projects

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Electrical

Effective Date:
1/21/2026

Effective Date:
1/21/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lineman	\$61.19		\$7.50	\$1.84	\$0.61	\$0.00	\$14.69	\$1.00	\$0.00	\$0.00	\$86.83	\$117.42
Cable Splicer	\$61.19		\$7.50	\$1.84	\$0.61	\$0.00	\$14.69	\$1.00	\$0.00	\$0.00	\$86.83	\$117.42
Equip. Operator	\$55.07		\$7.50	\$1.65	\$0.55	\$0.00	\$13.22	\$1.00	\$0.00	\$0.00	\$78.99	\$106.53
Groundman 0 to 12 months	\$36.71		\$7.50	\$1.10	\$0.37	\$0.00	\$8.81	\$1.00	\$0.00	\$0.00	\$55.49	\$73.84
Groundman 1 year plus	\$42.83		\$7.50	\$1.28	\$0.43	\$0.00	\$10.28	\$1.00	\$0.00	\$0.00	\$63.32	\$84.73
Apprentice	BHR	Percent										
1st 1000 Hrs	\$36.71	\$60.00	\$7.50	\$1.10	\$0.37	\$0.00	\$8.81	\$1.00	\$0.00	\$0.00	\$55.49	\$73.84
2nd 1000 Hrs	\$39.77	\$65.00	\$7.50	\$1.19	\$0.40	\$0.00	\$9.54	\$1.00	\$0.00	\$0.00	\$59.40	\$79.28
3rd 1000 Hrs	\$42.83	\$70.00	\$7.50	\$1.28	\$0.43	\$0.00	\$10.28	\$1.00	\$0.00	\$0.00	\$63.32	\$84.73
4th 1000 Hrs	\$45.89	\$75.00	\$7.50	\$1.38	\$0.46	\$0.00	\$11.01	\$1.00	\$0.00	\$0.00	\$67.24	\$90.19
5th 1000 Hrs	\$48.95	\$80.00	\$7.50	\$1.47	\$0.49	\$0.00	\$11.75	\$1.00	\$0.00	\$0.00	\$71.16	\$95.64
6th 1000 Hrs	\$52.01	\$85.00	\$7.50	\$1.56	\$0.55	\$0.00	\$12.48	\$1.00	\$0.00	\$0.00	\$75.10	\$101.11
7th 1000 Hrs	\$55.07	\$90.00	\$7.50	\$1.65	\$0.55	\$0.00	\$13.22	\$1.00	\$0.00	\$0.00	\$78.99	\$106.53

(*)Special Calculation Note :

Other: Health Reimbursement Account

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note :

Details :

A groundman when directed shall assist a Journeymen 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, ladders, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an apprentice lineman. There shall be no more than one (1) Groundman for each two (2) Journeyman except when performing DOT Traffic Signal or Highway lighting work where the ratio can be two (2) Groundman for each Journeyman or Operator.

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 71 Cleveland Municipal Power & Transit

Type of Rate: Commercial

Change #:
LCN01-2025ib

Craft:
Electrical

Effective Date:
1/21/2026

Effective Date:
1/21/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lineman	\$56.91		\$7.50	\$1.71	\$0.57	\$0.00	\$13.09	\$1.00	\$0.00	\$0.00	\$80.78	\$109.23
Cable Splicer	\$56.91		\$7.50	\$1.71	\$0.57	\$0.00	\$13.09	\$1.00	\$0.00	\$0.00	\$80.78	\$109.23
Equip. Operator	\$51.22		\$7.50	\$1.54	\$0.51	\$0.00	\$11.78	\$1.00	\$0.00	\$0.00	\$73.55	\$99.16
Groundman 0 to 12 months	\$34.15		\$7.50	\$1.02	\$0.34	\$0.00	\$7.85	\$1.00	\$0.00	\$0.00	\$51.86	\$68.94
Groundman 1 Year or More	\$39.84		\$7.50	\$1.20	\$0.40	\$0.00	\$9.16	\$1.00	\$0.00	\$0.00	\$59.10	\$79.02
Apprentice	BHR	Percent										
1st 1000 Hrs	\$34.15	\$60.00	\$7.50	\$1.02	\$0.34	\$0.00	\$7.85	\$1.00	\$0.00	\$0.00	\$51.86	\$68.94
2nd 1000 Hrs	\$36.99	\$65.00	\$7.50	\$1.11	\$0.37	\$0.00	\$8.51	\$1.00	\$0.00	\$0.00	\$55.48	\$73.97
3rd 1000 Hrs	\$39.84	\$70.00	\$7.50	\$1.20	\$0.40	\$0.00	\$9.16	\$1.00	\$0.00	\$0.00	\$59.10	\$79.02
4th 1000 Hrs	\$42.68	\$75.00	\$7.50	\$1.28	\$0.43	\$0.00	\$9.82	\$1.00	\$0.00	\$0.00	\$62.71	\$84.05
5th 1000 Hrs	\$45.53	\$80.00	\$7.50	\$1.37	\$0.46	\$0.00	\$10.47	\$1.00	\$0.00	\$0.00	\$66.33	\$89.09
6th 1000 Hrs	\$48.37	\$85.00	\$7.50	\$1.45	\$0.48	\$0.00	\$11.13	\$1.00	\$0.00	\$0.00	\$69.93	\$94.11
7th 1000 Hrs	\$51.22	\$90.00	\$7.50	\$1.54	\$0.51	\$0.00	\$11.78	\$1.00	\$0.00	\$0.00	\$73.55	\$99.16

(*)Special Calculation Note :

Other: Health Reimbursement Account

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note :

Details :

A groundman when directed shall assist a Journeymen 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, ladders, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an apprentice lineman. There shall be no more than one (1) Groundman for each two (2) Journeyman except when performing DOT Traffic Signal or Highway lighting work where the ratio can be two (2) Groundman for each Journeyman or Operator.

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 71 DOT Traffic Signal Highway Lighting Cleveland

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Electrical

Effective Date:
1/21/2026

Effective Date:
1/21/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lineman	\$45.50		\$7.50	\$1.37	\$0.46	\$0.00	\$10.01	\$0.75	\$0.00	\$0.00	\$65.59	\$88.34
Traffic Signal & Lighting Journeyman	\$45.50		\$7.50	\$1.37	\$0.46	\$0.00	\$10.01	\$0.75	\$0.00	\$0.00	\$65.59	\$88.34
Equipment Operator	\$41.32		\$7.50	\$1.24	\$0.41	\$0.00	\$9.09	\$0.75	\$0.00	\$0.00	\$60.31	\$80.97
Groundman 0 to 1 Year	\$27.06		\$7.50	\$0.81	\$0.27	\$0.00	\$5.95	\$0.75	\$0.00	\$0.00	\$42.34	\$55.87
Groundman 1 Year or more	\$32.09		\$7.50	\$0.96	\$0.32	\$0.00	\$7.06	\$0.75	\$0.00	\$0.00	\$48.68	\$64.73
Apprentice	BHR	Percent										
1st 1,000 Hours	\$27.30	\$60.00	\$7.50	\$0.82	\$0.27	\$0.00	\$6.01	\$0.75	\$0.00	\$0.00	\$42.65	\$56.30
2nd 1,000 Hours	\$29.57	\$65.00	\$7.50	\$0.89	\$0.30	\$0.00	\$6.51	\$0.75	\$0.00	\$0.00	\$45.52	\$60.31
3rd 1,000 Hours	\$31.85	\$70.00	\$7.50	\$0.96	\$0.32	\$0.00	\$7.01	\$0.75	\$0.00	\$0.00	\$48.39	\$64.31
4th 1,000 Hours	\$34.13	\$75.00	\$7.50	\$1.02	\$0.34	\$0.00	\$7.51	\$0.75	\$0.00	\$0.00	\$51.25	\$68.31
5th 1,000 Hours	\$36.40	\$80.00	\$7.50	\$1.09	\$0.36	\$0.00	\$8.01	\$0.75	\$0.00	\$0.00	\$54.11	\$72.31
6th 1,000 Hours	\$40.95	\$90.00	\$7.50	\$1.23	\$0.41	\$0.00	\$9.01	\$0.75	\$0.00	\$0.00	\$59.85	\$80.33

(*)Special Calculation Note :

Other: Health Reimbursement Account

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note :

Details :

A groundman when directed shall assist a Journeymen 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, ladders, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an apprentice lineman. There shall be no more than one (1) Groundman for each two (2) Journeyman except when performing DOT Traffic Signal or Highway lighting work where the ratio can be two (2) Groundman for each Journeyman or Operator.

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 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 17

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Elevator

Effective Date:
3/11/2026

Effective Date:
3/11/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Elevator Mechanic	\$66.52		\$16.37	\$11.06	\$0.85	\$5.32	\$10.70	\$2.50	\$0.00	\$0.00	\$113.32	\$146.58
Apprentice	BHR	Percent										
0-6months Probation	\$33.26	\$50.00	\$0.00	\$0.00	\$0.00	\$2.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.26	\$51.89
1st year	\$36.59	\$55.00	\$16.37	\$11.06	\$0.85	\$2.20	\$10.70	\$1.38	\$0.00	\$0.00	\$79.15	\$97.45
2nd year	\$43.24	\$65.00	\$16.37	\$11.06	\$0.85	\$2.59	\$10.70	\$1.63	\$0.00	\$0.00	\$86.44	\$108.06
3rd year	\$46.56	\$70.00	\$16.37	\$11.06	\$0.85	\$2.79	\$10.70	\$1.75	\$0.00	\$0.00	\$90.08	\$113.36
4th year	\$53.22	\$80.00	\$16.37	\$11.06	\$0.85	\$3.19	\$10.70	\$2.00	\$0.00	\$0.00	\$97.39	\$124.00
Assistant Mechanic	\$53.22	\$80.00	\$16.37	\$11.06	\$0.85	\$4.26	\$10.70	\$2.00	\$0.00	\$0.00	\$98.46	\$125.07
Helper	\$46.56	\$70.00	\$16.37	\$11.06	\$0.85	\$3.72	\$10.70	\$1.75	\$0.00	\$0.00	\$91.01	\$114.29

(*)Special Calculation Note :

Vacation: 6% for employees under 5 years based on regular hourly rate for all hours worked, 8% for employees over 5 years based on regular hourly rate for all hours worked.

Other: Holiday Pay

Ratio :

1 Journeyman to 1 Apprentice
1 Journeyman to 1 Helper
1 Journeyman to 1 Assistant Mechanic

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Erie, Geauga, Lake, Lorain

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Glazier Local 181

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Glazier

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												
Glazier	\$38.00		\$9.92	\$12.60	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$60.97	\$79.97
Apprentice	BHR	Percent										
1st Year	\$24.70	\$65.00	\$9.92	\$1.02	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.09	\$48.44
2nd Year	\$26.60	\$70.00	\$9.92	\$3.52	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$40.49	\$53.79
3rd Year	\$30.40	\$80.00	\$9.92	\$7.69	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$48.46	\$63.66
4th Year	\$34.20	\$90.00	\$9.92	\$8.53	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$53.10	\$70.20

(*)Special Calculation Note :

High Pay: All work is defined for the purpose of the agreement as being work which requires that the employee be supported by equipment that hangs from or suspends from the wall or roof of a building or structure. This work shall receive an additional \$1.50 per hour.

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Erie*, Geauga, Huron, Lake, Lorain, Medina*, Portage*, Summit*

Special Jurisdictional Note :

Start at the intersection of Route 305 and the eastern boundary line of Portage County. Follow Route 305 west onto Route 82, follow Route 82 west to the intersection of Routes 82, 8 and 271, follow Route 271 south to Medina County line west to Route 94, follow Route 94 south to Route 303, follow Route 303 west to Route 252, follow Route 252 south to Route 18, follow Route 18 west to Route 301, follow Route 301 south to Route 162, follow Route 162 west to Route 58, follow Route 58 south to the Ashland County line, follow the Ashland County line. The eastern part of Route 4 north to Lake Erie is the jurisdiction of Local 181. Local 181 has the jurisdiction on all projects built on the property which borders on the above Routes and/or intersections, wherever a County line is the divider between Local 181 and another Union, the jurisdiction is only to the county line.

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Ironworker Local 17

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Ironworker

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												
Ironworker	\$39.48		\$9.14	\$10.00	\$0.72	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00	\$69.84	\$89.58
Apprentice	BHR	Percent										
1st Year - 1st 6 Months	\$23.69	\$60.00	\$9.14	\$10.00	\$0.72	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00	\$54.05	\$65.90
1st Year - 2nd 6 Months	\$25.66	\$65.00	\$9.14	\$10.00	\$0.72	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00	\$56.02	\$68.85
2nd Year - 1st 6 Months	\$27.64	\$70.00	\$9.14	\$10.00	\$0.72	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00	\$58.00	\$71.82
2nd Year - 2nd 6 Months	\$29.61	\$75.00	\$9.14	\$10.00	\$0.72	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00	\$59.97	\$74.78
3rd Year - 1st 6 Months	\$31.58	\$80.00	\$9.14	\$10.00	\$0.72	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00	\$61.94	\$77.73
3rd Year - 2nd 6 Months	\$33.56	\$85.00	\$9.14	\$10.00	\$0.72	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00	\$63.92	\$80.70
4th Year - 1st 6 Months	\$35.53	\$90.00	\$9.14	\$10.00	\$0.72	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00	\$65.89	\$83.66
4th Year - 2nd 6 Months	\$37.51	\$95.00	\$9.14	\$10.00	\$0.72	\$2.50	\$8.00	\$0.00	\$0.00	\$0.00	\$67.87	\$86.63

(*)Special Calculation Note :

Ratio :

4 Journeymen to 1 Apprentice on Structural Work
 3 Journeymen to 1 Apprentice on Rod Work
 2 Journeymen to 1 Apprentice on Finishing, Steel Sash, Stairway and Ornamental Work
 1 Apprentice for every Sheeting Gang
 1 Journeymen to 2 Apprentice Roadway Signage and Sound Barriers
 2 Journeymen to 2 Apprentice Unloading and Erection of Light Gauge Metal Trusses

Jurisdiction (* denotes special jurisdictional note) :

Ashland*, Ashtabula, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Medina, Ottawa*, Portage, Summit

Special Jurisdictional Note :

WEST BOUNDARY LINE: Sandusky, Ohio - Columbus Avenue north to Sandusky Bay (and/or Lake Erie); Columbus Avenue south to present Route 4; Route 4 south to present Route 99; from Route 99 south to old Route 224 - all territory to the west of the boundary line is to be within the jurisdiction of Local Union No. 55, Toledo, Ohio. All territory to the east of the boundary line is to be within the jurisdiction of Local Union No. 17, Cleveland, Ohio. Kelly's Island is to be within the jurisdiction of Local Union No. 17, Cleveland, Ohio. All bridges, tunnels, viaducts, etc., relative to these boundary lines shall be under the jurisdiction of Local Union No. 17, Cleveland, Ohio.

EAST BOUNDARY LINE: Ashtabula, Ohio - All territory from the Geauga County Line on the West boundary North of State Route 6 and West of State Route 11 and North of Interstate Route 90 to the Pennsylvania Line on the East boundary shall fall under the jurisdiction of Local Union No. 17, Cleveland, Ohio.

SOUTH BOUNDARY LINE: Canton, Ohio - All territory north of old Route 224 line to be within the jurisdiction of Local Union No. 17, Cleveland, Ohio. All bridges, tunnels, viaducts, signs, etc., relative to old Route 224 line to be within the jurisdiction of Local Union No. 17, Cleveland, Ohio. All territory south of old Route 224 line is to be within the jurisdiction of Local Union No. 550, Canton, Ohio, except for everything within the city limits of Barberton, Ohio, which shall be under the jurisdiction of Local Union No. 17, Cleveland, Ohio.

SOUTHEAST BOUNDARY: West of a line from Middlefield to Shalersville to Deerfield, shall be under the jurisdiction of Local Union No.

17, Cleveland, Ohio. East of a line from Middlefield, to Shalersville to Deerfield, shall be under the jurisdiction of Local Union No.

207, Youngstown, Ohio. Local Union No. 17, Cleveland, Ohio and Local Union No. 207, Youngstown, Ohio has agreed that the Ohio County of Ashtabula, shall be as follows: Ashtabula County in Ohio-All territory from the Portage County Line on the West boundary South of State Route 6 and East of State Route 11 and South of Interstate Route 90 to the Pennsylvania Line on the East boundary shall fall under the jurisdiction of Local Union 207, Youngstown, Ohio. Everything south, starting at the Geauga County line, shall be under the jurisdiction of Local Union No. 207, Youngstown, Ohio.

NORTH BOUNDARY: The east boundary line and the west boundary line continuing north half-way across Lake Erie.

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Labor HevHwy 1A

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	\$40.43		\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$57.53	\$77.75
Group 2	\$40.60		\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$57.70	\$78.00
Group 3	\$40.93		\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$58.03	\$78.50
Group 4	\$41.38		\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$58.48	\$79.17
Watch Person	\$32.00		\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$49.10	\$65.10
Apprentice	BHR	Percent										
0-1000 hrs	\$32.34	\$80.00	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$49.44	\$65.61
1001-2000 hrs	\$34.37	\$85.00	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$51.47	\$68.66
2001-3000 hrs	\$36.39	\$90.00	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$53.49	\$71.69
3001-4000 hrs	\$38.41	\$95.00	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$55.51	\$74.72
More than 4000 hrs	\$40.43	\$100.00	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$57.53	\$77.75

(*)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 Journeymen to 1 Apprentice
3 Journeymen to 1 Apprentice thereafter

*Watchman have no apprentices

Jurisdiction (* denotes special jurisdictional note) :

Lake

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, Flag person, 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, Screed person, 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, Guniting 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 310

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Laborer

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												
Laborer Group 1	\$34.53		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$58.38	\$75.65
Group 2	\$35.01		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$58.86	\$76.37
Group 3	\$34.78		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$58.63	\$76.02
Group 4	\$31.43		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$55.28	\$71.00
Group 5	\$28.93		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$52.78	\$67.25
Group 6	\$31.08		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$54.93	\$70.47
Group 7	\$35.03		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$58.88	\$76.40
Group 8	\$35.18		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$59.03	\$76.62
Group 9	\$29.38		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$53.23	\$67.92
Group 10	\$25.38		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$49.23	\$61.92
Group 11	\$34.68		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$58.53	\$75.87
Group 12	\$34.92		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$58.77	\$76.23
Group 13	\$36.03		\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$59.88	\$77.90
Apprentice	BHR	Percent										
1-1000 hours	\$20.72	\$60.00	\$9.26	\$0.00	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$33.62	\$43.98
1001-2000 hours	\$24.17	\$70.00	\$9.26	\$5.48	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$42.55	\$54.64
2001-3000 hours	\$27.62	\$80.00	\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$51.47	\$65.28
3001-4000 hours	\$31.08	\$90.00	\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$54.93	\$70.47
4001 plus	\$34.53	\$100.00	\$9.26	\$10.95	\$0.10	\$0.00	\$3.18	\$0.15	\$0.00	\$0.21	\$58.38	\$75.65

(*)Special Calculation Note :

Other is Supplemental Unemployment Benefit (SUB).

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Cuyahoga, Geauga, Lake

Special Jurisdictional Note :

Details :

Group 1 - Building and construction Laborers and Tenders; Asbestos Removal - hazardous materials; unloading of furniture and fixtures
Group 2 - Gunite Operating (Machines of all type)
Group 3 - Laborers on swinging scaffolds; air track and wagon drill
Group 4 - Drywall stocking and handling
Group 5 - General Landscaping
Group 6 - Final Clean-up (must perform clean-up duties for entire work shift, and excludes demolition work)
Group 7 - Blasters, Shooters, Caissons, Well Cylinder, Cofferdams, Mine Workers without air, acid brick tenders
Group 8 - Top man on free standing radial stack; bellman and bottom man in blast furnace and stove
Group 9 - Sewer jet
Group 10 - Heat tender
Group 11 - Firebrick
Group 12 - Mason tender handling carbon block and bottom block for blast furnace stoves, stacks etc
Group 13 - Lansing Burners

Prevailing Wage Rate Skilled Crafts

Name of Union: Operating Engineers - Building Local 18 - Zone I (A)

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	\$51.61		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$69.06	\$94.86
Operator Group B	\$51.46		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$68.91	\$94.64
Operator Group C	\$50.01		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$67.46	\$92.47
Operator Group D	\$49.23		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$66.68	\$91.30
Operator Group E	\$48.91		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$66.36	\$90.81
Operator Group F	\$41.83		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$59.28	\$80.19
Master Mechanic	\$52.61		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$70.06	\$96.36
Lift Director	\$52.61		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$70.06	\$96.36
Crane 200'-299'	\$52.61		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$70.06	\$96.36
Crane 300' and over	\$53.11		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$70.56	\$97.11
Mobile Concrete Pumps 200'-299'r	\$52.61		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$70.06	\$96.36
Mobile Concrete Pumps 300' and over	\$53.11		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$70.56	\$97.11
Apprentice	BHR	Percent										
1st Year	\$30.88	\$59.83	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$48.33	\$63.77
2nd Year	\$36.02	\$69.79	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$53.47	\$71.48
3rd Year	\$41.17	\$79.77	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$58.62	\$79.20
4th Year	\$46.31	\$89.73	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$63.76	\$86.92

(*)Special Calculation Note :

Other & Misc is Education & Safety and National Training Fund.

Note: There will be a 5% increase for the apprentices on top of the percentages listed above provided they are operating mobile equipment.

Operating Engineers employed on any piece of equipment requiring a Certified Crane Operator (CCO) certification or employed on cranes involved in pile driving operations shall be paid a premium of one dollar (\$1.00) per hour in addition to the crane rate or any escalated rate that may be in effect.

Ratio :

For every (3) Operating Engineer Journeymen employed by the company ,there may be employed (1) Registered Apprentice. An apprentice, 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) :

Ashtabula, Cuyahoga, Erie, Geauga, Huron, Lake, Lorain, Medina

Special Jurisdictional Note :

Details :

Group A - A-Frames; " Boiler Operators, Compressor Operators, Hydraulic Pumps & Power Packs when mounted on a crane or regardless of where said equipment is mounted (piggy-back operation)"; Boom Trucks (all types); Cableways; Cherry Pickers; Combination - Concrete Mixers & Towers; Concrete Pumps; Cranes (all types); Cranes-compact: Track or rubber over 4000lbs. 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; Gradalls; Helicopter Operators, hoisting building materials; Helicopter Winch Operators, hoisting building materials; Hoes (All types); Hoists (two or more drums); Lift Slab or Panel Jack Operators; Locomotives (all types); Maintenance Engineers (Maintenance Operators and/or Welder); Mixers, paving (multiple drum); Mobile Concrete Pumps with booms; Panelboards, (all types on site); Pile Drivers; Power Shovels; Robotics Equipment Operator/Mechanic; Rotary Drills (all), used on caissons work, wells (all types), Geothermal work and sub-structure work; Rough Terrain Forklifts with Winch/Hoist (when used as a crane); Side Booms; Slip Form Pavers; Straddle Carriers (Building Construction on site); Trench Machines (over 24" wide); Tug Boats; Tunnel Boring Machine (TBM).

Group B - Asphalt Pavers; Bulldozers; CMI type Equipment; End Loaders; Horizontal Directional Drill Locator; Horizontal Directional Drill Operator; Instrument Man; Kolman-type Loaders (Dirt Loading); Lead Greasemen; Mucking Machines; Power Graders; Power Scoops; Power Scrapers; Push Cats; Rotomills; Vermeer Type Concrete Saw.

Group C - Air Compressors, Pressurizing Shafts or Tunnels; Articulating/Straight bed end dumps if assigned by the employer (minus \$4.00 per hour from Group C); All Asphalt Rollers; Fork Lifts; Hoists (with one drum); House Elevators (except those automatic call button controlled); Hydro Excavator (all types C rate) (F rate if a second person is needed) Helper rate; Laser Screeds and like equipment; Man Lifts; Modular Moving and Placement machine (C Rate) (F Rate if second person is needed); Mud Jacks; Portable Hydraulic Gantry (lift system C rate) (F Rate if a second person is needed); Power Boilers (over 15 lbs. pressure); Pump Operators (installing or operating Well Points or other types of Dewatering Systems); Pressure Grouting; Trenchers (24" and under); Utility Operators.

Group D – Brokks with a manufacture's weight of 3,500 lbs. and above; Compressors, on building construction; Conveyors, used for handling building materials; Generators; Guniting Machines; Mixers, more than one bag capacity; Mixers, one bag capacity (side loader); Pavement Breakers (hydraulic or cable); Post Drivers; Post Hole Diggers; Road Widening Trenchers; Rollers; Welder Operators.

Group E - Backfillers and Tampers; Batch Plants; Bar and Joint Installing Machines; Bull Floats; Burlap and Curing Machines; Cleaning Machine Operator (decontamination included); Clefplanes; Concrete Spreading Machines; Crushers; Deckhands; Drum Fireman (asphalt); Farm-type, Tractor, pulling attachments; Finishing Machines; Forklifts (masonry work only); Form Trenchers; High Pressure Pumps (over 1/2" discharge); Hydro Seeders; Pumps (4" and over discharge), provided it is not part of a de-watering system discharged into a common header; Self-Propelled Power Spreaders; Self-Propelled Sub Graders; Submersible Pump (4" and over discharge), provided it is not part of a dewatering system discharged into a common header; Tire Repairman; Tractors, pulling sheepsfoot rollers or graders; Vibratory Compactors with integral power.

Group F - Apprentice/Helpers, Oiler, Signalmen; Barrier Moving Machines (additional duty, paid same rate); Bobcat-type and/or Skid Steer Loader; Bobcat-type and/or Skid Steer Loader with any and all attachments; Brokks with a manufacture's weight less than 3,500 lbs.; Cranes – compact, track or rubber under 4000 lbs. capacity; Geodimeter; Grade Checker; Grinders (all); Inboard/Outboard Motor Boat Launches; Light Plant Operators; Planers (all types); Power Boilers (less than 15 lbs. pressure); Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Rod Man; Rotomills; Saw (concrete Vermeer-type); Submersible Pumps (under 4 inch discharge); Vac Alls; Cutting, burning and fabricating on equipment and their attachments.

Master Mechanic - Master Mechanic

Crane 200'-299' - Boom & Jib 200' feet and over Crane 300' and Over - Boom & Jib 300' and over

Prevailing Wage Rate Skilled Crafts

Name of Union: Operating Engineers - HevHwy Zone I

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	\$48.78		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$66.23	\$90.62
Operator Class B	\$48.68		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$66.13	\$90.47
Operator Class C	\$47.64		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$65.09	\$88.91
Operator Class D	\$46.42		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$63.87	\$87.08
Operator Class E	\$41.13		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$58.58	\$79.15
Master Mechanic	\$49.78		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$67.23	\$92.12
Lift Director	\$49.78		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$67.23	\$92.12
Crane and Mobile Concrete Pump 150' - 179'	\$49.28		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$66.73	\$91.37
Crane and Mobile Concrete Pump 180' - 249'	\$49.78		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$67.23	\$92.12
Crane and Mobile Concrete Pump 250' and Over	\$50.03		\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$67.48	\$92.50
Apprentice	BHR	Percent										
1st Year	\$24.39	\$50.00	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$41.84	\$54.03
2nd Year	\$29.27	\$60.00	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$46.72	\$61.36
3rd Year	\$34.15	\$70.00	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$51.60	\$68.67
4th Year	\$39.02	\$80.00	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.10	\$56.47	\$75.98
Field Mech Trainee	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1st Year	\$29.27	\$60.00	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$46.62	\$61.25
2nd Year	\$34.15	\$70.00	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$51.50	\$68.57
3rd Year	\$39.02	\$80.00	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$56.37	\$75.88
4th Year	\$43.90	\$90.00	\$10.01	\$6.25	\$1.00	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$61.25	\$83.20

(*)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) :

Ashtabula, Cuyahoga, Erie, Geauga, Lake, Lorain, Medina, Portage, Summit

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 505 Drywall

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Painter

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												
Painter Drywall Finisher	\$36.40		\$9.92	\$7.30	\$0.45	\$0.00	\$4.74	\$0.00	\$0.00	\$0.00	\$58.81	\$77.01
Apprentice	BHR	Percent										
1st Year	\$25.48	\$70.00	\$9.92	\$2.61	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.46	\$51.20
2nd Year	\$29.12	\$80.00	\$9.92	\$3.28	\$0.45	\$0.00	\$3.79	\$0.00	\$0.00	\$0.00	\$46.56	\$61.12
3rd Year	\$32.76	\$90.00	\$9.92	\$4.08	\$0.45	\$0.00	\$4.27	\$0.00	\$0.00	\$0.00	\$51.48	\$67.86

(*)Special Calculation Note :

Ratio :

2 Journeyman to 1 Apprentice
3 Journeyman to 1 Apprentice after 9 total tapers

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Portage*, Summit*

Special Jurisdictional Note :

Portage & Summit North of the East-West Turnpike.

Details :

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 1 Sign

Type of Rate: Commercial

Change #:
LCN01-2025ib

Craft:
Painter

Effective Date:
7/30/2025

Effective Date:
7/30/2025

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Class A: Painter Sign Erector Service/Pattern/Metal Fab/Neon	\$26.28	\$8.91	\$5.57	\$0.25	\$0.79	\$0.00	\$1.10	\$0.00	\$0.00	\$42.90	\$56.04
Class B: Painter Sign Erector/Service/Pattern/Metal Fab/Neon	\$26.28	\$8.91	\$5.57	\$0.25	\$1.58	\$0.00	\$1.10	\$0.00	\$0.00	\$43.69	\$56.83
Class C: Painter Sign Erector/Service/Pattern/Metal Fab/Neon	\$26.28	\$8.91	\$5.57	\$0.25	\$2.37	\$0.00	\$1.10	\$0.00	\$0.00	\$44.48	\$57.62
Class D: Painter Sign Erector/Service/Pattern/Metal Fab/Neon	\$26.28	\$8.91	\$5.57	\$0.25	\$3.15	\$0.00	\$1.10	\$0.00	\$0.00	\$45.26	\$58.40
Class A: Computer Operator, Router, Spray Painter/Wood	\$24.60	\$8.91	\$5.57	\$0.25	\$0.76	\$0.00	\$1.06	\$0.00	\$0.00	\$41.15	\$53.45
Class B: Computer Operator, Router, Spray Painter/Wood	\$24.60	\$8.91	\$5.57	\$0.25	\$1.51	\$0.00	\$1.06	\$0.00	\$0.00	\$41.90	\$54.20
Class C: Computer Operator, Router, Spray Painter/Wood	\$24.60	\$8.91	\$5.57	\$0.25	\$2.27	\$0.00	\$1.06	\$0.00	\$0.00	\$42.66	\$54.96
Class D: Computer Operator, Router, Spray Painter/Wood	\$24.60	\$8.91	\$5.57	\$0.25	\$3.03	\$0.00	\$1.06	\$0.00	\$0.00	\$43.42	\$55.72

Class A: Final Assembly, Helper	\$19.62		\$8.91	\$5.57	\$0.25	\$0.66	\$0.00	\$0.92	\$0.00	\$0.00	\$35.93	\$45.74
Class B: Final Assembly, Helper	\$19.62		\$8.91	\$5.57	\$0.25	\$1.32	\$0.00	\$0.92	\$0.00	\$0.00	\$36.59	\$46.40
Class C: Final Assembly, Helper	\$19.62		\$8.91	\$5.57	\$0.25	\$1.98	\$0.00	\$0.92	\$0.00	\$0.00	\$37.25	\$47.06
Class D: Final Assembly, Helper	\$19.62		\$8.91	\$5.57	\$0.25	\$2.64	\$0.00	\$0.92	\$0.00	\$0.00	\$37.91	\$47.72
Apprentice	BHR	Percent										
1-2000 hrs	\$13.14	\$50.00	\$8.91	\$5.57	\$0.25	\$0.00	\$0.00	\$0.75	\$0.00	\$0.00	\$28.62	\$35.19
2001-3000 hrs	\$14.45	\$55.00	\$8.91	\$5.57	\$0.25	\$0.56	\$0.00	\$0.79	\$0.00	\$0.00	\$30.53	\$37.75
3001-4000 hrs	\$15.77	\$60.00	\$8.91	\$5.57	\$0.25	\$0.59	\$0.00	\$0.82	\$0.00	\$0.00	\$31.91	\$39.80
4001-5000 hrs	\$17.08	\$65.00	\$8.91	\$5.57	\$0.25	\$1.22	\$0.00	\$0.86	\$0.00	\$0.00	\$33.89	\$42.43
5001-6000 hrs	\$18.40	\$70.00	\$8.91	\$5.57	\$0.25	\$1.27	\$0.00	\$0.89	\$0.00	\$0.00	\$35.29	\$44.49
6001-7000 hrs	\$22.34	\$85.00	\$8.91	\$5.57	\$0.25	\$1.43	\$0.00	\$1.00	\$0.00	\$0.00	\$39.50	\$50.67
7001-8000 hrs	\$23.65	\$90.00	\$8.91	\$5.57	\$0.25	\$1.48	\$0.00	\$1.03	\$0.00	\$0.00	\$40.89	\$52.71

(*)Special Calculation Note :

Other: Holiday Pay

Apprentice Pay Rate should be based on proper Classification.

Any employee working over 100 ft. above the ground shall receive \$1.00 per hour additional pay.

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

Ashland, Ashtabula, Cuyahoga, Geauga, Lake, Medina, Portage, Richland, Summit

Special Jurisdictional Note :

Details :

Class A Worker: More than 1 year but less that 2 years

Class B Worker: More than 2 years but less than 10 years

Class C Worker: More than 10 years but less that 20 years

Class D Worker: More than 20 years

Prevailing Wage Rate Skilled Crafts

Name of Union: Painter Local 707

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Painter

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												
Painter Brush Roll	\$37.45		\$9.92	\$6.08	\$0.45	\$0.00	\$4.75	\$0.00	\$0.00	\$0.00	\$58.65	\$77.38
Paperhanger	\$37.45		\$9.92	\$6.08	\$0.45	\$0.00	\$4.75	\$0.00	\$0.00	\$0.00	\$58.65	\$77.38
REPAINT Brush Roll & Paperhanger	\$35.95		\$9.92	\$6.08	\$0.45	\$0.00	\$4.75	\$0.00	\$0.00	\$0.00	\$57.15	\$75.13
Apprentice	BHR	Percent										
1st Year	\$24.34	\$65.00	\$9.92	\$1.64	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.35	\$48.52
2nd Year	\$28.09	\$75.00	\$9.92	\$2.25	\$0.45	\$0.00	\$3.56	\$0.00	\$0.00	\$0.00	\$44.27	\$58.31
3rd Year	\$31.83	\$85.00	\$9.92	\$2.70	\$0.45	\$0.00	\$4.04	\$0.00	\$0.00	\$0.00	\$48.94	\$64.85
4th Year	\$35.58	\$95.00	\$9.92	\$3.75	\$0.45	\$0.00	\$4.51	\$0.00	\$0.00	\$0.00	\$54.21	\$72.00

(*)Special Calculation Note :

Apprentice pay based on percentage of above appropriate classification.

The following Premiums shall be added to proper classification in full including apprentice rates:

Spray Painting: \$.70 per hour

Sandblasting and buffing: \$.40 per hour

Height pay (Over 100ft): \$.50 per hour

Fiberglass Insulator & Catalytic material applicator: \$.70 per hour

Application of Catalytic materials under class 3 hazardous per MSDS- add \$.65 per hour

Application of Catalytic materials under class 4 hazardous per MSDS- add \$1.00 per hour

Ratio :

1 Apprentice to 1 Journeyman

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Portage*, Summit*

Special Jurisdictional Note :

Portage & Summit North of the East-West Turnpike.

Details :

Repaint: 20% or less of new surfaces. A general contractor holding a construction contract does not constitute the rate of pay. Bridge work, tanks, towers and all work covered by NMA, PLA, GPA is excluded from any repaint rate.

Prevailing Wage Rate Skilled Crafts

Name of Union: Painter Local 707 HvyHwy

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Painter

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											
Class 1: Bridge Blaster	\$43.71	\$9.92	\$6.08	\$0.45	\$0.00	\$4.75	\$0.00	\$0.00	\$0.00	\$64.91	\$86.77
Class 2: Bridge Painter, Rigger, Containm ent Builder, Spot Blaster	\$40.71	\$9.92	\$6.08	\$0.45	\$0.00	\$4.75	\$0.00	\$0.00	\$0.00	\$61.91	\$82.27
Class 3: Equipment Operator/ Field Mechanic, Grit Reclamati on, Paint Mixer, Traffic Control Boat Person, Driver (0-5 Years Exp.)	\$33.71	\$9.92	\$6.08	\$0.45	\$0.00	\$4.75	\$0.00	\$0.00	\$0.00	\$54.91	\$71.77
Class 3: Equipment Operator/ Field Mechanic, Grit Reclamati on, Paint Mixer, Traffic Control Boat Person, Driver (5 Plus Years Exp.)	\$36.71	\$9.92	\$6.08	\$0.45	\$0.00	\$4.75	\$0.00	\$0.00	\$0.00	\$57.91	\$76.27
Class 4: Concrete Sealing, Concrete Blasting/P ower Washing/ Etc	\$32.71	\$9.92	\$6.08	\$0.45	\$0.00	\$4.75	\$0.00	\$0.00	\$0.00	\$53.91	\$70.27

Class 5: Quality Control/Quality Assurance , Traffic Safety, Competent Person	\$36.71		\$9.92	\$6.08	\$0.45	\$0.00	\$4.75	\$0.00	\$0.00	\$0.00	\$57.91	\$76.27
Apprentice	BHR	Percent										
1st Year	\$28.41	\$65.00	\$9.92	\$1.64	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$40.42	\$54.63
2nd Year	\$32.78	\$75.00	\$9.92	\$2.25	\$0.45	\$0.00	\$3.56	\$0.00	\$0.00	\$0.00	\$48.96	\$65.35
3rd Year	\$37.15	\$85.00	\$9.92	\$2.70	\$0.45	\$0.00	\$4.04	\$0.00	\$0.00	\$0.00	\$54.26	\$72.83

(*)Special Calculation Note :

Apprentice pay based on percentage of above appropriate classification.

Application of Catalytic materials under class 3 hazardous per MSDS- add .65 per hour to the above Job Classification basic hourly rate.

Application of Catalytic materials under class 4 hazardous per MSDS- add 1.00 per hour to the above Job Classification basic hourly rate.

Ratio :

1 Apprentice to 1 Journeyman

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Portage*, Summit*

Special Jurisdictional Note :

Portage & Summit North of the East-West Turnpike.

Details :

Painter Bridge Class 2 is Defined as; Bridge Painter, Rigger, Containment Builder

Concrete Sealing: on highway work, scaling of concrete surfaces, the treating and sealing of bridge decks, the painting and staining of concrete, including the abutments, barricades, noise barriers, lane dividers, etc.

Prevailing Wage Rate Skilled Crafts

Name of Union: Pipefitter Local 120

Type of Rate: Commercial

Change #:
OCR01-2026ib

Craft:
Pipefitter

Effective Date:
7/1/2026

Effective Date:
7/1/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Pipefitter	\$51.02		\$13.30	\$12.20	\$1.32	\$0.00	\$3.50	\$0.20	\$0.00	\$0.00	\$81.54	\$107.05
Apprentice	BHR	Percent										
1st year	\$24.70	\$48.41	\$5.78	\$0.00	\$1.32	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.80	\$44.15
2nd year	\$25.42	\$49.82	\$12.43	\$7.60	\$1.32	\$0.00	\$0.88	\$0.20	\$0.00	\$0.00	\$47.85	\$60.56
3rd year	\$29.43	\$57.68	\$12.43	\$7.60	\$1.32	\$0.00	\$0.88	\$0.20	\$0.00	\$0.00	\$51.86	\$66.57
4th year	\$35.04	\$68.68	\$12.43	\$7.60	\$1.32	\$0.00	\$0.88	\$0.20	\$0.00	\$0.00	\$57.47	\$74.99
5th year	\$39.06	\$76.56	\$12.43	\$7.60	\$1.32	\$0.00	\$0.88	\$0.20	\$0.00	\$0.00	\$61.49	\$81.02

(*)Special Calculation Note :

OTHER: SUPPLEMENTAL UNEMPLOYMENT BENEFITS

Ratio :

1 Journeyman to 1 Apprentice
2-4 Journeymen to 2 Apprentices
5-7 Journeymen to 3 Apprentices
3 to 1 on jobs with 12 or more journeymen

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Medina*, Summit*

Special Jurisdictional Note :

Summit County - North of State Route 303 including work within the corporate limits of the City of Hudson, that portion of Medina County North of State Route 18 and Smith Road and including work within the corporate limits of the City of Medina.

Details :

Under pipefitter duties shall include - steam and hot water heating boilers and related controls such as automatic feedwater and low water cut-offs, safety relief valves and gas trains; steam regulators, traps, steam valves, steam heaters, steam and hot water heating coils; feedwater lines to boilers, condensate pumps, condensate tanks and related piping to boilers, expansion tanks and controls on hot water heating systems; refrigeration and air conditioning systems that are separate from one another and are connected through piping; install, calibrate and maintain pneumatic temperature controls and piping for heating and cooling devices; piping, pumps and controls on the fluent water system in water treatment plants; hose cabinets and automatic fire sprinkler systems; underground water supply piping and devices; all fire stopping of piping systems; to operate a pipe cutting machine, to thread pipe by machine or hand dies; to do oxyacetylene and electric welding on iron and steel pipes when required; to perform other tasks when assigned.

Prevailing Wage Rate Skilled Crafts

Name of Union: Pipefitter Local 120 Mechanical Equipment

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Pipefitter

Effective Date:
5/4/2026

Effective Date:
5/4/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Pipefitter Mechanical Equipment Service A-2	\$38.99		\$13.30	\$12.20	\$1.32	\$0.00	\$3.50	\$0.20	\$0.00	\$0.00	\$69.51	\$89.00
Pipefitter Mechanical Equipment Service A-1	\$34.98		\$13.30	\$12.20	\$1.32	\$0.00	\$3.50	\$0.20	\$0.00	\$0.00	\$65.50	\$82.99
Apprentice	BHR	Percent										
1st year	\$21.86	\$56.07	\$6.22	\$0.00	\$1.32	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29.40	\$40.33
2nd year	\$22.63	\$58.04	\$6.22	\$5.30	\$1.32	\$0.00	\$1.75	\$0.20	\$0.00	\$0.00	\$37.42	\$48.73
3rd year	\$25.04	\$64.22	\$6.22	\$5.30	\$1.32	\$0.00	\$1.75	\$0.20	\$0.00	\$0.00	\$39.83	\$52.35
4th year	\$29.05	\$74.51	\$6.22	\$5.30	\$1.32	\$0.00	\$1.75	\$0.20	\$0.00	\$0.00	\$43.84	\$58.37
5th year	\$31.45	\$80.66	\$6.22	\$5.30	\$1.32	\$0.00	\$1.75	\$0.20	\$0.00	\$0.00	\$46.24	\$61.96

(*)Special Calculation Note :

OTHER: SUPPLEMENTAL UNEMPLOYMENT BENEFITS

Ratio :

A per employer ratio of one (1) unindentured trainee to the first three (3) to fifteen (15) journeymen and/or apprentices shall be established, with a ratio of one (1) unindentured trainee for every fifteen (15) journeymen and/or apprentices thereafter. Each employer shall be limited to three (3) unindentured trainees. At no time shall the number of unindentured trainees exceed the number of apprentices.

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Medina*, Summit*

Special Jurisdictional Note :

Summit County - North of State Route 303 including work within the corporate limits of the City of Hudson, that portion of Medina County North of Route 18 and Smith Road and including work within the corporate limits of the City of Medina.

Details :

Work scope but not limited to: Mechanical Service and Maintenance work normally performed by contractors, either by contracts or emergency call basis, who are equipped to handle all work relating to evacuation, charging, start-up, inspection, operating, maintenance and service call necessary to keep mechanical system and controls of a refrigeration, air conditioning, heating and/or ventilation or any other newly installed, remodeled, revamped or redesigned mechanical system in operational order; all fire stopping and piping systems. Shall include but not limited to all maintaining, cleaning, adjusting, repairing, overhauling, starting and balancing of any system or component part thereof, regardless of size or location, including all other service and maintenance work assigned to the employer by the customer. Shall also be allowed to do the following installation work: All residential humidifiers and dehumidifiers, all window type units, all residential heating and cooling systems, excluding steam and hot water, and when a building is not new construction, all refrigeration systems up to 20 tons, split air conditioning systems up to 50 tons, and package or self-contained air conditioning units up to 50 tons.

Prevailing Wage Rate Skilled Crafts

Name of Union: Pipefitter Local 120 Sprinklerfitter

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Sprinkler Fitter

Effective Date:
5/4/2026

Effective Date:
5/4/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Sprinkler Fitter	\$51.02		\$13.30	\$12.20	\$1.32	\$0.00	\$3.50	\$0.20	\$0.00	\$0.00	\$81.54	\$107.05
Apprentice	BHR	Percent										
1st Year	\$24.70	\$48.41	\$5.78	\$0.00	\$1.32	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.80	\$44.15
2nd Year	\$25.42	\$49.82	\$12.43	\$7.60	\$1.32	\$0.00	\$0.88	\$0.20	\$0.00	\$0.00	\$47.85	\$60.56
3rd Year	\$29.43	\$57.68	\$12.43	\$7.60	\$1.32	\$0.00	\$0.88	\$0.20	\$0.00	\$0.00	\$51.86	\$66.57
4th Year	\$35.04	\$68.68	\$12.43	\$7.60	\$1.32	\$0.00	\$0.88	\$0.20	\$0.00	\$0.00	\$57.47	\$74.99
5th Year	\$39.06	\$76.56	\$12.43	\$7.60	\$1.32	\$0.00	\$0.88	\$0.20	\$0.00	\$0.00	\$61.49	\$81.02

(*)Special Calculation Note :

OTHER: SUPPLEMENTAL UNEMPLOYMENT BENEFITS

Ratio :

1 Journeyman to 1 Apprentice
2 - 4 Journeymen to 2 Apprentices
5 - 7 Journeymen to 3 Apprentices
3 Journeymen to 1 Apprentice on jobs with 12 or more journeymen

Jurisdiction (* denotes special jurisdictional note) :

Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note :

Details :

Sprinklerfitter duties shall include: installation, dismantling, maintenance, repairs, adjustments and corrections of all fire protection and extinguishing systems; consist of handling and installing of all piping and appurtenances pertaining to sprinkler equipment including both overhead and underground water mains, fire hydrants and hydrants mains, stand pipes, hose connections, tank heaters, air lines, thermal systems and their connections; all operating and actuating lines and devices and their protective covering; all fire stopping of sprinkler piping systems; all tanks, pumps and city connections; fire protection systems using emulsify, spray, water fog, CO2 gas, foam and other fire control agents, settling of all fire pumps and tank filling pumps, air compressors and their connections; all work related to sprinkler inspections (included but not limited to: adjustments, maintenance, repair, testing, etc.)

Prevailing Wage Rate Skilled Crafts

Name of Union: Plasterer Local 526

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Plasterer

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												
Plasterer	\$34.71		\$9.37	\$7.10	\$0.50	\$0.00	\$5.60	\$0.21	\$0.00	\$0.00	\$57.49	\$74.84
Apprentice	BHR	Percent										
1st Year	\$17.36	\$50.00	\$9.37	\$7.10	\$0.50	\$0.00	\$5.60	\$0.21	\$0.00	\$0.00	\$40.14	\$48.82
2nd Year	\$20.83	\$60.00	\$9.37	\$7.10	\$0.50	\$0.00	\$5.60	\$0.21	\$0.00	\$0.00	\$43.61	\$54.02
3rd Year	\$26.03	\$75.00	\$9.37	\$7.10	\$0.50	\$0.00	\$5.60	\$0.21	\$0.00	\$0.00	\$48.81	\$61.83
4th Year	\$31.24	\$90.00	\$9.37	\$7.10	\$0.50	\$0.00	\$5.60	\$0.21	\$0.00	\$0.00	\$54.02	\$69.64

(*)Special Calculation Note :

Other is for Substance abuse and training.

Ratio :

- 1 Journeymen to 1 Apprentice
- 3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Lorain

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Plumber Local 55

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Plumber

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												
Plumber	\$47.11		\$13.37	\$9.63	\$1.23	\$0.00	\$7.10	\$0.20	\$0.00	\$0.00	\$78.64	\$102.19
Shopman (When in the field)	\$25.98		\$9.79	\$5.59	\$0.10	\$0.00	\$3.85	\$0.00	\$0.00	\$0.00	\$45.31	\$58.30
Apprentice	BHR	Percent										
1-6 Months	\$20.69	\$43.91	\$7.59	\$0.24	\$0.95	\$0.00	\$1.56	\$0.00	\$0.00	\$0.00	\$31.03	\$41.38
7-12 Months	\$23.50	\$49.89	\$7.84	\$0.44	\$1.00	\$0.00	\$2.01	\$0.20	\$0.00	\$0.00	\$34.99	\$46.74
2nd Year 1-6	\$25.19	\$53.46	\$8.62	\$0.85	\$1.05	\$0.00	\$3.06	\$0.20	\$0.00	\$0.00	\$38.97	\$51.57
2nd Year 7-12	\$26.23	\$55.67	\$8.83	\$2.85	\$1.05	\$0.00	\$3.78	\$0.20	\$0.00	\$0.00	\$42.94	\$56.05
3rd Year 1-6	\$29.43	\$62.47	\$9.38	\$2.80	\$1.05	\$0.00	\$4.00	\$0.20	\$0.00	\$0.00	\$46.86	\$61.57
3rd Year 7-12	\$31.69	\$67.27	\$9.65	\$3.63	\$1.05	\$0.00	\$4.62	\$0.20	\$0.00	\$0.00	\$50.84	\$66.69
4th Year	\$34.59	\$73.42	\$9.92	\$4.07	\$1.05	\$0.00	\$4.98	\$0.20	\$0.00	\$0.00	\$54.81	\$72.11
5th Year	\$37.51	\$79.63	\$10.19	\$4.51	\$1.05	\$0.00	\$5.33	\$0.20	\$0.00	\$0.00	\$58.79	\$77.55

(*)Special Calculation Note :

OTHER IS: SUPPLEMENTAL UNEMPLOYMENT

Ratio :

1 Journeyman 1 Apprentice
2 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake, Medina*, Summit*

Special Jurisdictional Note :

Summit County - North of State Route 303 including work within the corporate limits of the City of Hudson, that portion of Medina County North of Route 18 and Smith Road and the corporate limits of the City of Medina.

Details :

The Plumber Shopman will have charge of the Employer's shop and warehouse containing plumbing and heating supplies and equipment, and perform such duties as are customarily required by a Plumber or a Plumber's Shopman, including casual delivery of tools and equipment necessary for installation of Plumbing and Heating facilities. One field shopman per shop may be hired after employing the 1st apprentice, and a second field shopman per shop may be hired after employing the 5th apprentice. These shopmen may work in the field performing primarily non-mechanical work. The plumber shopman's duties do not include the installation of plumbing.

Prevailing Wage Rate Skilled Crafts

Name of Union: Roofer Local 44

Type of Rate: Commercial

Change #:
OCR02-2026ib

Craft:
Roofer

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												
Roofer	\$41.35		\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$62.99	\$83.67
Applicant & Helper Trainees	\$		\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
0 to 1851 hrs	\$18.61		\$0.65	\$0.50	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$20.34	\$29.64
1852 to 3350 hrs	\$22.74		\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$44.38	\$55.75
3351 to 4850 hrs	\$28.95		\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$50.59	\$65.06
4851 to 6350 hrs	\$33.08		\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$54.72	\$71.26
6351 to 7550 hrs	\$37.22		\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$58.86	\$77.47
7551 hrs	\$41.35		\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$62.99	\$83.67
Apprentice	BHR	Percent										
Start of school	\$18.61	\$45.00	\$0.65	\$0.50	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$20.34	\$29.64
600 hrs worked/72 school hrs	\$20.68	\$50.00	\$0.65	\$0.50	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$22.41	\$32.75
1200 hrs worked/144 school hrs	\$22.74	\$55.00	\$0.65	\$0.50	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$24.47	\$35.84
1800 hrs worked/216 school hrs	\$24.81	\$60.00	\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$46.45	\$58.85
2400 hrs worked/288 school hrs	\$26.88	\$65.00	\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$48.52	\$61.96
3000 hrs worked/360 school hrs	\$28.95	\$70.00	\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$50.59	\$65.06
3600 hrs worked/432 school hrs	\$31.01	\$75.00	\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$52.65	\$68.16
4200 hrs worked/504 school hrs	\$33.08	\$80.00	\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$54.72	\$71.26
4800 hrs worked/576 school hrs	\$37.22	\$90.00	\$9.76	\$11.30	\$0.52	\$0.00	\$0.00	\$0.06	\$0.00	\$0.00	\$58.86	\$77.47

(*)Special Calculation Note :

Other: Drug Testing

Ratio :

- 2 Journeymen to 1 Apprentice
- 2 Journeymen to 1 Applicant/Helper Trainee

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Erie, Geauga, Lake, Lorain, Sandusky

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Sheet Metal Local 33 (Cleveland)

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Sheet Metal Worker

Effective Date:
5/20/2026

Effective Date:
5/20/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Sheet Metal Worker	\$47.15		\$10.64	\$18.38	\$0.98	\$0.00	\$3.33	\$0.00	\$0.00	\$0.00	\$80.48	\$104.05
Apprentice	BHR	Percent										
1st year	\$23.57	\$50.00	\$10.64	\$3.15	\$0.22	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$37.58	\$49.37
2nd year	\$25.91	\$54.95	\$10.64	\$3.47	\$0.98	\$0.00	\$3.33	\$0.00	\$0.00	\$0.00	\$44.33	\$57.29
3rd year	\$28.27	\$59.96	\$10.64	\$3.78	\$0.98	\$0.00	\$3.33	\$0.00	\$0.00	\$0.00	\$47.00	\$61.14
4th year	\$35.34	\$74.96	\$10.64	\$4.73	\$0.98	\$0.00	\$3.33	\$0.00	\$0.00	\$0.00	\$55.02	\$72.69

(*)Special Calculation Note :

Ratio :

- 1 Journeyman to 1 Apprentice
- 2 Journeymen to 2 Apprentices
- 3-6 Journeymen to 3 Apprentices
- 7-8 Journeymen to 4 Apprentices
- 9-10 Journeymen to 5 Apprentices
- 11-12 Journeymen to 6 Apprentices
- 13-14 Journeymen to 7 Apprentices
- 15-16 Journeymen to 8 Apprentices
- 17-18 Journeymen to 9 Apprentices
- 19-20 Journeymen to 10 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

Ashtabula, Cuyahoga, Geauga, Lake

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Sheet Metal Local 33 Industrial Door

Type of Rate: Commercial

Change #:
LCN01-2025ib

Craft:
Sheet Metal Worker

Effective Date:
8/1/2025

Effective Date:
8/1/2025

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Sheet Metal Worker	\$26.53		\$8.71	\$5.66	\$0.19	\$0.00	\$2.61	\$0.61	\$0.00	\$0.00	\$44.31	\$57.58
Apprentice	BHR	Percent										
Probationary Period (60 Days)	\$13.80	\$52.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$13.80	\$20.70
61st day -12 months	\$15.39	\$58.00	\$8.71	\$1.96	\$0.19	\$0.00	\$1.68	\$0.35	\$0.00	\$0.00	\$28.28	\$35.98
2nd Year	\$18.04	\$68.00	\$8.71	\$1.96	\$0.19	\$0.00	\$1.90	\$0.41	\$0.00	\$0.00	\$31.21	\$40.23
3rd Year	\$19.37	\$73.00	\$8.71	\$1.96	\$0.19	\$0.00	\$2.05	\$0.45	\$0.00	\$0.00	\$32.73	\$42.41
4th Year	\$21.22	\$80.00	\$8.71	\$1.96	\$0.19	\$0.00	\$2.17	\$0.49	\$0.00	\$0.00	\$34.74	\$45.35
5th Year	\$22.82	\$86.00	\$8.71	\$1.96	\$0.19	\$0.00	\$2.31	\$0.52	\$0.00	\$0.00	\$36.51	\$47.92

(*)Special Calculation Note :

Other: Holiday Pay

Ratio :

1-2 Journeyman to 1 Trainee
 3-4 Journeymen to 2 Trainee
 5-6 Journeymen to 3 Trainees
 7-8 Journeymen to 4 Trainees
 9-10 Journeymen to 5 Trainees
 11-13 Journeymen to 6 Trainees
 14-16 Journeymen to 7 Trainees
 17-19 Journeymen to 8 Trainees
 Maintaining a 3 Journeymen to 1 Trainee ratio thereafter

Jurisdiction (* denotes special jurisdictional note) :

Ashland, Ashtabula, Carroll, Columbiana, Coshocton, Crawford, Cuyahoga, Defiance, Erie, Fulton, Geauga, Hancock, Henry, Holmes, Huron, Lake, Lorain, Lucas, Mahoning, Medina, Ottawa, Paulding, Portage, Putnam, Richland, Sandusky, Seneca, Stark, Summit, Trumbull, Tuscarawas, Wayne, Williams, Wood

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Truck Driver Local 436 - HevHwy Class 1

Type of Rate: Commercial

Change #:
LCN02-2025ib

Craft:
Truck Driver

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												
Truck Driver CLASS 1	\$34.92		\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$54.62	\$72.08
Apprentice	BHR	Percent										
First 6 months	\$27.94	\$80.00	\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$47.64	\$61.60
7-12 months	\$29.68	\$85.00	\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$49.38	\$64.22
13-18 months	\$31.43	\$90.00	\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$51.13	\$66.84
19-24 months	\$33.17	\$95.00	\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$52.87	\$69.46
25-30 months	\$34.92	\$100.00	\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$54.62	\$72.08

(*)Special Calculation Note :

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Cuyahoga, Geauga, Lake

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 Local 436 - HevHwy Class 2

Type of Rate: Commercial

Change #:
LCN02-2025ib

Craft:
Truck Driver

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												
Truck Driver CLASS 2	\$35.73		\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$55.43	\$73.30
Apprentice	BHR	Percent										
First 6 months	\$28.58	\$80.00	\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$48.28	\$62.58
7-12 months	\$30.37	\$85.00	\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$50.07	\$65.26
13-18 months	\$32.16	\$90.00	\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$51.86	\$67.94
19-24 months	\$33.94	\$95.00	\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$53.64	\$70.62
25-30 months	\$35.73	\$100.00	\$9.25	\$10.05	\$0.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$55.43	\$73.30

(*)Special Calculation Note :

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Cuyahoga, Geauga, Lake

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.

SECTION 01 11 01

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY

A. **Section Includes:** Scope of work, identification of project site, work sequence, work hours, meeting requirements, Contractor's use of project site(s), and Owner occupancy.

B. **Related Sections:**

1. Section 01 21 13: Allowances
2. Section 01 33 01: Submittal Procedures
3. Section 01 35 24: Personal Protection for Abatement Work
4. Section 01 41 01: Regulatory Requirements
5. Section 01 42 14: Reference Standards and Definitions
6. Section 01 45 23: Testing Laboratory and Inspection Services
7. Section 01 50 00: Temporary Facilities - Demolition Work
8. Section 01 51 01: Construction Facilities & Temporary Controls
9. Section 01 52 20: Hygiene Facilities and Practices
10. Section 01 61 00: Product Requirements
11. Section 01 78 39: Project Record Documents
12. Division 2: Existing Conditions
13. Division 3: Concrete
14. Division 7: Thermal and Moisture Protection
15. Division 22: Plumbing
16. Division 26: Electrical
17. Division 31: Earthwork

C. **Related Attachments:**

1. Attachment A: Project Information.
2. Attachment B: Project Forms.

1.02 PROJECT SITE AND WORK IDENTIFICATION

- A. **Project Site** is Lakeland Community College located at 7700 Clocktower Drive, Kirtland, Ohio 44094 [(440) 525-7000].
- B. For purposes of **preparing EPA Notifications** required by Section 01 41 01, the following information is provided:
 - 1. T-Building:
 - a. Building size is approximately 51,500 square feet over 3 floors.
 - b. Age of building is 41 years.
 - c. Building is currently empty and prior use was educational facility.
 - d. Ohio EPA Asbestos Hazard Evaluation Specialist is Matt Wodkowski, Certificate No. ES33827, and expiration date is June 11, 2027.
 - e. Owner representative is Joseph (Jay) Kahn, AIA (jkahn4@lakelandcc.edu); phone number: 440-767-0748.
- C. **Engineer for T-Building Demolition Project** is Gandee & Associates, Inc (Phillip T. Harrison, P.E. [Ohio EPA-Certified Asbestos Hazard Abatement Project Designer No. 60594]). Where Contract Documents refer to Architect, Engineer, or A/E, these terms shall be taken to mean Gandee & Associates, Inc.

Engineer will furnish a Resident Project Representative (RPR) to assist Engineer by periodically observing performance of the Work of this Contract. Furnishing of such services shall not make Engineer responsible for Contractor's failure to perform Work in accordance with Contract Documents. Duties and responsibilities of RPR are limited to those of Engineer in Contract Documents, and are further limited and described as follows:

- 1. **General:** RPR is Engineer's full-time representative at Site(s). RPR's dealings in matters pertaining to Work in general will be with Engineer and Contractor, keeping Owner advised, as necessary. RPR's dealings with Subcontractors will only be through or with full knowledge and approval of Contractor. RPR will generally communicate with Owner only with knowledge of and under direction of Engineer. The RPR will:
 - a. **Conferences and Meetings:** Attend meetings with Contractor, such as pre-abatement/construction meetings, progress meetings, job conferences, and other Project related meetings (but not including Contractor's Safety meetings).
 - b. **Safety Compliance:** Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.
 - c. **Liaison:** Serve as Engineer's liaison with Contractor, working principally through Contractor's authorized representative or designee, assist in providing information regarding intent of Contract Documents; assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-site operations; and assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of Work.
 - d. **Review of Work/Defective Work:** Conduct on-site observations of Work to assist Engineer in determining if Work is in general proceeding in accordance with Contract Documents; observe whether any Work in place appears to be

defective; and observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.

- e. **Inspections and Tests:** Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work; and accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
- f. **Completion:**
 - 1) Participate in Engineer's Site visits.
 - 2) Assist in the preparation of a punch list of items to be completed or corrected.
 - 3) Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work and assist in preparation of a final punch list of items to be completed or corrected by Contractor.
 - 4) Observe whether items on the final punch list have been completed or corrected.
- g. **Records:** Maintain records for use in preparing Project documentation.
- h. **Interpretation of Contract Documents:** Report to Engineer when clarifications and interpretations of Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
- i. **RPR will not:**
 - 1) Authorize any deviation from Contract Documents or substitution of materials or equipment, unless so directed by Engineer.
 - 2) Exceed limitations of Engineer's authority as set forth in Contract Documents.
 - 3) Undertake responsibilities of Contractor, Subcontractors, or Suppliers.
 - 4) Advise on, issue directions relative to, or assume control over any aspect of means, methods, techniques, sequences, or procedures of Work.
 - 5) Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with Work.
 - 6) Participate in specialized field or laboratory tests or inspection conducted off-site by others except as specifically authorized by Engineer.
 - 7) Authorize Owner to occupy Site(s) in whole or in part.
 - 8) Provide access to Work by any governmental agent.
 - 9) Act as an agent of Engineer except as set forth herein.

- D. Per Contract Documents, Work of this Project includes (Bidder shall ascertain quantities involved with the Work; Engineer, Owner, and Contracting Authority are not responsible for accuracy of estimated quantities nor will Contract Time or Contract Sum be changed due to any errors in these estimates):

1. **Base Bid:**

a. **Known Work (T-Building & Associated Site unless noted otherwise):**

- 1) removal (per Section 02 82 17) of approximately 120 asbestos cement board tabletops;
- 2) removal and recycling (per Section 02 84 17) of approximately 220 fluorescent lamps;
- 3) removal and recycling (per Section 02 84 17) of approximately 30 batteries;
- 4) recovery (per Section 02 84 17) of refrigerants from one large rooftop unit and three water coolers;
- 5) exploratory demolition work (per Drawings) to access the following areas: within inaccessible pipe chases; above fixed ceiling systems; behind ceiling-and/or wall-mounted fixtures, boards, etc.;
- 6) demolition (per Division 2) of T-Building and connector, parking lots, sidewalks, etc.;
- 7) site work (per Divisions 2, 3, 22, 26, and 31);
- 8) collect and inventory chemicals for proper handling/disposal (per Section 01 21 13);
- 9) provision (per Section 03 01 30) of sidewalks; and
- 10) selective demolition (per Drawings).

- b. **Allowances:** include cash allowances (per Section 01 21 13) for additional work designed by Engineer.

2. **Alternate A:** removal (per Division 2) of Overhead Walkway between A- and E-Buildings.

E. **Project Sequence:**

1. Provide fencing around Site (per Drawings) and other temporary facilities (per Section 01 50 00) prior to start of any other work on Site. Provide temporary lighting throughout entire fenced area for duration of Work.
2. Perform asbestos hazard abatement work (per Division 2).
3. Upon being de-energized/removed from service, Engineer will sample fluids associated with hydraulic elevator equipment. Any fluids found to contain PCBs shall be disposed under terms of Allowance A-1.
4. At completion of asbestos hazard abatement work, Engineer may procure air samples within building in accordance with requirements specified in Division 2.

5. Perform miscellaneous universal waste and/or hazardous material abatement work per Drawing(s) and/or Division 2.
6. Perform pre-demolition sweep of building and Site.
7. Perform demolition and related Site work.
8. Once route for electrical service has been determined within E-Building, Engineer will inspect route for asbestos-containing materials prior to start of this work.
9. Once final site conditions have been accepted by the Owner, remove construction fencing.

F. Project Work Schedule:

1. Work shall be performed during normal work days and hours (Monday through Friday, between 7:00 a.m. and 6:00 p.m.) except during emergencies or as authorized by Engineer. For this Project, Work shall not exceed 10-hour work day nor a 40-hour work week. If Project includes multiple Sites, when performed simultaneously, work at all Sites shall have the same work days and hours (unless specified otherwise elsewhere), or coordinated with Owner and Engineer. Legal holidays shall be observed unless alternative arrangements are approved by Engineer.
2. For each distinct work area, abatement work schedule shall include one work day for Engineer to procure and analyze air clearance tests using phase contrast microscopy.

G. General Information:

1. Specific information regarding method of installation and components of ceilings, walls, platforms, floor systems, etc. are not provided within Contract Documents. Bidder will be afforded access to the Site(s) to conduct such explorations, measurements, and tests as Bidder deems necessary for submission of a Bid upon request made to Owner not less than five days prior to opening of Bids. Bidder shall fill all holes, clean up, and restore Site(s) to their former condition upon completion of such explorations.
2. Engineer's estimates are intended for benefit and information of Owner and are not intended to serve as a basis for the submission of Bids or filling out notifications to regulatory agencies. In the event Bidders chooses to rely on Engineer's estimate(s), Bidder waives any claims arising from inaccuracy of said estimate(s).
3. Unless material will be removed in its entirety prior to completion of Work, expandable foams and sealants (including, but not limited to, caulking and patching compounds) shall not be installed in Buildings A and E without Owner's approval.
4. Supplies and materials used on this Project shall meet requirements of OAC Chapter 3745-112 "Volatile Organic Compound Limits in Consumer Products."
5. Notify Engineer of any suspect asbestos-containing building materials encountered that were not previously known to exist.

1.03 MEETINGS

A. Pre-Abatement/Demolition Meeting:

1. After Contract has been executed, Engineer will schedule a Pre-Abatement/Demolition Meeting to be attended by Owner, Engineer, and Contractor.

2. Submit documents listed in Section 01 33 01, Paragraph 1.02.B to Engineer in advance of Pre-Abatement/Demolition Meeting and at least two weeks prior to start of Work.
- B. **Pre-Demolition and Dust Control Conference:** Conduct conference at Site to review methods and procedures related to demolition including, but not limited to, the following:
1. Inspect and discuss condition of construction to be demolished.
 2. Review and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 3. Review and finalize protection and shoring requirements, as required.
 4. Review procedures for noise control, vibration control, and dust control.
 5. Review items to be salvaged for Owner.
 6. Review coordination of demolition with Site utilities.
- C. **Site Mobilization Meeting:**
1. Prior to start of Work, Engineer may schedule a Site Mobilization Meeting to be attended by Owner, Engineer, and Contractor.
 2. Meeting shall accomplish the following, as applicable: completion of pre-work inspection for damages; review of site work and access constraints; and any other coordination items.
- D. **Job Meetings:** Weekly project meetings shall be attended by Owner, Engineer, and Contractor. Engineer will notify Owner and Contractor of time and place of meetings which will then be same day and hour of week for duration of Work. Engineer will take and distribute minutes of each meeting.

1.04 EMPLOYEE CONDUCT

- A. Contractor's employees shall abide by Federal, State, and Local laws and applicable Owner policies and rules while on premises.
- B. Contractor's employees shall not fraternize with any occupant(s) of building(s) or employee(s) of Owner.
- C. Contractor's employees are restricted to those areas of buildings and grounds directly included in Work. Unless coordinated otherwise with Owner, entry to all other areas is forbidden.
- D. Any employee whose conduct is judged unfit by Engineer or Owner shall not be permitted to work on Project.
- E. Tobacco use is not permitted on Owner's property.

1.05 OWNER OCCUPANCY

- A. **General:** Maintain existing building in a safe and weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period. Keep public areas (e.g., hallways, stairs, elevator lobbies, and rest rooms) free from accumulation of waste, rubbish, and construction debris.

- B. **Partial Owner Occupancy in Work Areas:** Owner reserves right to place and occupy areas of building in which all abatement work and project decontamination procedures have been completed, and to occupy such completed areas prior to completion of Work, provided that such occupancy does not substantially interfere with completion of Work.

1.06 CONTRACTOR CERTIFICATION

For completion of asbestos hazard abatement work, Contractor represents and agrees that it is licensed as an asbestos hazard abatement contractor under Ohio Revised Code 3745. Contractor also represents and agrees that it has met requirements imposed by federal, state, and local laws and that it will provide its services in compliance with applicable federal, state, and local laws, regulations, rules and ordinances, including, but not limited to, compliance with applicable federal, state, and local notification requirements, asbestos emission control laws and regulations, laws and regulations regarding storage, transportation, and disposal of asbestos-containing materials removed, laws and regulations regarding documentation and recordkeeping, and laws and regulations regarding final clearance levels.

1.07 CONTRACTOR'S SUPERINTENDENT

- A. Superintendent shall be Contractor's representative on Site and have authority to act on behalf of Contractor. Superintendent shall be at least 20 years of age and have ability to communicate effectively with workers and regulatory agencies.
- B. Superintendent for asbestos hazard abatement work shall be a "Competent Person" as required by OSHA in 29 CFR 1926.1101, an "Asbestos Hazard Abatement Specialist" as required by Ohio Environmental Protection Agency in Chapter 3745-22 of Ohio Administrative Code, and shall have a minimum of one year's experience total as superintendent of asbestos hazard abatement work on a minimum of three asbestos hazard abatement projects.

1.08 ACCESS TO WORK

- A. Control and limit access to work. Engineer and Engineer's representatives and employees shall have unlimited access to Work. Owner and Owner's representatives and employees and other persons designated by Owner, or Engineer, shall have access to Work at reasonable times for their observation, documentation, inspection and testing, or for such other reasonable purposes identified by Owner or Engineer.
 - 1. Representatives, employees, and persons entering work area shall, at a minimum, follow all OSHA requirements for entering regulated areas (e.g., respirators, competent persons, etc.).
 - 2. Representatives, employees, and persons entering any work area shall have appropriate training as determined by competent person.
- B. Employees or representatives of government agencies shall have access to Work under the following terms and conditions:
 - 1. Government agency and its employees or representatives are legally authorized to have access to Work. Determine that said legal authority exists and scope of legal authority. Immediately notify Owner and Engineer of any request by any government agency or employees or representatives of government agencies to have access to Work.
 - 2. Contractor shall take steps necessary to determine interests and rights of Owner and Engineer in any inspections by government agencies. Establish, to extent possible at Pre-Abatement Meeting, interests and rights of Engineer and Owner in any inspections by government agencies. Take steps necessary to protect and preserve

interests and rights of Owner and Engineer in any inspections by government agencies or by employees or representatives of government agencies.

3. Fully indemnify Owner and Engineer from loss or damages arising from Contractor's permitting access to Work in any manner that does not preserve and protect interests and rights of Owner and Engineer.
- C. Access to Work by persons other than employees or representatives of government agencies, Owner, Engineer, or Contractor shall be permitted on the following terms:
1. No persons other than those persons designated by Owner or Engineer shall have access to Work.
 2. Those persons designated by Owner or Engineer as persons who shall be permitted access to Work shall sign a waiver of liability in conformity with Waiver of Liability Form in Attachment B. Secure executed waivers of liability. In event any person described herein refuses to sign said waiver of liability, report this immediately to Engineer and deny access to Work to said person.
 3. Persons designated by Owner or Engineer as persons who shall have access to Work shall have access at a reasonable date and time and in a reasonable manner.
- D. For persons having access to Work pursuant to provisions of Paragraphs 1.08.A through 1.08.C, Contractor shall:
1. Provide proper and safe conditions for access to Work, and provide complete protective clothing, respiratory protection equipment and other necessary equipment, in accordance with statutes and regulations, and in accordance with applicable provisions in Division 2 of Contract Documents.
 2. Record in writing names of such persons, their affiliation with any relevant organization or agency, dates, times, places and durations of all such access.
- E. Secure ingress and egress to Work in a manner which prevents access to Work that fails to conform with provisions stated herein.
- F. Provide to Engineer and Engineer's employees and representatives conditions, clothing and equipment for day-to-day use, described in Paragraph 1.08.D.

1.09 INSURANCE

Asbestos Hazard Abatement Contractor shall provide and maintain pollution Liability Insurance in occurrence form that covers work of this Project through an insurance company holding an A.M. Best Rating of A-, X, or higher and authorized to conduct business in Ohio in an amount not less than One Million Dollars (\$1,000,000) per claim with a Two Million Five Hundred Thousand Dollar (\$2,500,000) policy limit.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 21 13

ALLOWANCES

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Provision of an adequate budget and bonding to cover items not precisely determined by Owner prior to bidding; allow within proposed Contract Sum amounts described below.
- B. **Related Sections:**
 - 1. Bid Form
 - 2. Section 01 11 01: Summary of Work
 - 3. Section 01 22 01: Unit Prices

PART 2 - PRODUCTS

2.01 SPECIFIC ALLOWANCES

- A. **Allowance A-1 (Additional Work):** Under Base Bid, allow sum of \$45,000 for the following: additional work (per Division 2) as designed by Engineer; removal and disposal of PCB Liquids and/or PCB Articles; and packaging and recycling/disposal of stored chemicals remaining in building at the start of work.

PART 3 - EXECUTION

3.01 WORK ORDERS

Contractor may be directed to perform additional work at Lakeland Community College through Substantial Milestone Completion Date. Mobilize and initiate work within five work days of receipt of Written Directive(s). Ohio EPA Notification(s) shall not be allowed to expire without approval of Engineer; notification(s) shall be put "on-hold" per applicable regulations.

3.02 ALLOWABLE COSTS & ADJUSTMENTS IN CASH ALLOWANCES

Allowance(s) established under this Section shall cover cost to Contractor identified in General Conditions, Paragraph 9.1. If actual price for performing work identified under Allowance is more or less than actual "Allowance(s)" then Contract Price shall be adjusted by Change Order.

END OF SECTION

SECTION 01 33 01

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Required submittals and submittal procedures.
- B. Requirements of this Section apply to submittals required by all Sections of Contract Documents for this Project.
- C. **Obtain Drawings in Electronic Format:** Drawings may be obtained in electronic format from Engineer by signing a release of liability and indemnity agreement. These drawing sheets will be issued in electronic format at Contractor's request for the sole purpose of coordination of work on this Project and shall not be used for any other purpose without specific written approval from Engineer. Supplying of drawings in electronic format shall not change or alter requirements of Contract Documents or responsibilities or liabilities of Contractor.
 - 1. Drawings in electronic format will be transmitted to Contractor after Engineer's receipt of signed Agreement. Allow sufficient time for processing request. Claims for delay due to insufficient processing time will not be considered.
 - 2. Requests for Engineer's drawings in electronic format shall be directed to Engineer for processing.
 - 3. Release of liability and indemnity agreement is available from Engineer upon request.

1.02 REQUIRED SUBMITTALS

- A. Refer to each Section for additional submittals required by given Section.
- B. Provide **proposed submittal schedule** in chronological order, including shop and setting drawings. Submittal schedule shall indicate anticipated dates submittals will be submitted for review and be coordinated with Project Schedule with proper review time while allowing sufficient time for fabrication and shipment and to maintain Project Schedule. The following information shall be provided:
 - 1. Schedule date for first submittal;
 - 2. Related Section number;
 - 3. Submittal category;
 - 4. Name of subcontractor, if applicable;
 - 5. Description of part of Work covered;
 - 6. Scheduled date for resubmittal, in anticipated; and
 - 7. Scheduled date of Engineer's final release or approval.

- C. The following submittals are required prior to Pre-Abatement/Demolition Meeting or at least ten work days prior to start of Work (whichever is earlier):
1. Applicable **Contractor Certifications** for removal, repair, encapsulation, enclosure, decontamination, and disposal of asbestos-containing materials as required by federal, state, and local laws.
 2. **Notifications** required by federal, state, and local regulations submitted within time frames required by regulatory agencies. Refer to Section 01 41 01.
 3. Proposed **Abatement Plans**, which shall include the following: drawings of decontamination facilities and their locations; work area isolation plan with layout of engineering controls (e.g., AFD units, including path of exhaust ducts); security program; routing plan for removal of contaminated material from the building; and a listing of tools, equipment and supplies proposed for use in abatement work. Prepare contingency plans for possible failure of polyethylene barriers, decontamination structures, static pressure differential systems and devices, and for other circumstances which could lead to escape of contaminated air from within work area. Contingency plan shall set forth specific procedures to be followed in event of a potential or actual escape of contaminated air.
 4. Proposed **Demolition Plan**, which shall include the following: detailed sequence of demolition work, including starting and ending dates for each activity; temporary interruption of utility services; outline of demolition process, including staging areas, site usage plans, equipment and methods, dust control methods, demolition water method, demolition water control, storm water pollution prevention; shutoff and capping of utility services, methods, utility coordination, and schedule.
 5. Proposed **Landfill** for disposal of asbestos-containing materials and contaminated waste.
 6. Proposed **Landfill** for disposal of demolition debris, including non-regulated asbestos-containing materials (per Ohio EPA Regulations).
 7. **Safety Data Sheets** for materials and supplies listed in Hazard Communication Standard (29 CFR 1926.59).
 8. Proposed **Waste Generator Labels**; refer to Section 02 82 33, Paragraph 3.01.I.
 9. Proposed **Treatment Facility/Recycler, hazardous waste landfill, and/or licensed hazardous waste Transporter** for proper handling of hazardous waste (e.g., ballasts). Submittal shall indicate permit to accept and/or transport each type of hazardous waste included in scope of Work.
 10. Proposed **Refrigerant Reclaimer** per Paragraph 1.02.E.6.
 11. Proposed **Plans for Handling Fiber Optic Cabling**, which shall include the following: plans for disconnecting cabling in data closets and manholes, details on what will become of the cabling (storage, removal, etc.), and which trade will complete this work.
- C. The following submittals are required during course of Work and prior to completion of Work:
1. **Employee Exposure Monitoring Required by OSHA:** Perform exposure monitoring in compliance with OSHA regulations for Contractor's employees. Provide exposure monitoring equipment required in Paragraph 1.02.C. Contractor shall bear costs in connection with exposure monitoring and reporting required in Paragraph 1.02.C.

2. **Worker Qualification Form(s):** Submit completed Worker Qualification Form(s) (a copy of this form is included in Attachment B), including required attachments, to Engineer for each employee who performs asbestos hazard abatement work. No worker shall be permitted to work of these types on this Project unless properly documented Worker Qualification Form(s) have been submitted in their name. In addition to Worker Qualification Form(s) submitted to Engineer, maintain a separate copy of these forms on Site.
3. **Worker Credentials:** Submit proof that each employee performing demolition and related work activities has completed an OSHA 10-hour or 30-hour construction course and at least one project superintendent has completed an OSHA 30-hour Construction Course. Training course shall include instruction specific to hazards involved in this work; submit certificate indicating which training topics were addressed. No worker shall be permitted to work on this project unless proof of these training requirements has been submitted in their name.
4. **Waste Shipment Records:** Submit an original, signed Waste Shipment Record (a copy of this form is included in Attachment B) to Engineer for each shipment of asbestos-containing or -contaminated material that leaves work site; this Record shall be submitted within 45 days of date waste was accepted by initial transporter.
5. **Disposal Receipts:** Submit receipts for C&DD waste disposal, including those which include non-regulated asbestos-containing waste.
6. **Ohio EPA Notices:** Submit copies of any Compliance Notifications and Notices of Violations provided by Ohio EPA following completion of any Ohio EPA inspections.
7. **Daily Construction Reports:** Record the following information concerning events at Site daily (signed and dated by Contractor's Superintendent):
 - a. Approximate count of personnel at Site (including subcontractors);
 - b. High and low temperatures, general weather conditions;
 - c. Accidents and unusual events;
 - d. Meetings and significant decisions;
 - e. Stoppages, delays, shortages, and losses;
 - f. Meter readings and similar recordings, if applicable;
 - g. Emergency procedures, field orders;
 - h. Orders and requests of governing authorities;
 - i. Field Orders, Change Orders, or Work Change Directives received or implemented;
 - j. Services connected or disconnected;
 - k. Description and location of Work accomplished;
 - l. Equipment on Site; and
 - m. Major deliveries.

8. **Removal of Elevator or Escalator from Service:** Where required, provide copy of Form DIC-18-0003, submitted to Ohio Department of Commerce Division of Industrial Compliance.
- D. For the following activities, submit documentation from Ohio licensed professional engineer(s) or registered architect(s), as appropriate, approving Contractor's proposed methods, procedures, and uses. Include drawings and product/equipment information, as necessary.
1. Modification of **existing structural components**;
 2. Use of **heavy equipment** on structural floors or decks;
 3. Storage of **equipment, products, and/or waste containers** on structural floors in excess of what would be considered normal floor loading in given area;
 4. **Excavation** support structures;
 5. **Demolition Plan** for Alternate A Work; and
 6. **Any other construction means, methods, techniques, etc.** required in completion of Work that such certification would be appropriate.
- E. The following submittals for miscellaneous universal and/or hazardous materials work:
1. **Inventory List:** Submit a complete Inventory List of miscellaneous universal and/or hazardous materials, as noted on Drawings, that exist in facility(s).
 2. **Employee Training for Handling of Universal and/or Hazardous Waste:** Submit proof that employees who handle or have responsibility for managing universal and/or hazardous wastes have been properly trained to handle each type of universal and/or hazardous waste included in scope of Work per applicable federal, state, and local regulations. Training shall also include safe work practices and procedures for addressing emergencies for each type of waste.
 3. **Bill of Lading:** Submit copy(ies) of Bill of Lading for each shipment of ballasts, lamps, mercury-containing devices, and/or batteries that leaves work site for recycling or disposal. Information on Bill of Lading shall include: name and address of Owner, Contractor, transporter, and recycler; number of items shipped; date of shipment; date of receipt by recycler; and signatures of transporter and recycler. If possible, submit a copy of Bill of Lading to Engineer as waste leaves the Site(s); a final copy of this document shall be submitted to Engineer once signed by recycler.
 4. **Certificate of Recycling/Destruction/Conversion:** Submit Certificate of Recycling, Destruction, or Conversion from recycler of lamps, ballasts, mercury-containing devices, chemicals, and/or batteries.
 5. **Hazardous Waste Manifest:** When applicable, submit original signed Hazardous Waste Manifests to Engineer for each shipment of ballasts, lamps, mercury-containing devices, chemicals, or batteries that leave Site(s) that will be disposed as hazardous waste.
 6. **Refrigerants:**
 - a. Submit certificate showing that technician removing refrigerants has completed a U.S. EPA-approved certification program and is licensed for CFC refrigerant recycling/recovery with U.S. EPA.

- b. Submit current U.S. EPA Registrations for all equipment used in recycling/recovery process.
- c. Submit proof that refrigerant reclaimer is a U.S. EPA-certified reclaimer.
- d. Submit the following for each shipment of refrigerants that leaves Site(s): name and address of transporter and refrigerant reclaimer; amount and type of refrigerant recovered and shipped; date of shipment; and date of receipt by reclaimer.

1.03 PROPOSED PRODUCTS LIST

- A. Within ten work days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.04 PRODUCT DATA

- A. Product Data information submitted to Engineer will be reviewed for conformance with information given and design concept expressed in Contract Documents only. Provide copies and distribute in accordance with SUBMITTAL PROCEDURES article in this Section.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

1.05 SHOP DRAWINGS

- A. Shop drawings submitted to Engineer will be reviewed for conformance with information given and design concept expressed in Contract Documents only. Produce copies and distribute in accordance with SUBMITTAL PROCEDURES article in this Section.
- B. Shop Drawings include fabrication and installation drawings, schedules, patterns, and similar drawings for each individual product, equipment or material specified (as applicable). Include the following:
 - 1. Identification of products, equipment and materials;
 - 2. Compliance with specified standards;
 - 3. Notation of coordination requirements; and
 - 4. Notation of dimensions established by field measurements.

1.06 SAMPLES

- A. Samples submitted to Engineer will be reviewed for conformance with information given and design concept expressed in Contract Documents only.
- B. Samples for Selection as specified in Product Sections:
 - 1. Submit to Engineer for aesthetic, color, or finish selection; and
 - 2. Submit samples of finishes from full range of manufacturers' standard colors, textures, and patterns for Engineer selection.

- C. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for related work.
- D. Include identification on each sample with full Project information.
- E. Submit number of samples specified in individual specification sections; Engineer will retain two samples.
- F. Samples will not be used for testing purposes unless specifically stated in specification section.

1.07 CERTIFICATES

- A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

1.08 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, to Engineer for delivery to Owner in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- C. For Work which includes installation of new products, materials, or equipment, furnish O&M Manuals, training, information regarding operating and maintenance requirements, and suggested spare parts recommended by manufacturer.

1.09 DESIGN SERVICES OR CERTIFICATION BY DESIGN PROFESSIONAL (UNDER CONTRACTOR)

- A. Signature and seal of design professional shall appear on all drawings, calculations, specifications, certifications, etc.
- B. Owner and Engineer will be entitled to rely upon adequacy, accuracy, and completeness of services, certifications, or approvals performed by design professional.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 SUBMITTAL PROCEDURES

- A. Unless specified or approved otherwise by Engineer, transmit each submittal in triplicate with cover letter or transmittal form bearing Contractor's name. Submittals shall not be transmitted unless Contractor has confirmed that submittal meets requirements of Contract Documents.

- B. Identify Project Name, Project Number, Contractor, subcontractor, supplier, pertinent drawing and detail number, and specification section number appropriate to submittal.
- C. Indicate review and approval of shop drawings, product data, samples, and similar submittals by means of a template (or stamp) having signature and date lines.
 - 1. Provide a space approximately 3 inches x 8-1/2 inches in each submittal for review stamps of Contractor, Engineer, and University to indicate review and approval markings and action taken.
 - 2. Template (or stamp) shall be initialed and dated by Contractor, in above space of submitted shop drawings, on product data in a location which will not obscure information, or on a tag used to identify samples and similar submittals.
 - 3. Contractor's template (or stamp) shall include the following text: "Reviewed and approved in accordance with requirements of General Conditions of Contract."
 - 4. Submittals which do not bear template (or stamp), signed and dated by Contractor, or which do not comply with Contract Documents shall be returned to Contractor, shipping charges collect, without Engineer's review.
- D. Schedule submittals to expedite Project and deliver to Engineer at 8748 Brecksville Road, Brecksville, Ohio 44141 or by email to Engineer's Project Manager if approved by Engineer and Owner at start of Work.
- E. Provide all submittals in a manner sufficient to meet manufacturing and delivery lead times.
- F. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.
- G. When revised for resubmission, identify changes made since previous submission.
- H. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- I. Submittals made by Contractor which are not required by Contract Documents will not be recognized, processed, or reviewed by Engineer or Owner.

3.02 ENGINEER ACTION

- A. **Action Declaration:** Engineer will mark each submittal with a uniform, self-explanatory action declaration, marked as follows, to indicate action taken:
 - 1. **"Approved":** Where submittals are marked "Approved," that part of Work covered by submittal may proceed provided it complies with requirements of Contract Documents; final acceptance will depend upon that compliance.
 - 2. **"Approved as Noted":** When submittals are marked "Approved as Noted," that part of Work covered by submittal may proceed provided it complies with notations or corrections on submittal and requirements of Contract Documents; final acceptance will depend on that compliance.
 - 3. **"Resubmit":** When submittal is marked "Resubmit," do not proceed with that part of Work covered by submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with notations; resubmit without delay. Repeat if necessary to obtain a different action declaration. Do not

permit submittals marked "Resubmit" to be used at Project Site, or elsewhere where Work is in progress.

- B. **Submittals requested by Contract Documents for action and return** will be reviewed by Engineer, marked to indicate action taken, and returned promptly.
 - 1. Compliance with specified characteristics is Contractor's responsibility as indicated in Agreement.
 - 2. Approval by Engineer does not relieve Contractor of responsibility to comply with Contract requirements.
- C. **Submittals requested primarily for information or record purposes**, special processing or other activity not requiring review by Engineer will be retained by Engineer.
 - 1. Compliance with specified characteristics is Contractor's responsibility as indicated in Agreement.
 - 2. Acceptance of information or record submittals by Engineer does not relieve Contractor of responsibility to comply with Contract requirements.
- D. **Submittals made by Contractor, which have not been requested by Contract Documents**, may be returned to Contractor without review by Engineer and without notation on submittals.

END OF SECTION

SECTION 01 35 24

PERSONAL PROTECTION FOR ABATEMENT WORK

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Minimum requirements for personal protection for Work of Division 2.
- B. **Related Sections:**
 - 1. Section 02 82 17: Asbestos Hazard Abatement - LEV Work

1.02 DEFINITIONS AND REFERENCES (NOT UTILIZED)

1.03 PROTECTION INSTRUCTION

Provide and post, in clean room(s) and equipment room(s), proper decontamination and work procedures.

1.04 PROTECTIVE CLOTHING

- A. Comply with OSHA regulations for protective clothing.

1.05 RESPIRATORY PROTECTION

- A. Comply with OSHA regulations for respiratory protection program.
- B. At a minimum, workers performing work area preparation in areas with friable or damaged non-friable asbestos-containing materials, repairs of asbestos-containing materials, drilling activities, stripping and removal of asbestos-containing and asbestos-contaminated materials not listed in Paragraph 1.05.B, installing glovebags, stripping of materials containing less than or equal to 1% asbestos, encapsulation, work area decontamination, and handling disposal containers within decontamination areas and equipment areas shall be required to wear half-mask air-purifying respirators other than disposable respirators, equipped with high efficiency filters (provided Contractor has a proper negative pressure assessment allowing for its use). In addition, a chemical cartridge filter section shall be added, if required for solvents, etc., in use. Respirator filter cartridges shall be discarded as contaminated waste upon exiting work area unless filter intake port is sealed to provide an airtight closure.

1.06 HYGIENE FACILITIES AND PRACTICES

- A. Comply with OSHA regulations concerning hygiene facilities and practices.
- B. Workers shall be allowed adequate time for decontamination sequence at end of each work period, and not be required or permitted to bypass hygiene practices except for bona fide emergencies.
- C. Workers shall not eat, drink, smoke, chew gum or tobacco, or apply cosmetics in a work area.

1.07 EMERGENCY PRECAUTIONS

- A. Prepare contingency plan for emergencies including fire, accident, power failure, negative pressure enclosure failure, breach of containment, water leaks, or other events that may require modification or abridgement of decontamination area, equipment area, or work area isolation procedures. Include in plan specific procedures for decontamination or work area isolation. This plan shall not impede safe exiting or providing of adequate medical attention in event of an emergency.
- B. Establish emergency and fire entrances and exits to work areas. Mark exits from work area so that they are readily visible in event of an emergency.
- C. Local medical emergency personnel, including local ambulance crews and hospital emergency room staff, shall be notified prior to commencement of Work as to possibility of having to handle a contaminated or injured worker and shall be advised on safe decontamination practices.
- D. Be prepared to administer first aid to injured personnel after decontamination. Seriously injured personnel shall be treated immediately or evacuated without delay for decontamination. When an injury occurs, stop work and implement fiber reduction techniques (e.g., wetting asbestos-containing materials) until injured person has been removed from work area.
- E. Prior to start of Work, notify local police and fire departments as to dangers of entering work areas and invite them to attend an informal training program to be conducted by Contractor which will provide information regarding Work, decontamination practices, etc. Make every effort to help these agencies form plans of action should their personnel need to enter work areas, and assist during emergency procedures.
- F. Post numbers and locations of emergency services including but not limited to fire, ambulance, doctor, hospital, police, power company, and telephone company.

PART 2 - PRODUCTS - NOT UTILIZED

PART 3 - EXECUTION - NOT UTILIZED

END OF SECTION

SECTION 01 41 01

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

Section Includes: Governmental regulations and industry standards which are included and incorporated herein by reference and made a part of Contract Documents. This Section also sets forth those notices and permits which are known to Owner and which either must be applied for and received, or which must be given to governmental agencies before start of Work.

1.02 CODES AND REGULATIONS

- A. **General Applicability of Codes, Regulations, and Standards:** Except to extent that more explicit or more stringent requirements are written directly into Contract Documents, applicable codes, regulations, and standards have same force and effect (and are made a part of Contract Documents by reference) as if copied directly into Contract Documents, or as if published copies are bound herewith.
- B. **Contractor Responsibility:** Assure that removal or disturbance of asbestos-containing materials, lamps, ballasts, batteries, chemicals, silica-containing materials, lead- and cadmium-containing paint be conducted in compliance with state and federal statutes and regulations. Assure, as far as practicable, that materials are transported and disposed or recycled/incinerated in a manner which complies with state and federal statutes and regulations. Contract with any third party required to transport, dispose, recycle/incinerate, or store asbestos-, lead-, silica-, or cadmium-containing materials, batteries, chemicals, and lamps/ballasts, and warrant that any such third party have fulfilled licensing or certification requirements of state and federal statutes and regulations. Indemnify and hold harmless Owner and its agents for any liability imposed as a result of its or any third party's violation of any state or federal statute or regulation regarding removal, transport, disposal, recycling/incineration or storage of asbestos-, lead-, silica-, and cadmium-containing materials, batteries, chemicals, lamps, and ballasts.
- C. **Federal Requirements** which govern Work include, but are not limited to, the following:
 - 1. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) including, but not limited to:
 - a. "Occupational Exposure to Asbestos"
29 CFR 1926.1101
 - b. "Occupational Exposure to Mercury"
29 CFR 1926.59
 - c. "Occupational Exposure to Cadmium"
29 CFR 1926.63
 - d. "Respiratory Protection"
29 CFR 1910.134
 - e. "Respirable Crystalline Silica"
29 CFR 1926.1153

- f. "Construction Industry"
29 CFR 1926
 - g. "Sanitation"
29 CFR 1926.51
 - h. "Lead Exposure in Construction; Interim Final Rule"
29 CFR 1926.62
 - i. "Access to Employee Exposure and Medical Records"
29 CFR 1910.2
 - j. "Hazard Communication"
29 CFR 1926.59
 - k. "Specifications for Accident Prevention Signs and Tags"
29 CFR 1910.145
 - l. "Hazardous Waste Operations and Emergency Response"
29 CFR 1910.120
 - m. "Personal Protection Equipment Standard"
29 CFR 1910, Subpart 1
2. U. S. Environmental Protection Agency (EPA) including, but not limited to:
- a. "National Emission Standard for Hazardous Air Pollutants"
40 CFR 61 Subpart A
 - b. "National Emission Standard for Hazardous Air Pollutants; Amendments to Asbestos Standard"
40 CFR 61 Subpart M
 - c. "Notification Requirements; Reportable Quantity Adjustments"
40 CFR 763.117 and 40 CFR 763.302
 - d. "Recycling and Emissions Reduction"
40 CFR 82, Subpart F
 - e. "Hazardous Waste Regulations"
40 CFR 260 through 272
 - f. "Standards for Universal Waste Management"
40 CFR 273
 - g. "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions"
40 CFR 761
 - h. "Asbestos-Containing Materials in Schools"
40 CFR 763 Subpart E
 - i. "Resource Conservation and Recovery Act"
40 CFR 261

3. U.S. Department of Transportation (DOT) and other federal standards including, but not limited to:
 - a. "Hazardous Substances"
49 CFR Parts 171, 172 through 180, and 387
 - b. "Safety Data Sheets, Preparation, and the Submission of"
Federal Standards 313A
 - c. "Precautions and Procedures for Entering Methods or other Below Grade Confined Spaces"
NIH DES Instruction 1340-7
 - d. "Standards for Temporary Construction"
NIH DCAB Publication March 1988

D. State Requirements:

1. Work shall be performed in accordance with Ohio Basic Building Code (OBBC).
2. State requirements which govern asbestos hazard abatement work include Chapters 3745-20 and 3745-22 of Ohio Administrative Code.
3. State requirements which govern lead abatement include Chapter 3701-32 of Ohio Administrative Code.

E. Abide by local requirements which govern Work.

1.03 LICENSES, PERMITS AND CERTIFICATIONS

Maintain current licenses, permits, and certifications as required by applicable federal, state, or local jurisdictions for removal, transporting, disposal, or other regulated activity relative to Work of this Contract.

1.04 NOTIFICATION FEES

Pay fees associated with notifications required by this Section (e.g., Ohio EPA and local notification fees).

1.05 POSTING AND FILING OF REGULATIONS

Maintain a copy of applicable federal, state, and local regulations noted above and have on file in Contractor's field office.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 NOTICES

- A. Refer to Section 01 11 01 for some of the information required to complete notifications.
- B. Prepare and send Written Notification as required by 40 CFR 61, Subpart M to **Ohio EPA** within proper notification period prior to beginning Work with regulated asbestos-containing materials (a copy of this form is included in Attachment B). Send Revised Notifications as required by 40 CFR 61.

- C. Prepare and send Written Notification as required by Chapter 3745-22 of Ohio Administrative Code to **Ohio EPA** within proper notification period prior to beginning asbestos hazard abatement work (a copy of this form is included in Attachment B). Send Revised Notifications as required by Chapter 3745-22.
- D. Prepare and send written Notification as required by **local regulations** prior to beginning Work.

3.02 WASTE SHIPMENT RECORDS

Prepare and submit Waste Shipment Records (WSR) as required by CFR 61, Subpart M to waste disposal site with deposits of asbestos-containing and asbestos-contaminated waste (a copy of this form is included in Attachment B). Unless still in Contractor's control at a central location site, contact transporter and waste disposal site to determine status of waste shipment if a signed copy of WSR is not received within 35 days of date waste was accepted for transport from the Site. If waste has not left the central location site or if a signed copy of WSR is not received from waste disposal site within 45 days of date waste was initially accepted for transport at the Site, submit a report to local or state office responsible for administering asbestos NESHAP program notifying them of this situation. Report shall include, but not be limited to, the following, as applicable: copy of WSR; present location of waste; or efforts made to locate the waste and results thereof. Contractor will not receive final payment for Work until all waste has been properly disposed and signed WSR(s) have been submitted to Engineer.

END OF SECTION

SECTION 01 42 14

REFERENCE STANDARDS AND DEFINITIONS

PART 1 - GENERAL

1.01 SUMMARY

Section Includes: Reference standards and definitions for Work.

1.02 DEFINITIONS

- A. **General:** A substantial quantity of specification language constitutes definitions for terms found in other sections of Contract Documents, including Drawings. (Drawings must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon.) Certain terms used in Contract Documents are defined in this Section. Definitions and explanations of this Section are not necessarily complete or exclusive, but are general for Work to extent they are not stated more explicitly in another element of Contract Documents.
1. Where not otherwise explained, terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted," mean "directed by Engineer," "requested by Engineer," and similar phrases. However, no such implied meaning will be interpreted to extend Engineer's responsibility into Contractor's responsibility for construction supervision.
 2. Where used in conjunction with Engineer's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved," will be held to limitations of Engineer's responsibilities and duties as specified in General and Supplementary Conditions. In no case will "approval" by Engineer be interpreted as a release of Contractor from responsibilities to fulfill requirements of Contract Documents.
 3. "Demolish" means to completely remove and legally dispose off-site or as otherwise specified in Contract Documents.
 4. "Furnish" means supply and deliver to Project Site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.
 5. "Indicated" is a cross-reference to graphic representations, notes or schedules on drawings, other paragraphs or schedules in specifications, and similar means of recording requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.
 6. "Install" describes operations at Project Site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, etc., as applicable in each instance.
 7. "Installer" is the entity (person or firm) engaged by Contractor, or its subcontractor or sub-subcontractor for performance of a particular unit of work at Project Site, including installation, erection, application, etc. It is a general requirement that such entities (installers) be expert in operations they are engaged to perform.

8. "Project Site" or "Site" is space available to Contractor for performance of Work, either exclusively or in conjunction with others performing work as part of project. Extent of Project Site is limited to that part of building(s) and/or site(s) directly included in project, unless stated otherwise in Contract Documents.
9. "Provide" means furnish and install, complete and ready for intended use, as applicable in each instance.
10. "Recycle" means recovery of demolition waste for subsequent processing in preparation for reuse.
11. "Relocate" means removal of material or equipment, including incidental parts, pieces or attachments, in a manner which meets requirements of Contract Documents and renovation process. All such items shall be subject to approval of Owner and shall be carefully removed, thoroughly cleaned, refurbished, and then installed as specified for new material or equipment.
12. "Remove" means removal of soil, materials, or equipment and, unless specified otherwise, proper disposal off-site.
13. "Salvage" means careful detachment of material or equipment (or dismantlement of material or equipment in useful sizes shapes or components) and delivery to Owner (including associated fasteners/brackets), set up or packaged for storage as specified. Removal of paint or cleaning, except that required for normal handling, shall not be a part of this classification. Material and/or equipment salvaged from demolition and alteration operation shall remain property of Owner.
14. "Testing Laboratory" means an independent entity engaged to perform specific inspections or tests of Work, either at Project Site or elsewhere; and to report and (if required) interpret results of those inspections or tests.

B. Definitions Relative to Work:

1. "Air Filtration Device (AFD)" - air filtration equipment used for reducing airborne contaminants in work areas and used for exhausting filtered air from a work area to achieve a static pressure differential such that work area's static pressure is less than static pressure in areas immediately adjacent to work area.
2. "Air Sampling" - process of measuring fiber content or particulate mass of a specific volume of air in a stated period of time.
3. "Air Sampling Technician" - a person experienced and trained in air sampling techniques (esp. ORM and NIOSH Method 7400 procedures) and in operation and maintenance of air sampling equipment.
4. "Amended Water" - water to which a surfactant has been added.
5. "Asbestos" - generic term for naturally occurring inorganic hydrated silicates, occurring in layered structures composed of chains of silicon/oxygen tetrahedra, which can subdivide into flexible fibers. Asbestos minerals include (type of asbestos is indicated in parenthesis immediately following mineral name): serpentine (chrysotile), riebeckite (crocidolite), grunerite (amosite), anthophyllite (anthophyllite), tremolite (tremolite), and tremolite-actinolite (actinolite).
6. "Asbestos-Containing Material (ACM)" - material containing greater than 1% asbestos of any type or mixture of types as determined by polarized light microscopy analysis performed by a laboratory participating in National Voluntary Laboratory

Accreditation Program for bulk asbestos sponsored by National Institute of Standards and Technology.

7. "Asbestos Hazard Abatement" - procedures to control fiber release from asbestos-containing or contaminated building materials (stripping, removal, encapsulation, disposal, decontamination, etc.).
8. "Barrier" - polyethylene sheeting and/or other materials which when used in conjunction with existing floors, ceilings, and walls of structure form an isolated work area. Barrier separates contaminated work environment from uncontaminated environment.
9. "Breathing Zone" - area near collar or lapel, forward of shoulders.
10. "Clean Room" - uncontaminated area or room outside work area and part of work area decontamination area with provisions for storage of workers' street clothes and protective equipment. (See diagram in Attachment A.)
11. "Contaminated" - containing or coated with asbestos or hazardous materials.
12. "Cubic Yard (cy)" - a volume of material, as determined by multiplying length, depth and width of material; one cubic yard equals 27 cubic feet.
13. "Curtained Doorway" - device to allow entrance or exit from one room to another while permitting minimal air movement between rooms, typically constructed by placing two overlapping sheets of polyethylene film over an existing or temporarily framed doorway, securing each along top of doorway, securing vertical edge of one sheet along one vertical side of doorway, and securing vertical edge of the other sheet along opposite vertical side of doorway. Polyethylene film shall overlap approximately six inches.
14. "Decontamination Area" - enclosed area adjacent and connected to regulated work area consisting of an equipment room, shower room and clean room, used for decontamination of workers, materials, and equipment contaminated with asbestos or hazardous materials.
15. "Disposal" - procedures necessary to gather, containerize, transport, and deposit materials in an approved waste disposal site in compliance with OSHA, EPA, and DOT Regulations.
16. "Encapsulant (Sealant)" - liquid material which can be applied to asbestos-containing or contaminated materials and controls possible release of asbestos fibers either by creating a membrane over surface (bridging encapsulant) or by penetrating into material and binding its components together (penetrating encapsulant). Removal encapsulants are used in lieu of surfactants to minimize fiber release from ACM during stripping, removal, and disposal activities. Residual encapsulants are used to coat surfaces in work area once stripping is complete to control possible release of residual fibers from work area surfaces.
17. "Encapsulation" - procedures necessary to coat asbestos-containing or contaminated materials with an encapsulant to control possible release of asbestos fibers into ambient air; procedures necessary to render materials incapable of releasing asbestos fibers into ambient air by using a penetrating encapsulant.
18. "Equipment Area" - area accommodating at least two workers (allowing enough room to remove protective clothing) consisting of a drop cloth, disposal bag and container, and HEPA-equipped vacuum for decontamination of workers.

19. "Equipment Room" - contaminated area or room inside work area which is part of decontamination area, with provisions for storage of contaminated clothing and equipment. (See diagram in Attachment A.)
20. "Excavation" - cutting, digging, removing and wasting materials of every description, including soils, foundations, rock and whatever substance encountered to dimensions, limits, elevations and contours specified and subsequent disposal of materials removed.
21. "Excursion Limit" - employee exposure not to exceed 1.0 fiber per cubic centimeter of air (f/cc) averaged over a sampling period of 30 minutes as defined in 29 CFR 1926.1101.
22. "Filling/Backfilling" - placing of approved soil materials in accordance with specified procedures and materials and in conformity with lines, grades, contours, cross-sections and elevations specified.
23. "Fittings" - all pipe fittings, such as elbows, joints, butt joints, valves, regulators, traps, and similar objects.
24. "HEPA Vacuum" - High Efficiency Particulate Aerosol filtered vacuum with a filter system capable of collecting and retaining asbestos fibers or mercury, as applicable. Filters shall be capable of retention efficiency of 99.97 percent fibers to absolute standards at 0.3 microns.
25. "HVAC" - heating, ventilating, and air conditioning; includes exhaust equipment, supply and return ductwork, unit ventilators, fan-coil units, blower cabinets and fans, control devices, damper assemblies, etc.
26. "Imported Fill Material or Borrow" - approved soil materials from sources other than those made available by required excavation of Site. Unless specifically provided, no imported fill shall be obtained within limits of Site. Imported fill shall be free of unsuitable or unstable materials.
27. "Lead" - a soft malleable, bluish-white, dense metallic element.
28. "Lead-Based Paint" - paint or other surface coating containing lead equal to or in excess of 1.0 milligram per square centimeter (mg/cm²) or 0.5 percent by weight.
29. "Lineal Foot (lf)" - lengthwise measurement of pipe insulation, which shall be measured along centerline of insulation to be removed from piping and associated or incidental fittings; measurement shall also be along centerline of those fittings.
30. "Mechanical Insulation" - refer to "Thermal System Insulation."
31. "OSHA Reference Method (ORM)" - sampling and analytical method specified in Appendix A of 29 CFR 1926.1101.
32. "Pipe Insulation" - thermal system insulation on pipes, including associated fittings and hangers.
33. "Potable Water" - water that meets standards for drinking purposes of state or local authority having jurisdiction, or water that meets quality standards prescribed by U.S. EPA National Primary Drinking Water Regulations (40 CFR PART 141).
34. "Regulated Area" - area established to demarcate areas where Work is conducted, and any adjoining area where debris and waste from such Work accumulate; and work

area within which airborne concentrations of asbestos or heavy metals, exceed or reasonable possibility they may exceed, permissible exposure limit.

35. "Removal" - stripping and disposal of materials, including all related work.
36. "Rock" - boulders and detached stones having a volume of 2/3 cubic yard or more and any large masses or igneous, metamorphic, or sedimentary rocks, including firmly conglomerated deposits that cannot be removed with a one cubic yard capacity power shovel without drilling or blasting.
37. "Shower Room" - room between clean room and equipment room in decontamination area, with hot and cold or warm running water and suitably arranged for complete showering (with shower head) and cleaning during decontamination. (See diagram in Attachment A.)
38. "Square Foot (sf)" - generally, outermost surface area of object from which material is removed as calculated by multiplying outermost length by outermost width. For fireproofing, square footage is defined as gross floor area of designated work area(s). For wall systems (unless specifically specified otherwise), square footage is defined as gross area of wall system, regardless of whether finishes are single-sided or double-sided; for wall finishes, both sides of wall are quantified, as applicable.
39. "Stripping" - procedures necessary to remove specified materials from their substrate or from any component, area, or structure of building.
40. "Structure" - foundations, slabs, or other man-made stationary features occurring above and below ground surface.
41. "Subgrade" - undisturbed soil or compacted fill material upon which additional fill, sub-base or base course, footing, foundation, or slab cushion is placed.
42. "Surfacing Material" - material sprayed, troweled on, or otherwise applied to surfaces (e.g., acoustical plaster, fireproofing, hard plaster, textured finishes, stucco, etc.).
43. "Surfactant" - chemical wetting agent added to water to reduce its surface tension and improve its penetration.
44. "Thermal System Insulation" - insulation applied to pipes, fittings, boilers, breeching, tanks, ducts, etc.
45. "TWA₈" - time weighted average for an 8-hour day.
45. "Unsuitable Materials" - topsoil, loam, gumbo, mud, muck, silt, expansive clay, peat, soils with an organic content greater than 3% by weight, rubbish, debris, foundation and slab materials, paving materials, rock greater than six inches in diameter, soils with a maximum dry weight of less than 100 pounds per cubic foot, vegetation and frozen or dry lumps. Expansive clay is any clay with a liquid limit in excess of 50 and/or Plasticity Index of 30 or greater.
47. "Unstable Materials" - materials which are not classified as unsuitable materials, but due to their condition of being wet, dry, or frozen, are unacceptable for use in fills.
48. "Wet Cleaning" - process of removing asbestos or heavy metal contamination from building surfaces, equipment, objects, tools, disposal containers, etc. accomplished by washing with water (using cloths, mops, sponges, towels, brushes, squeegees, etc.) or flooding with water in wash room.
49. "Work Area" - Regulated Area as defined by 29 CFR 1926.1101.

- C. **Defined Abbreviations and Names:** The following acronyms or abbreviations referenced in Contract Documents are defined to mean associated names. Names provided below are subject to change, and are believed to be, but are not assured to be, accurate and current as of date of Contract Documents. In addition to complying with federal, state, and local jurisdictions, comply with applicable codes and regulations of authorities having jurisdiction (whether or not they are listed here); provide Engineer and Owner with copies of any inspection reports, notices, and similar communications.

ACI:	American Concrete Institute
ANSI:	American National Standards Institute
ASHRAE:	American Society for Heating, Refrigerating, and Air Conditioning Engineers
ASME:	American Society of Mechanical Engineers
ASSE:	American Society of Sanitary Engineers
ASTM:	American Society for Testing and Materials
AWG:	American Wire Gauge
AWWA:	American Water Works Association
CFR:	Code of Federal Regulations (Available from Government Printing Office)
CGA:	Compressed Gas Association
DOT:	Department of Transportation
EPA:	Environmental Protection Agency
GA:	Gypsum Association
IEEE:	Institute of Electrical and Electronics Engineers
MICA:	Midwest Insulation Contractors Association
ML/SFA:	Metal Lath/Steel Framing Association
NBS:	National Bureau of Standards (U.S. Department of Commerce)
NEC:	National Electrical Code (by NFPA)
NECA:	National Electrical Contractors Association
NEMA:	National Electrical Manufacturers Association
NFPA:	National Fire Protection Association
NIOSH:	National Institute for Occupational Safety & Health
NPC:	National Plumbing Code

NRCA:	National Roofing Contractors Association
NSF:	National Sanitation Foundation
OAC:	Ohio Administrative Code
OBBC:	Ohio Basic Building Code (Board of Building Standards)
ODH:	Ohio Department of Health Division of State Environmental Health Services
Ohio EPA	Ohio Environmental Protection Agency
OSHA:	Occupational Safety & Health Administration (U.S. Department of Labor)
UL:	Underwriters Laboratories

1.03 REFERENCES

- A. "Universal Waste Rules for Handlers of Lamps"
Ohio EPA DHWM Guidance Document dated June 2005

1.04 FORMAT AND SPECIFICATION EXPLANATIONS

- A. **Specification Production:** None of the following explanations shall be interpreted so as to modify substance of Contract Documents. Portions of these specifications have been produced by Engineer's standard method of editing master specifications and may contain minor deviations from traditional writing formats. Such deviations are a natural result of this production technique, and no other meaning will be implied or permitted.
- B. **Format Explanation:** Format of principal portions of these specifications can be described as in the following paragraphs. Although some portions of these specifications may not be in complete compliance with this format, no particular significance will be attached to such compliance or non-compliance.
- C. **Sections and Divisions:**
 - 1. For convenience, basic unit of text is a "section." Each section is identified by a descriptive title (name) and number. Individual sections are grouped together with other sections of similar or related work groupings known as "divisions". Divisions are recognized as present industry consensus on uniform specification organization and sequence. Section title is not intended to limit meaning or content of a section, nor to be fully descriptive of requirements specified therein, nor to be an integral part of text.
 - 2. Each section of specifications has been subdivided into 3 "parts" for uniformity and convenience (Part 1 - General, Part 2 - Products, and Part 3 - Execution); some sections may not require use of all three parts. These titles do not limit meaning of and are not an integral part of text which specifies requirements.
- D. **Subordination of Text:** Portions of specification text are subordinated to other portions in the following manner (lowest level to highest):
 - 1. Indented (from left margin) paragraphs and lines of text are subordinate to preceding text which is not indented, or which is indented by a lesser amount.

2. Paragraphs and lines of text are subordinate to subarticle titles, which are printed in upper/lower-case lettering and underlined.
 3. Subarticles are subordinate to article titles, which are printed in upper-case lettering.
 4. Subordination (if any) of certain sections (or portions of sections) to other sections is described within those sections.
- E. **Underscoring or bold printing** is used strictly to assist reader of specification text in scanning text for key words (for quick recall). No emphasis on or relative importance of text is intended where underscoring or bold printing is used.
- F. **Imperative language** is used generally in specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by Contractor. For clarity of reading at certain locations, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by Contractor, or when so noted, by others.
- G. **Section numbering** is used to facilitate cross-references in Contract Documents. Sections are placed in Project Manual in numeric sequence; however, numbering sequence is not complete, and listing of sections at beginning of Project Manual must be consulted to determine number and names of specification sections in Contract Documents.
- H. **Page Numbering:** Pages are numbered independently for each section. Project number, section title, and section number are shown together with page number at bottom of each page to facilitate location of text in Project Manual.
- I. **Specification Content:** Because of methods by which this project specification has been produced certain general characteristics of content, and conventions in use of language are explained, as follows:
1. Techniques or methods of specifying to record requirements varies throughout text, and may include "prescriptive," "open generic-descriptive," "compliance with standards," "performance," or combination of these. Method used for specifying one unit of work has no bearing on requirements for another unit of work.
 2. Where compliance with two or more industry standards or sets of requirements is specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, the most stringent requirement is intended and will be enforced, unless specifically detailed language written into Contract Documents clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently-equal-but-different requirements, and uncertainties as to which level of quality is more stringent, to Engineer for a decision before proceeding.
 3. Except for overlapping or conflicting requirements, where more than one set of requirements are specified for a particular unit of work, option is intended to be Contractor's regardless of whether or not it is specifically indicated as such.
- J. **Minimum Quality/Quantity:** In every instance, quality level or quantity shown or specified is intended to be minimum for work to be performed. Except as otherwise specifically indicated, actual work may either comply exactly with that minimum (within specified tolerances) or may exceed that minimum within reasonable limits. In complying with requirements, indicated numeric values are either minimums or maximums as noted or as appropriate for context of requirements. Refer instances of uncertainty to Engineer for decision before proceeding.
- K. **Specialists, Assignments:** In certain instances, specification text requires (or implies) that specific work be assigned to specialists or expert entities, who must be engaged for

performance of that work. Such assignments shall be recognized as special requirements over which Contractor has no choice or option. These requirements should not be interpreted so as to conflict with enforcement of building codes and similar regulations governing Work; they are also not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for indicated construction processes or operations. Nevertheless, final responsibility for fulfillment of entire set of contract requirements remains with Contractor.

- L. **Trades:** Except as otherwise indicated, use of titles such as "carpentry" in specification text implies neither that work must be performed by an accredited or unionized tradesperson of corresponding generic name (such as "carpenter"), nor that specified requirements apply exclusively to work by tradespersons of that corresponding generic name.
- M. **Abbreviations:** Language of specifications and other Contract Documents is of abbreviated type in certain instances and implies words and meanings which will be appropriately interpreted. Actual word abbreviations of a self-explanatory nature have been included in texts. Specific abbreviations have been established, principally for lengthy technical terminology and primarily in conjunction with coordination of specification requirements with notations on drawings and in schedules. These are frequently defined in section at first instance of use. Trade association names and titles of general standards are frequently abbreviated. Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable and where full context of Contract Documents so indicates. Where acronyms or abbreviations are used but not identified in specifications or other Contract Documents they are defined to mean industry recognized name of trade association, standards generating organization, governing authority, or other entity applicable to context of text provision. Refer to "Encyclopedia of Associations," published by Gale Research Co.
- N. **Drawings:** Legends (shading) and Key Notes are used on drawings to show location of a room or area where specified work shall be completed/performed.

1.05 DRAWING SYMBOLS

Except as otherwise indicated, graphic symbols used on drawings are those symbols recognized in construction industry for purposes indicated. Where not otherwise noted, symbols are defined by "Architectural Graphic Standards," published by John Wiley & Sons, Inc., seventh edition.

1.06 INDUSTRY STANDARDS

- A. **General Applicability of Standards:** Except to extent that more explicit or more stringent requirements are written directly into Contract Documents, applicable standards of construction industry have same force and effect (and are made a part of Contract Documents by reference) as if copied directly into Contract Documents, or as if published copies were bound herewith. Refer to other Contract Documents for resolution of overlapping and conflicting requirements which result from application of several different industry standards to same unit of work. Refer to individual unit of work sections for indications of which specialized codes and standard Contractor must keep at project site, available for reference.
- B. **Referenced standards** (referenced directly in Contract Documents or by governing regulations) have precedence over non-referenced standards which are recognized in industry for applicability to work.
- C. **Non-referenced standards** are hereby defined to have no particular applicability to Work, except as general requirements of whether Work complies with standards recognized in construction industry.

- D. **Publication Dates:** Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of date of Contract Documents.
- E. **Updated Standards:** At request of Engineer, submit a change order proposal where an applicable industry code or standard has been revised and reissued after date of Contract Documents and before performance of work affected. Engineer will decide whether to issue change order to proceed with updated standard.
- F. **Copies of Standards:**
1. Contract Documents require that each entity performing work be experienced in that part of Work being performed. Each entity is also required to be familiar with recognized industry standards applicable to that part of Work. Copies of applicable standards are not bound with Contract Documents.
 2. Where copies of standards are needed for proper performance of Work, obtain such copies directly from publication source.
 3. Although certain copies of standards needed for enforcement of requirements may be required submittals, Engineer reserves right to require Contractor to submit additional copies of these standards as necessary for enforcement of requirements.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 45 23

TESTING LABORATORY AND INSPECTION SERVICES

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** General requirements for provision of testing agency/laboratory and inspection services.
- B. **Related Sections:**
 - 1. Section 03 01 30: Cast-In-Place Concrete
 - 2. Section 31 00 11: Earthwork and Site Restoration
- C. Refer to Section 26 00 52 regarding electrical work testing requirements.

1.02 GENERAL REQUIREMENTS

- A. Provide testing and inspection services required by Contract Documents (except for that specified as responsibility of University or Engineer) using an approved independent testing agency/laboratory (Paragraph 1.03.A).
- B. Reports and findings of required tests and inspections shall be issued by Testing Agency directly to Contractor and Engineer.

1.03 APPROVED LABORATORIES

- A. Unless otherwise approved by University, the following agencies/laboratories shall perform all testing and inspection services specified:
 - 1. Geotechnical Consultants, Inc.
Main Office
720 Green Court Drive
Westerville, Ohio 43018
Phone: 614-895-1400
 - 2. S&ME, Inc.
8400 Sweet Valley Drive, Suite 404
Valley View, Ohio 44125
Phone: 216-901-1000
 - 3. CLC Labs
325 Venture Drive
Lewis Center, Ohio 43035
Phone: (614) 888-1663
 - 4. Triad Engineering, Inc.
1010 Coles Boulevard, Suite 200
Portsmouth, Ohio 45662
Phone: 740-249-4304
- B. Notify Engineer of scheduled testing and inspection services (date and time) prior to start of this work; notification shall include work being conducted and name of laboratory

representative performing specified service.

1.04 SCHEDULE OF TESTING AND INSPECTION SERVICES

A. Division 03 - Concrete

1. Provide cast-in-place concrete testing and inspection services in accordance with Section 03 01 30 requirements and the following:
 - a. Prior to construction, provide information on design mixes for conformance with specifications and submit concrete delivery ticket(s).
 - b. During construction, record all concrete work, temperature readings, mixing times, slump tests, air content testing, and gather and properly cure all cylinders, and perform cylinder testing as required by specifications.

B. Division 31 - Earthwork

1. Qualification tests (proctor compaction test) will be performed on each different fill material (both on-site and imported) by Testing Laboratory per Section 01 45 23. Fill material shall not be used until qualification tests have been completed and Testing Laboratory approves fill materials.
2. Compaction testing shall be performed of subgrades and each fill or backfill by Testing Laboratory per Section 01 45 23.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES - DEMOLITION WORK

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Requirements for temporary services and facilities, including temporary utilities, temporary construction and support facilities, and temporary security and protection associated with demolition activities.
- B. **Temporary utilities required** include, but are not limited to:
 - 1. Temporary electric service for field office(s) and as necessary to complete work;
 - 2. Temporary water;
 - 3. Temporary site lighting; and
 - 4. Sanitary facilities.
- C. **Temporary construction and support facilities required** include, but are not limited to:
 - 1. Temporary construction barriers;
 - 2. Waste disposal services;
 - 3. Weather protection;
 - 4. Shoring and bracing;
 - 5. Rodent and pest control; and
 - 6. Field office(s).
- D. **Security and protection facilities required** include, but are not limited to:
 - 1. Temporary fire protection; and
 - 2. Barricades, warning signs, and lights.
- E. **General Requirements Relating to Temporary Facilities:**
 - 1. Provide services required to meet Contractor and Project needs, at Contractor's expense, and in a manner satisfactory to University.
 - 2. Provide "lock out" tags for equipment or services temporarily taken out of service.
 - 3. Maintain temporary facilities and keep in good operating condition for the entire construction period. Provide maintenance personnel necessary to perform this work. Maintenance time shall include normal working hours for all trades and start up and shut down overtime as required.
- F. **Materials and Equipment:** Provide new or used materials and equipment that are undamaged and in serviceable condition. Provide materials and equipment recognized as suitable for intended use and in compliance with appropriate standards.

G. Installation General:

1. Use qualified tradespersons for installation of temporary utilities. Locate temporary utilities where they will serve entire project adequately and result in minimum interference with performance of Work.
2. Relocate, modify, and extend services and facilities as required during course of Work to accommodate Work.

1.02 QUALITY ASSURANCE

- A. **Regulations:** Comply with U.S. Department of Labor OSHA requirements, industry standards, and applicable laws and regulations of authorities having jurisdiction, including, but not limited to:
1. Building Code requirements;
 2. Health and safety regulations;
 3. Utility company regulations;
 4. Police, Fire Department and Rescue Squad rules; and
 5. Environmental protection regulations.
- B. **Standards:** Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."
1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with current National Electric Code (NFPA 70).
- C. **Inspections:** If required by local code officials, arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.03 PROJECT CONDITIONS

- A. **Conditions of Use:** Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the Site.
- B. Temporary work shall be installed in a manner to not interfere with permanent construction. If interferences do occur, it shall be Contractor's responsibility to make required changes to overcome the interference.
- C. Restore damaged on-site paved areas to remain that are used for storage or by construction vehicles to conditions equal to or better than original.
- D. Coordinate and cooperate with Owner in scheduling work and using spaces.
- E. Install, operate, maintain, and protect temporary facilities in a manner and at a location which will be safe, non-hazardous, sanitary and protective of persons and property, and free of deleterious effects.
1. Keep public roads free from tire tracks, mud, dirt, etc., coming from equipment.

2. Conduct operations with minimum interference with streets, sidewalks, and other facilities.
 3. Do not close or obstruct streets or sidewalks without permit. Do not place or store materials in streets. Obtain permits for closing sidewalks (if required) or for any necessary temporary street closing.
 4. Provide, erect, and maintain light, barriers, and the like required by traffic regulations or local laws.
- F. **Barricades:** Provide temporary barricades, post temporary exit signs with directional arrows showing routes to alternate exits, as directed. Protect existing buildings and property from damage of any type, and erect barricades and enclosures as required to protect Site from weather and unauthorized entrance.
- G. **Bracing, shoring, and sheeting:** Provide shoring, bracing, and sheeting as required for safety and proper execution of Work; and have same removed when Work is complete unless otherwise specified.
- H. **Weather Protection:** Provide protection against weather, rain, wind, storms, frost, or heat at all times to maintain Work, materials, apparatus, and fixtures free from injury or damage. At the end of day's work, new work likely to be damaged shall be adequately protected. Protect openings in building with tarps, etc.
- I. **Cold Weather:** During cold weather, protect Work from damage and protect building from damage, including water piping, etc.
- K. **Damage:** Any damage caused by failure to provide protection as required above shall be removed and replaced with new work at Contractor's expense.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. **First Aid Supplies:** Comply with governing regulations.
- B. **Fire Extinguishers:** Provide at a minimum 20 pound hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide at a minimum 20 pound hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for exposures. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

2.02 TEMPORARY UTILITY SERVICES

- A. **General:** Where possible and reasonable, connect to existing, franchised utilities for required services; and comply with services companies' recommendations on materials and methods, or engaged service companies to install services. Locate and relocate services (as necessary) to minimize interference with construction operations.
- B. **Temporary Power:** Provide service with ground-fault circuit interrupter features, activated from each circuit of 20 amp or less rating.

2.03 FIELD OFFICES

- A. **General:** Where possible and reasonable, connect to existing, franchised utilities for required services; and comply with services companies' recommendations on materials and methods, or engaged service companies to install services. Locate and relocate services (as necessary) to minimize interference with construction operations.
- A. **Temporary Offices:** Provide insulated, prefabricated or mobile unit(s) or similar job-built construction with lockable entrances, operable windows and serviceable finishes for Contractor and Engineer. At a minimum, provide Engineer with a separate lockable office space and use of a conference room. Provide heated and air-conditioned units on foundations adequate for normal loading. Keep office clean and orderly for use for small progress meetings. Electrical power for lights and power shall be extended to each enclosure. Provide wiring, fixtures, and outlets required and pay for fixture bulbs used in mobile unit.
- C. Maintain a copy of permits, contract drawings, SWPPP, inspection reports, and project manual marked up-to-date with all revisions, addenda, change orders, and as-built drawings on file at field office, available for use and review at all times by Engineer and Owner.
- D. Engineer's office shall include a desk, plan rack, and file cabinets.

2.04 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain temporary sanitary facilities for use by University, Engineer, and Contractor's employees.
- B. Provide temporary portable self-contained chemical type toilets, acceptable to public health authorities, quantity equal to one toilet for each increment of ten employees on Site. Computation of employees present includes men/women of each Contractor and Engineer. Shield toilets to ensure privacy. Locate temporary toilets at location approved by Engineer.
 - 1. Provide toilet tissue, paper towels, hand sanitizer, and similar disposal materials for each facility. Provide covered waste containers for used materials.
 - 2. Maintain temporary toilets in an antiseptic condition until completion of Work. Clean toilets a minimum of twice a week or more often if required. Installation shall be provided in a manner acceptable to and governing Board of Health.

2.05 TEMPORARY CONSTRUCTION BARRIERS, FENCES, AND STAIRS

- A. Provide temporary construction barriers for protection of construction in progress and when completed, from exposure, foul weather, other construction operations, and similar activities. Construction barriers shall be constructed of sound materials, properly braced, and maintained in a safe condition, meeting applicable local, state, and federal requirements, labor laws, regulations and requirements as follows.
 - 1. Where heat is required, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
 - 2. Install tarpaulins securely, with incombustible wood framing and other materials.
 - 3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood framed construction.
- B. **Tarpaulins:** Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

2.06 WASTE DISPOSAL SERVICES

- A. Keep entire Site in a clean and sanitary condition during entire progress of Work and post and take precautions to keep Site clean.
- B. Remove daily packaging material and other debris and deposit in trash container or other location indicated. Areas shall be left broom clean at end of each construction activity.
 - 1. Comply with NFPA 241 requirements for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than seven days during normal weather or three days when temperature is expected to rise above 80 degrees F. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly.

2.07 TEMPORARY SITE ACCESS AND PARKING

- A. **Vehicular Access:** Waste trailers and on-site Contractor employee parking will be permitted on Site within fenced area; refer to Drawing Sheet C103. Parking areas shall be maintained and cleaned in a condition acceptable to University. Lock automotive vehicles when parked and unattended to prevent unauthorized use. Provide unimpeded access for emergency vehicles. Keep driveways and entrances serving premises clear and available to University.

2.08 WEATHER PROTECTION

- A. Protect Work and existing or adjacent properties against weather and maintaining work, materials, apparatus, and fixtures free from injury or damage during construction period. Cover or protect work at end of each day's work. Remove work damaged by failure to provide protection and provide new work meeting project requirements at Contractor's expense.
 - 1. Maintain temporary water pumps to keep building basement areas and pits clear of water accumulations at all times.
- B. Refer to Paragraph 2.05 for requirements of tarpaulins.

2.09 SHORING AND BRACING

- A. Provide temporary shoring and bracing required for safety and execution of Work. Remove temporary shoring and bracing when work is completed and support materials are no longer needed.

2.10 TEMPORARY FIRE PROTECTION

- A. **Temporary Fire Protection:** Provide and maintain temporary fire protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."
 - 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
 - 2. Store combustible materials in containers in fire-safe locations.
 - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires.
 - 4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.

2.11 BARRICADES, WARNING SIGNS, AND LIGHTS

- A. Provide, maintain, and remove barricades, warning lights, and other safety devices required for security, protection, and safety of Work and employees as well as public as indicated.
- B. Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform Contractor's and University's personnel and general public of hazards being protected against.
 - 1. Provide lighting, including flashing red or amber lights, when required at barricades, railings, obstructions in streets, drives, or sidewalks adjacent to public walks or roadways.
- C. Maintain safety barricades through construction process and remove when directed.
 - 1. Maintain safety cables around building perimeter and interior openings on each floor that are installed by steel erector. Provide temporary handrails at open sides of stairs and stair platforms.
 - 2. Provide other safety barricades, including temporary safety rails, as required to accommodate project conditions.
- D. Plan and conduct work operations so two-way traffic is maintained at all times on adjacent and on-site streets and drives. Furnish lights, signs, and barricades, necessary for safe flow of traffic, 24 hours daily.
- E. Comply with United States Department of Labor, Williams-Steiger Occupational Safety and Health Act of 1970.

2.12 WATER SERVICE

- A. **General:** Provide temporary water service as necessary to complete work at Contractor's cost.

2.13 ELECTRICAL SERVICE

- A. **General:** As long as it is available, Contractor may utilize Owner's electrical service complying with applicable NEMA, NECA, NEC, and UL standards and governing regulations for materials and layout of temporary electric service. Owner will pay for cost of energy used. Exercise measures to conserve energy. Do not disrupt Owner's use of electrical service. As necessary, provide a weatherproof grounded temporary electric power service and distribution system of sufficient size, capacity, and power characteristics to accommodate performance of Work during construction period.
- B. Provide **temporary electrical service** as necessary to complete work at Contractor's cost. As necessary, provide a weatherproof grounded temporary electric service and distribution system of sufficient size, capacity, and power characteristics to accommodate performance of work during construction period (including, but not limited to, service necessary to complete Work, maintain temporary lighting within entire fenced area, and field office).
- C. **Power Distribution System:** As necessary, provide circuits of adequate size and proper characteristics for each use. Run wiring overhead and rise vertically where wiring will be exposed to damage from construction operations.
- D. **Ground Fault Protection:** Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light for plug-in connection of power tools and equipment.

- E. **Temporary Wiring** in work areas shall be type UF non-metallic sheathed cable located overhead and exposed for surveillance. Do not connect temporary lighting or electrical devices with single conductor, plain, insulated electrical wires. Provide liquid tight enclosures or boxes for all electrical devices.
 - a. Provide overload-protected disconnect switch for each temporary circuit located at power distribution panel or load center.
 - b. For power hand tools and task lighting, provide a temporary 4-gang outlet in equipment room of each decontamination area. Provide a separate 110-120 volt, 20-amp circuit for each 4-gang outlet (four outlets per circuit).
- F. **Electrical Power Cords:** Use grounded extension cords. Use "hard-service" cords where exposed to abrasion and traffic. Use single lengths or waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas of work.
- G. **Lamps and Light Fixtures:** Provide general service incandescent lamps of wattage indicated or required for adequate illumination. Protect lamps with guard cages or tempered glass enclosures where fixtures are exposed to breakage by construction operations. Provide exterior fixtures where fixtures are exposed to weather or moisture.

2.14 TEMPORARY LIGHTING

- A. Provide the following where **natural lighting or existing building lighting** does not meet required light level of one 200-watt incandescent lamp per 1,000 square feet of floor area, uniformly distributed, for general construction lighting, or equivalent illumination of a similar nature. In corridors and similar traffic areas provide one 100-watt incandescent lamp every 50 feet. In stair ways and at ladder runs, provide one 100-watt incandescent lamp minimum per story, located to illuminate each landing and flight. Provide sufficient temporary lighting to ensure proper workmanship by combined use of daylight, general lighting, and portable plug-in task lighting.

2.15 SCAFFOLDING

- A. Provide scaffolding, ladders, and/or staging, etc. as necessary to accomplish Work of this Contract. Scaffolding may be of suspension or standing type such as metal tube and coupler, tubular welded frame, pole, outrigger, or cantilever type. Type, erection, and use of scaffolding shall comply with applicable OSHA provisions and regulations.
- B. Provide a nonskid surface on scaffold surfaces subject to foot traffic. Equip rungs of metal ladders with an abrasive non-slip surface. Clean debris from non-slip surfaces as necessary.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed.

3.02 TEMPORARY UTILITIES INSTALLATION

- A. **General:** As necessary to complete work and facilitation of field office(s) and temporary site lighting, employ appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide remaining work with matching, compatible materials and equipment complying with the company's recommendations.
 - 1. Arrange with company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services. If required, this work shall be performed after normal working hours with no additional cost to University.
 - 2. Provide adequate capacity at each stage of construction. Before temporary utility availability, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to Site, where University's easements cannot be used for that purpose.

3.03 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

- A. Locate field offices, sanitary facilities, and other temporary construction and support facilities for easy access and as approved by Engineer.

3.04 OPERATION, TERMINATION AND REMOVAL

- A. **Supervision:** Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Keep surrounding streets and properties clear of mud and construction debris.

END OF SECTION

SECTION 01 51 01

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Temporary controls and provision or use of utilities and construction facilities for non-demolition activities.
- B. **Materials and Equipment:** Provide new or used materials and equipment that are undamaged and in serviceable condition. Provide materials and equipment recognized as suitable for intended use and in compliance with appropriate standards.
- C. **Installation General:**
 - 1. Use qualified tradesmen for installation of temporary utilities. Locate temporary utilities where they will serve entire project adequately and result in minimum interference with performance of Work.
 - 2. Relocate, modify, and extend services and facilities as required during course of Work to accommodate Work of project.

1.02 TEMPORARY UTILITIES

- A. **Water Service:**
 - 1. **General:** Contractor may utilize Owner's water service; Owner will pay for cost of water used provided Contractor does not misuse those services (leaking hose connectors, holes in hoses, water left running when not in use, etc.).
 - 2. **Temporary Water Service Connection:** Connections to Owner's water system shall include backflow protection. Valves shall be temperature and pressure rated for operation of temperatures and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to nearest drain or located over an existing sink or grade where water will not damage existing finishes or equipment.
 - 3. **Water Hoses:** Water connection to Owner's water system is limited to one ¾-inch pipe-size connection and a maximum flow of ten gallons per minute to hot and cold water supply. Employ heavy-duty abrasion-resistant hoses with a pressure rating greater than maximum pressure of water distribution system to provide water into each work area and to each decontamination area. Provide fittings as required to allow for connection to existing wall hydrants or spouts, temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment. Maintain hose connections and outlet valves in leakproof condition.
 - 4. **Hot Water Heater:** Hot water shall be supplied at a minimum temperature of 100 degrees F. If hot water is not available from building hot water system, provide UL rated electric hot water heater to supply hot water for decontamination area. Provide relief valve compatible with water heater operation and pipe relief valve down to drip pan on floor with type L copper. Wiring of the hot water heater shall be in compliance with NEMA, NECA, and UL standards.

B. Electrical Service:

1. **General:** Contractor may utilize Owner's electrical service complying with applicable NEMA, NECA, NEC, and UL standards and governing regulations for materials and layout of temporary electric service; Owner will pay for cost of energy used. Exercise measures to conserve energy. Do not disrupt Owner's use of electrical service. As necessary, provide a weatherproof grounded temporary electric power service and distribution system of sufficient size, capacity, and power characteristics to accommodate performance of Work during construction period.
 2. **Power Distribution System:** As necessary, provide circuits of adequate size and proper characteristics for each use. Run wiring overhead and rise vertically where wiring will be exposed to damage from construction operations.
 3. **Ground Fault Protection:** Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light for plug-in connection of power tools and equipment.
 4. **Temporary Wiring** in work areas shall be type UF non-metallic sheathed cable located overhead and exposed for surveillance. Do not connect temporary lighting or electrical devices with single conductor, plain, insulated electrical wires. Provide liquid tight enclosures or boxes for all electrical devices.
 - a. Provide overload-protected disconnect switch for each temporary circuit located at power distribution panel or load center.
 - b. For power hand tools and task lighting, provide a temporary 4-gang outlet in equipment room of each decontamination area. Provide a separate 110-120 volt, 20-amp circuit for each 4-gang outlet (four outlets per circuit).
 5. **Electrical Power Cords:** Use grounded extension cords. Use "hard-service" cords where exposed to abrasion and traffic. Use single lengths or waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas of work.
 6. **Lamps and Light Fixtures:** Where natural lighting or existing building lighting is not adequate, provide general service lamps of wattage necessary for adequate illumination (minimum of ten footcandles in general portions of work area and 50 footcandles at task surfaces). Protect lamps with guard cages or tempered glass enclosures where fixtures are exposed to breakage by construction operations. Provide exterior fixtures where fixtures are exposed to weather or moisture.
- C. **Temporary Heat:** Provide temporary heat where indicated or needed for performance of Work. Maintain a minimum temperature of 50 degrees F. in work areas, during project. Temporary heating units shall be those tested and labeled by UL or another recognized trade association related to fuel being consumed. If steam or hot water radiant heat is not available, use electric resistance fin radiation supplied from a branch circuit with ground fault circuit interrupter. Use of forced air or fan type units inside a work area is prohibited.
- D. **Disposal Chutes:** Chutes shall not be utilized for transporting asbestos-containing or -contaminated waste outside work area, including that which has been containerized per requirements of Division 2.

1.03 TEMPORARY CONTROLS

- A. **Fire Extinguishers:** Comply with applicable recommendations of NFPA Standard 10 "Standard for Portable 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, or a combination of several extinguishers of NFPA recommended types for the exposures in each case. Locate fire extinguishers where they are most convenient and effective for their intended purpose, but provide not less than one extinguisher in each equipment room (for use inside work area) and clean room (for use outside work area).

B. Scaffolding:

1. Provide scaffolding, ladders and/or staging, etc. as necessary to accomplish Work of this Contract. Scaffolding may be of suspension or standing type such as metal tube and coupler, tubular welded frame, pole, outrigger, or cantilever type. Type, erection, and use of scaffolding shall comply with applicable OSHA provisions and regulations.
2. During erection and/or moving of scaffolding, polyethylene floor covering shall remain intact.
3. Provide a nonskid surface on scaffold surfaces subject to foot traffic. Equip rungs of metal ladders with an abrasive non-slip surface. Clean debris from non-slip surfaces as necessary.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 52 20

HYGIENE FACILITIES AND PRACTICES

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Minimum requirements for hygiene facilities and practices.
- B. **Related Sections:**
 - 1. Section 02 82 17: Asbestos Hazard Abatement - LEV Work

PART 2 - PRODUCTS

2.01 GENERAL SUPPLIES

- A. **Polyethylene Film:** Polyethylene film shall conform to requirements set forth by National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-Resistant Textiles and Films. Polyethylene film (translucent, unless otherwise indicated) shall be a minimum 6-mil thick and sized in appropriate lengths and widths to minimize frequency of seams.
- B. **Spray Adhesive:** Spray adhesive shall be formulated to aggressively bond polyethylene film to itself.
- C. **Tape:** Tape shall be capable of sealing joints of adjacent sheets of polyethylene film and for attachment of polyethylene film to finished or unfinished surfaces of dissimilar materials and capable of adhering under dry and wet conditions.
- D. **Other Materials:** Other materials, not specifically described but required to complete Work of this Section, shall be subject to approval by Engineer.

2.02 EQUIPMENT

- A. **Vacuums:** Vacuums used in a work area shall exhaust through a HEPA filter.
- B. **Other Tools & Equipment:** Other tools and equipment, not specifically described but required for a complete and proper performance, shall be subject to approval by Engineer.
- C. **Owner's Tools and Equipment:** No tools or equipment of Owner shall be used.

PART 3 - EXECUTION

3.01 LAYOUT AND CONSTRUCTION OF DECONTAMINATION AREA

Provide decontamination area adjacent to work area consisting of three rooms as follows:

- A. **Equipment room** shall accommodate at least one worker (allowing enough room to remove protective clothing), a 6-mil disposal bag and container, and equipment Contractor wishes to store.
- B. **Shower room** shall have two curtained doorways of opaque polyethylene film, one to equipment room and one to clean room. Provide at least one shower for personnel

decontamination with hot and cold potable water (sourced outside work area) feeding a common discharge line. Equip shower room with high pressure, low volume sprays for decontamination of disposal containers and equipment. Shower room shall be constructed so that waste water is collected and pumped through a 5-micron filter system. Provide a freely draining floor at top of shower pan. Filtrate shall be disposed as contaminated waste. From filter, wastewater shall be drained to a sanitary wastewater system outside work area. Ensure that shower room is watertight. No leakage shall be permitted. Supply and maintain soap, shampoo and disposable towels at all times in shower room.

- C. **Clean room** shall accommodate at least one worker. Maintain floor so it remains dry and clean.
- D. If decontamination area fails to prevent air flow out of work area during personnel or equipment movement through decontamination area, additional air locks shall be provided until air flow is eliminated. (Alternatively, additional AFDs may be provided to eliminate air flow out of work area.)
- E. Decontamination area shall be airtight. Where joining separate sheets of polyethylene film is necessary, sheets of polyethylene film shall be overlapped at least three inches and joined with an unbroken line of adhesive in a manner which prohibits air movement; tape shall then be used to further seal joints on both inside and outside of area.
- F. Decontamination area shall be constructed to prohibit passers-by from casually observing activities within decontamination area and work area. Clean room, shower room and equipment room shall be constructed to permit an individual to privately dress and undress.
- G. If specified, provide decontamination area that is constructed with temporary framed partition(s) consisting of full height metal studs and ½ inch gypsum board. Provide lockable fire retardant plywood door.
- H. Other decontamination areas shall be considered as long as they maintain intended integrity of this system. Proposed changes shall be submitted in writing (with drawings) prior to commencement of work for approval by Engineer.

3.02 LAYOUT AND CONSTRUCTION OF EQUIPMENT AREA

Provide equipment areas adjacent to work area as specified on Drawings or as approved by Engineer. (Approval will not be considered unless amounts of asbestos-containing materials to be removed are less than 10 square feet or 25 linear feet.)

- A. Equipment area shall accommodate at least two workers (allowing enough room to remove protective clothing), a 6-mil disposal bag and container, and Contractor's equipment.
- B. Equipment area shall have a curtained doorway of opaque polyethylene film to work area.
- C. If equipment area fails to prevent air flow out of work area during personnel or equipment movement through curtained doorway, additional AFDs shall be provided to eliminate air flow out of work area.
- D. Equipment area shall be airtight. Where joining separate sheets of polyethylene film is necessary, sheets of polyethylene film shall be overlapped at least three inches and joined with an unbroken line of adhesive in a manner which prohibits air movement; tape shall then be used to further seal joints on both inside and outside of area.
- E. Equipment area shall be constructed to prohibit passers-by from casually observing activities within equipment area and work area.

- F. Other equipment areas shall be considered as long as they maintain intended integrity of this system. Proposed changes shall be submitted in writing (with drawings) prior to commencement of work for approval by Engineer.

END OF SECTION

SECTION 01 61 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Products, delivery requirements, storage and handling requirements, product options, and product substitution procedures.
- B. **Definitions** used in this paragraph are not intended to negate meaning of other terms used in Contract Documents; including such terms as, "specialties", "systems", "structure", "finishes", "accessories", "furnishings", "special construction," and similar terms. Such terms are self-explanatory and have recognized meanings in construction industry.
 - 1. "Products" are items purchased for incorporation in Work, regardless of whether they were specifically purchased for project or taken from Contractor's previously purchased stock. "Product" as used herein includes terms "material", "equipment", "system" and other terms of similar intent.
 - 2. "Named Products" are products identified by use of manufacturer's name for a product; including such items as make or model designation as recorded in manufacturer's published product literature of the latest issue as of date of Contract Documents.
 - 3. "Materials" are products that shall be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, or installed to form units of work.
 - 4. "Equipment" is defined as a product with operational parts, regardless of whether motorized or manually operated, and in particular a product that requires service connections such as wiring or piping.
- C. **Procedures:**
 - 1. **Substitutions:** Contractor's requests for changes in products, materials, equipment, and methods of construction required by Contract Documents are considered requests for "substitutions" and are subject to requirements specified herein. The following are not considered as substitutions:
 - a. Revisions to Contract Documents, where requested by Owner or Engineer are considered as "changes" not substitutions.
 - b. Specified Contractor options on products and construction methods included in Contract Documents are choices available to Contractor and are not subject to requirements for substitutions as herein specified.
 - c. Except as otherwise provided in Contract Documents, Contractor's determination of and compliance with governing regulations and orders as issued by governing authorities do not constitute "substitutions" and do not constitute a basis for change orders.
 - 2. **Standards:** Refer to Section 01 42 14, "Reference Standards and Definitions," for applicability of industry standards to products specified for project, and for acronyms used in text of specification sections.

1.02 GENERAL PRODUCT REQUIREMENTS

- A. **General:** Provide products that comply with requirements of Contract Documents that are undamaged and, unless otherwise indicated, unused at time of installation. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents. Provide products that are complete with all accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and for intended use and effect.
- B. **Standard Products:** Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- C. **Continued Availability:** Where, because of nature of its application, Owner is likely to need replacement parts or additional amounts of a product at a later date, either for maintenance and repair or replacement, provide standard, domestically produced products for which manufacturer has published assurances that products and its parts are likely to be available to Owner at a later date.
- D. **Nameplates:** Except as otherwise indicated for required labels and operating data, do not permanently attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view either in occupied spaces or on exterior of completed project.
- E. **Labels:** Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface which, in occupied spaces, is not conspicuous.
- F. **Tools and Equipment:**
 - 1. Tools and equipment shall be in serviceable condition, properly calibrated, and properly maintained during the project. Contractor may be required to demonstrate proper functioning of equipment prior to authorization to proceed and at any time during the project.
 - 2. Provide on site necessary operation manuals for equipment and tools utilized in the project.
 - 3. Provide on site necessary spare parts for tools and equipment.

1.03 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in their original packages, containers, or bundles bearing name of manufacturer and product in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Store and handle products in accordance with manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft. Control products to prevent overcrowding of construction spaces. Store with seals and labels intact and legible.
- D. Coordinate delivery and installation to ensure minimum holding or storage times for items known or recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss. Materials that become contaminated with asbestos or hazardous materials shall be disposed of in accordance with applicable regulations or decontaminated by appropriate means.

1.04 GENERAL PRODUCT COMPLIANCE

- A. **General:** Requirements for individual products are stated in appropriate sections of Contract Documents; compliance with these requirements is a contract requirement. These requirements may be specified in any one of several different specifying methods, or in any combination of these methods. These methods include the following: proprietary, descriptive, performance, compliance with Reference Standards, and compliance with codes. Compliance with graphic details, allowances, and similar provisions of Contract Documents also have a bearing on selection process.
- B. **Procedures for Selecting Products:** Contractor's options in selecting products are limited by requirements of Contract Documents and governing regulations. They are not controlled by industry traditions or procedures experienced by Contractor on previous construction projects. Required procedures include but are not limited to the following for various methods of specifying:
1. **Non-Proprietary Specification Requirements:** Where specifications name products or manufacturers that are available and may be incorporated in the Work, but do not restrict Contractor to use these products only, Contractor may use any available product that complies with Contract requirements.
 2. **Or Equal:** Where some particular product or device is specified by brand name or manufacturer it is to be considered a standard. If approved equal, items of other manufacturer than those mentioned may be used, unless specifically noted otherwise for purposes of standardization. Any substitution must receive written approval of Engineer. In specifications, many times are preceded or followed by the phrase "or approved equal" and many others are not. Absence of that phrase is not to be interpreted as in derogation of provisions of the paragraph. Comply with those Contract Document provisions concerning "substitutions" for obtaining Engineer's approval.
- C. **Compliance with Standards, Codes, and Regulations:** Where specifications require compliance with an imposed standard, code, or regulation, Contractor has option of selecting a product that complies with specification requirements, including standards, codes, and regulations.
- D. **Visual Matching:** Where matching an established sample or existing material is required, the final judgement of whether a product proposed by Contractor matches sample satisfactorily will be determined by Engineer. Where there is no product available within specified product category that matches sample satisfactorily and also complies with other specified requirements, comply with provisions of Contract Documents concerning "substitutions" and "change orders" for selection of a matching product in another product category, or for non-compliance with specified requirements.
- E. **Visual Selection:** Except as otherwise indicated where specified product requirements include phrase "...as selected from manufacturer's standard colors, patterns, textures..." or similar phrases, Contractor has option of selecting product and manufacturer, provided selection complies with other specified requirements. Owner will select color, pattern, and texture from product line selected by Contractor.
- F. **Use of Hazardous Materials Forbidden:** Materials to be installed shall be free of asbestos and any other hazardous materials. In the case of materials containing vermiculite, submit a statement from manufacturer prior to installation of material that vermiculite is not contaminated with asbestos and that product does not contain asbestos. If necessary, production lot identification shall be included in the statement. Engineer may procure samples of material and obtain laboratory analysis of these samples. If material is found to contain asbestos or other harmful substances; obtain material that is free of asbestos or

other harmful substances, demonstrating that it is so at Contractor's cost to satisfaction of Engineer. If installed material is ever found to contain asbestos or hazardous materials, remove and replace installed material at Contractor's cost, in accordance with specifications prepared by an Engineer or Architect selected by Owner; Contractor shall pay for all design, administration and inspection costs.

- G. **Expandable Foams, Sealants, Etc.:** Unless material will be removed in its entirety prior to completion of Work, expandable foam and sealants (including, but not limited to, caulking and patching compounds) shall not be utilized without Owner's approval.
- H. **Volatile Organic Compounds:** Supplies and materials used on this Project shall meet requirements of OAC Chapter 3745-112 "Volatile Organic Compound Limits in Consumer Products."

1.05 SUBSTITUTIONS

- A. **Conditions:** Contractor's request for a substitution will be received and considered when extensive revisions to Contract Documents are not required, when proposed changes are in keeping with general intent of Contract Documents, when requests are timely, fully documented, and properly submitted, and when one or more of the following conditions is satisfied, all as judged by Engineer. Otherwise, requests will be returned without action except to record non-compliance with these requirements.
 - 1. Engineer will consider a request for substitution where request is directly related to an "or equal" clause or similar language in Contract Documents.
 - 2. Engineer will consider a request for substitution where specified product or method cannot be provided within Contract Time. However, request will not be considered if product or method cannot be provided as a result of Contractor's failure to pursue Work promptly or to coordinate various activities properly.
 - 3. Engineer will consider a request for substitution where specified product or method cannot receive necessary approval by a governing authority and requested substitution can be approved.
 - 4. Engineer will consider a request for a substitution where a substantial advantage is offered the Owner, in terms of cost, time, energy conservation, or other considerations of merit, after deducting of offsetting responsibilities the Owner may be required to bear. These additional responsibilities may include such considerations as additional compensation to Engineer for redesign and evaluation services, additional laboratory or testing services, increased cost of other work by Owner or separate contractors, and similar considerations.
 - 5. Engineer will consider a request for substitution when specified product or method cannot be provided in a manner which is compatible with other materials of Work, and where Contractor certifies that substitution will overcome incompatibility.
 - 6. Engineer will consider a request for substitution when specified product or method cannot be properly coordinated with other materials in the Work, and where Contractor certifies that proposed substitution can be properly coordinated.
 - 7. Engineer will consider a request for substitution when specified product or method cannot receive a warranty as required by Contract Documents and where Contractor certifies that proposed substitution includes required warranty.
- B. **Work-Related Submittals:** Contractor's submittal of and Engineer's acceptance of shop drawings, product data, or samples which relate to work not complying with requirements

of Contract Documents, does not constitute an acceptable or valid request for a substitution, nor approval thereof.

- C. **Substitution Request Submittal:** Submit three copies of each request for substitution. In each request identify product or fabrication or construction method to be replaced by substitution; include related specification section and drawing numbers, and complete documentation showing compliance with requirements for substitutions. Include the following information, as appropriate, with each request.
1. Provide complete product data, drawings, and descriptions of products, and fabrication and installation procedures.
 2. Provide samples where applicable or requested.
 3. Provide detailed comparison of significant qualities of proposed substitution with those of the Work originally specified. Significant qualities include elements such as size, weight, durability, performance, and visual effect where applicable.
 4. Provide complete coordination information. Include all changes required in other elements of Work to accommodate substitution, including work performed by Owner and separate Contractors.
 5. Provide a statement indicating effect substitution will have on the Work schedule in comparison to schedule without approval of proposed substitution. Include information regarding effect of proposed substitution on Contract Time.
 6. Provide complete cost information, including a proposal of net change, if any in Contract Price.
 7. Provide certification by Contractor to effect that, in Contractor's opinion after thorough evaluation, proposed substitution will result in work that in every significant respect is equal-to-or better than Work required by Contract Documents, and that it will perform adequately in application indicated. Include in this certification, Contractor's waiver of rights to additional payment or time, which may subsequently be necessary because of failure of substitution to perform adequately.
 8. Provide Safety Data Sheets for substitute material.
- D. **Change Order Form:** Submit requests for substitutions in the form and in accordance with procedures required for change order proposals.
- E. **Engineer Action:** Within one week of receipt of Contractor's request for substitution, Engineer will request additional information or documentation as needed for evaluation of request. Burden of proof is on proposer. Within two weeks of receipt of request, or within one week of receipt of requested additional information or documentation, which ever is later, Engineer will notify Contractor in writing of either acceptance or rejection of proposed substitution.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for **Project Record Documents**, including the following:
 - 1. Record Drawings ("As-Built").
- B. **Related Sections:**
 - 1. Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.02 SUBMITTALS

- A. Refer to Section 01 33 01 for additional submittal requirements.
- B. **Record Drawings:**
 - 1. Number of Copies: Submit one set of marked-up Record Prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. **Initial Submittal:** Submit one set of plots from corrected Record CAD Drawings and one set of marked-up Record Prints. Engineer will initial and date each plot and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Engineer will return plots and prints for organizing into sets, printing, binding, and final submittal.
 - b. **Final Submittal:** Submit one set of marked-up Record Prints, one set of Record CAD Drawing files, one set of Record CAD Drawing plots, and three copies printed from record plots. Plot and print each Drawing, whether or not changes and additional information were recorded.

PART 2 - PRODUCTS

2.01 RECORD DRAWINGS

- A. **Record Prints:** Maintain one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
 - 1. **Preparation:** Mark Record Prints to show actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an understandable drawing technique.

- c. Record data as soon as possible after obtaining it. Record and check markup before enclosing concealed installations.
- 2. **Content:** Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Locations and depths of underground utilities.
 - d. Revisions to routing of piping and conduits.
 - e. Revisions to electrical circuitry.
 - f. Locations of any foundations remaining on Site.
 - g. Changes made by Contract Modification.
 - h. Changes made following Engineer's written orders.
 - i. Details not on original Contract Drawings.
 - j. Field records for variable and concealed conditions.
 - k. Record information on the Work that is shown only schematically.
- 3. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on Contract Drawings.
- 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of Work at same location.
- 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
- 6. Note Field Work Order numbers, alternate numbers, Contract Modification numbers, and similar identification, where applicable.
- B. **Newly Prepared Record Drawings:** Prepare new Drawings instead of preparing Record Drawings where Engineer determines that neither original Contract Drawings nor Shop Drawings are suitable to show actual installation.
 - 1. New Drawings may be required when a Modification is issued as a result of accepting an alternate, substitution, or other Modification.
 - 2. Consult Engineer for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

- C. **Format:** Identify and date each Record Drawing; include designation "PROJECT RECORD DRAWING" in a prominent location.
1. **Record Prints:** Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. **Record CAD Drawings:** Organize CAD information into separate electronic files that correspond to each sheet of Contract Drawings. Name each file with sheet identification. Include identification in each CAD file.
 3. **Identification:**
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Engineer.
 - e. Name of Contractor.

2.02 MISCELLANEOUS RECORD SUBMITTALS

Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.01 RECORDING AND MAINTENANCE

- A. **Recording:** Maintain one copy of each submittal during construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. **Maintenance of Record Documents and Samples:** Store Record Documents and Samples in field office apart from Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during work hours.

END OF SECTION

SECTION 02 21 14

SITE WORK

PART 1 - GENERAL

1.01 SUMMARY

Section Includes: General requirements for specified site work associated with removal of sidewalks, parking lots, overhead walkway, and building structures, and provision of new sidewalks, etc.

1.02 QUALITY ASSURANCE

- A. Comply with applicable local, state, and federal requirements regarding materials, methods of work, and disposal of excess and waste materials.
- B. Obtain and pay for required inspections, permits, and fees. Provide notices required by governmental authorities.
- C. Verify pre-construction field conditions prior to starting work at a given site. At a minimum, documentation shall include photographing and/or videotaping areas included within scope of Work sufficiently detailing existing conditions of trees, landscaping, adjacent construction, facilities, and site improvements that might be construed as damage caused by Work. Failure to verify existing site conditions prior to start of work will result in Contractor being responsible for repairing site to its original condition at sole discretion of Owner.

1.03 EXISTING CONDITIONS

- A. Check and verify existing contours, grade, elevations, and physical conditions before start of Work. Report discrepancies to Engineer. Start of work indicates acceptance of subgrade conditions.
- B. Information provided on Drawings(s) regarding topographical information, existing utility lines, and existing installations is based upon visual field examination and existing record documents and has been provided for informational purposes only. While this information is believed to be correct, no assurance is implied relative to its completeness or accuracy. Excavate test pits as necessary to determine existing conditions and report discrepancies to Engineer before starting Work.

1.04 SITE CONDITIONS

- A. Prior to start of and during course of work (above and below ground), make a thorough survey of Site to determine potential hazards. Workers shall be made aware of those hazards and be instructed in procedures and use of equipment. Verify location and condition ("live" or "dead") of utilities on and near work site and protect employees, general public, and property.
- B. Locate and identify existing underground and overhead utilities and services prior to start of Work. If utilities and services are to remain, provide adequate means of protection during site work operations. Repair utilities and services damaged during site work operations to satisfaction of utility and services owner at Contractor's expense.
 - 1. Do not interrupt existing utilities serving facilities occupied by Owner or others, during occupied hours, except when permitted in writing by Owner and then only after acceptable temporary utility services have been provided.

2. Provide minimum 48-hour notice to Owner and receive written notice to proceed before interrupting any utility.
 3. If disruption of existing utilities is necessary, notify applicable utility companies 72-hours in advance and obtain written approval prior to disrupting service(s).
- C. Notify Ohio Utilities Protection Service (OUPS) prior to initiating search for utility services or tanks including their related components. Submit OUPS confirmation number and proof of timely submittal at least two calendar days prior to start of this work.
 - D. Should uncharted or incorrectly charted underground piping or other utilities be encountered during Work, notify applicable utility company and Engineer immediately for procedure directions. Cooperate with applicable utility company in maintaining active services in operation.
 - E. Locate, protect, and maintain benchmarks, monuments, control points, and project engineering reference points. If any of these items are disturbed, they shall be re-established or restored by a qualified surveyor at Contractor's expense.
 - F. Conduct site work operations and removal of excess and waste materials in a manner which minimizes interference with adjacent streets, sidewalks, parking lots, and facilities. Comply with local and state requirements for trucking of materials, including standing, parking, traffic routes, and covering of open trucks.
 - G. Do not close or obstruct adjacent streets, sidewalks, parking lots, and facilities without permission of authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways when required by Owner or authorities having jurisdiction.
 - H. Control dust caused by Work. Moisten surfaces as required. Comply with pollution control regulations of governing authorities.
 - I. Protect existing adjacent streets, sidewalks, parking lots, and facilities, from damage during Work. Repair and restore damaged items at Contractor's expense.
 - J. Protect and maintain street lights, utility poles and services, curb boxes, valves, and other services. Provide for temporary relocation when required to maintain facilities and services in operation during Work. Repair and restore damaged items at Contractor's expense.
 - K. Protect existing improvements to remain by, at a minimum, installing barricades and coverings. Repair and restore damaged items at Contractor's expense.
 - L. Explosives shall not be used during Work.
 - M. Owner's dumpster shall not be used for disposal of materials.
 - N. Lay out and establish lines and grades to execute work. Erect and maintain control points as required.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

Materials and equipment necessary for proper completion of work shall be selected by Contractor unless specified otherwise.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas and conditions under which site work is to be performed and new materials are to be installed. Do not proceed with Work until unsatisfactory conditions have been corrected.
- B. Consult records and Drawings of adjacent work and existing utilities, including associated connections which may affect site work.

3.02 PROTECTION OF PERSONS AND PROPERTY

Erect construction barriers to prevent public access to Work. Maintain barriers throughout Work and remove barriers at completion of Work.

END OF SECTION

SECTION 02 41 16

STRUCTURE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Protection of existing utilities to remain below demolition site. Protection of designated trees and other items noted on Drawings to remain.
2. Demolition of buildings, connectors, overhead walkways, and other items noted on Drawings.
3. Removal of below-grade construction, including footings, and foundations, and backfill as indicated.
4. Disconnection, capping or sealing, and/or removal of specified utilities.
5. Removal of all non-fixed building materials.
6. Filling of holes resulting from demolition.
7. Removal of debris from Site and document all demolition materials removed from Site.
8. Procurement of permits required to perform work.

B. Related Sections:

1. Section 02 41 17: Dust Control - Demolition
2. Section 31 00 11: Earthwork and Site Restoration
3. Section 22 05 00: Plumbing General Provision - Demolition
4. Section 26 00 10: Electrical General Provisions - Demolition

1.02 MATERIALS OWNERSHIP

- A. With exception of asbestos-containing materials, waste contaminated by hazardous materials, and items noted to be salvaged, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner. If found during demolition, stop work and allow Owner an opportunity to investigate. Owner has the right to remove and salvage any item from the Site prior to and during Work. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.03 SUBMITTALS

- A. Refer to Section 01 33 01 for additional submittal requirements.
- B. **Schedule of Demolition Activities – Demolition Plan:**
 - 1. Detailed sequence of demolition work, with starting and ending dates for each activity.
 - 2. Temporary interruption of utility services.
 - 3. Outline of demolition process including staging areas- site usage plans, equipment and methods, dust control methods, demolition water method, demolition water control and storm water pollution prevention.
 - 4. Shutoff and capping of utility services, methods, utility coordination and schedule.
- C. **Inventory:** Submit a list of items to be removed and salvaged and deliver to the Owner prior to start of demolition.
- D. **Landfill Records:**
 - 1. If applicable, indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
 - 2. Receipts for disposal of general demolition debris.
 - 3. Receipts for disposal of debris that includes non-regulated asbestos-containing materials indicating those materials were properly handled and disposed.
- E. **Engineering Survey:** Prior to start of demolition work, perform and submit surveys per applicable regulations to identify hazards that may result from building demolition activities.
- F. **Videos:** Prior to start of Work, video tape, in presence of Engineer, existing conditions of Site and properties adjacent to the Site, including, but not limited to: trees, parking lots, sidewalks, site light fixtures, and any other items to be salvaged or remain in place.
- G. **Accident Reports:** Within three calendar days of any accident, fire, emergency, theft, or incident in which any personal or property damage took place, submit accident report directly to Owner. If applicable, provide copy of any report submitted to Contractor's or Subcontractor's insurance carrier within seven calendar days of the accident.

1.04 QUALITY ASSURANCE

- A. **Regulatory Requirements:** Comply with EPA notification requirements (submit EPA notifications) before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. **Standards:** Comply with ANSI A10.6 and NFPA 241.

1.05 PROJECT CONDITIONS

- A. Structures to be demolished will be vacated and their use discontinued before start of Work. Perform a Pre-Demolition Sweep prior to start of demolition, at the start of each shift, and during course of work to ensure facility is not occupied and nothing to be salvaged remains.

- B. Owner assumes no responsibility for buildings and other structures to be demolished. Conditions existing at time of bidding period will be maintained by Owner as far as practical.
- C. **Hazardous Materials:** Hazardous materials are present in buildings and structures to be demolished. Refer to Section 00 31 26 for Environmental Reports; examine Reports to become aware of locations where hazardous materials are present.
- D. On-site storage or on-site sale of removed items or materials is not permitted unless noted otherwise.
- E. Use of explosives is not permitted.

1.06 COORDINATION

- A. Arrange demolition schedule so as not to interfere with the Owner's on-site and/or adjacent operations. Additionally, conduct demolition in a manner that minimizes interference with adjacent structures, homeowners, and business owners.
- B. Whenever practicable, deliveries shall be made during regular work 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 are 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.
- C. 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 Owner. Use tarpaulins or other means to prevent loose transported materials from dropping from trucks. Transport demolition materials in a wetted condition

1.07 CONTRACTOR SAFETY

- A. **Contractor Responsibility:** 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 Engineer and Owner harmless for any action on Contractor's part, or that of Contractor's employees or subcontractors, that result in illness, injury, or death.
- B. **Work Underground or in Confined Spaces:** Work shall comply with appropriate MSHA and OSHA regulations including but not limited to 29 CFR 1910.146 and COMAR 09.12.32B.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

- A. Satisfactory Soils for Backfill: Comply with ODOT requirements.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that utilities scheduled for demolition have been disconnected and capped before starting demolition operations.
- B. Verify that utilities, trees, etc. scheduled to remain have been protected.
- C. Inventory and record condition of items to be salvaged. Notify Engineer of conditions that might be misconstrued as damage caused by salvage operations prior to commencing with associated Work.
- D. Perform an engineering survey of condition of structure and attached buildings to remain to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during demolition operations. Steel tendons, if present: Locate tensioned steel tendons and include recommendations for de-tensioning.
- E. Unless specified otherwise, verify that hazardous materials have been remediated before proceeding with building demolition activities.
- F. Other than non-regulated asbestos-containing materials, asbestos-containing materials identified in Supplemental Inspection for Asbestos-Containing Materials (Section 00 31 26.26) will remain in building during demolition; as permitted by U.S. and Ohio EPA regulations, non-regulated asbestos-containing materials need not be removed prior to demolition (refer to information provided below and "Synopsis of Applicable Asbestos Regulations for Demolition Work" provided in Attachment A).

U.S. EPA mandates that Regulated Asbestos-Containing Materials (ACM) be removed prior to start of demolition work. Regulated ACM includes: friable ACM (acoustical plaster, pipe insulation, etc.); Category I nonfriable ACM (gaskets, floor tiles, asphalt roofing, etc.) that has become friable or is in poor condition; Category I nonfriable ACM that is subjected to sanding, grinding, or abrading; and Category II nonfriable ACM (hard plaster systems, gypsum board systems, etc.) that has a high probability of becoming friable during demolition work. OSHA standards require completion of appropriate engineering controls and work practices where any ACM are present.

As permitted by U.S. EPA and Ohio EPA regulations, some Category I and II nonfriable ACMs that do not have a high probability of becoming Regulated ACM during demolition (e.g., gaskets, floor tiles, mastics, roofing materials, etc.) have not been removed; therefore, standard demolition procedures and equipment shall be utilized in a manner which does not sand, grind, or abrade asbestos-containing materials remaining in Facility. Demolition debris which includes non-regulated ACM shall be disposed in a landfill permitted to accept this type of waste.

Should Regulated ACM be encountered during demolition work, notify Engineer immediately.

- G. Contractor shall have a representative available at the Site during Work hours that is trained in NESHAP regulations.

3.02 PREPARATION

- A. **Existing Utilities:** Locate, identify, disconnect, and seal or cap off indicated utilities serving buildings and structures to be demolished.

1. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
 2. Where specified to be abandoned, cut off pipe or conduit a minimum of 24 inches below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
- B. **Existing Utilities:** Owner will coordinate and schedule shutdown of utilities with proper entities at a date coordinated with Contractor. Contractor shall then disconnect, remove, and seal or cap utilities serving building and sewers leading from building in strict compliance with regulations of City and requirements of owning utility company. Turn off and cap water and gas lines under supervision of owning utility. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.
- C. Drain, purge, or otherwise remove, collect, and dispose chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with demolition operations.

3.03 PROTECTION

- A. **Existing Facilities:** Protect adjacent walkways and structures to remain during demolition operations.
- B. **Existing Utilities:** Maintain utility services to remain and protect from damage during demolition operations.
1. Existing utilities are to remain in place during demolition as indicated in the Drawings.
 2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.
- C. **Temporary Protection:** Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Section 01 50 00.
- D. **Landscaping:** Protect existing landscaping materials and trees designated to remain.
- E. **Structures:** Protect existing items which are not specified to be removed.
- F. Remove **temporary barriers and protections** where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.04 DEMOLITION, GENERAL

- A. **General:** Demolish indicated existing structures and site improvements completely. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
 2. Secure a hot work permit when they will be performing any welding, cutting, or spark generating activity.
 3. Maintain fire watch during and for at least six hours after flame cutting operations.

4. Maintain adequate ventilation when using cutting torches.
 5. Locate demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, tunnels or framing.
- B. **Engineering Surveys:** During demolition, perform surveys to detect hazards that may result from building demolition activities.
 - C. **Site Access and Temporary Controls:** Conduct demolition and debris-removal operations to alleviate spread of debris, dirt, and dust and to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
 2. Demolition debris shall be transported in wetted condition and covered to prevent debris from ejecting from trucks.
 3. Regularly (daily, at a minimum) clean transportation route of demolition removal debris.
 - D. **Explosives and Burning of Debris:** Use of explosives and burning of debris on site is not permitted.
 - E. Cease operations immediately if adjacent structures appear to be in danger. Notify authority having jurisdiction and Engineer.
 - F. If additional hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution. Dispose of building components as a result of this demolition in accordance with Ohio EPA, Division of Hazardous Waste.

3.05 DEMOLITION BY MECHANICAL MEANS

- A. Proceed with demolition of structural framing members systematically, from higher to lower level.
- B. Proceed with demolition with extreme caution. Demolition means and methods which provide for complete control of materials being removed from building are required. Demolition by hydraulic shear is the only acceptable demolition means **for above-grade building components**; use of wrecking balls, hoe rams, jack hammers, and any other type of impact equipment is prohibited. Buildings shall not be demolished using any means or methods which could result in an uncontrolled ejection of building materials from Site.
- C. **Below-Grade Construction:** Remove **below-grade** construction as indicated on Drawings, including concrete slabs, foundation walls, footings, basement walls, grade beams, etc. completely. Information provided on Drawings regarding below-grade construction is for reference only and may not indicate all below-grade structures. All below-grade structures related to buildings shall be removed, unless noted otherwise on Drawings, and reasonably expected to be part of building as determined by Engineer.
- D. **Existing Utilities:** Demolish and remove existing utilities unless specified otherwise (e.g., duct bank).

3.06 SITE RESTORATION

- A. **Below-Grade Areas:** Completely fill below-grade areas and voids resulting from building demolition and related site work (per Section 31 00 11).
- B. **Site Grading:** Uniformly rough grade area of demolished construction to a smooth surface (per Section 31 00 11), free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.07 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Site per applicable regulations.
 - 1. Do not allow demolished materials to accumulate on-site unless approved by Owner. If Contractor fails to promptly remove debris, Owner reserves the right to have debris removed at Contractor's expense (deducted from Contract Price).
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Do not burn demolished materials.
- C. Transport materials in wetted condition in covered trucks.

3.08 CLEANING

- A. Clean adjacent structures, roadways, landscape, and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before demolition operations began.
- B. Clean adjacent streets of all debris daily, at a minimum, and as directed by Owner to maintain dust control, road operation, and cleanliness.
- C. Upon completion of Work, remove tools, equipment, and demolished materials from Site. Remove protections.

END OF SECTION

SECTION 02 41 17

DUST CONTROL - DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Control of dust generated by demolition activities.
- B. **Related Sections:**
 - 1. Section 01 50 00: Temporary Facilities
 - 2. Section 02 41 16: Structure Demolition
 - 3. Section 03 01 30: Cast-In-Place Concrete

1.02 DESIGN

- A. General design parameters, and in some cases specific instructions, for construction of dust control systems are specified under this Section.
- B. Contractor shall bear responsibility for implementation of barriers and source dust control, including prescribed access/egress routes. Dust control work is subject to Owner's review and approval and subsequent correction and resubmission, if required.
- C. Materials and equipment are subject to Owner's approval.

1.03 SUBMITTALS

- A. Refer to Section 01 33 01 for additional submittal requirements.
- B. Daily Log prepared per Paragraph 3.05.A.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 CONTROL EFFORTS

- A. **Water Spray:** Use high pressure water spray equipment during major demolition activities operated using manufacturer's recommended water flow rate and pressure. Use auxiliary pumping equipment to increase water pressure as needed.
- B. **Fire Hoses:** Use as many hoses as necessary to work in conjunction with water spray equipment to control dust. Each hose shall be equipped with a nozzle that produces atomized water droplets for more effective control of airborne dust particles.
- C. Water during demolition shall be provided from at least two water sources. Use auxiliary pumping equipment to increase pressure as needed to allow water to reach all targeted elevations and areas.
- D. Water shall be targeted to area of work and positioned to fully reach area of demolition.

3.02 PRE-WETTING

- A. Each demolition area shall be fully soaked prior to its demolition. Modify procedures as necessary to increase effectiveness of pre-wetting efforts.
- B. Comply with governing environmental protection regulations.

3.03 WATER USAGE FOR DUST CONTROL

- A. Refer to Drawings for additional requirements.
 - 1. Use water spray methods to limit spread of dust and dirt.
 - a. Water during demolition shall be provided from two water sources. Use auxiliary pumping equipment to increase pressure as needed to allow water to reach all targeted elevations and areas.
 - b. Water shall be targeted to area of work, of sufficient water pressure and positioned so as to fully reach the area of demolition.
 - c. Demolition piles shall be fully soaked prior to moving operations to the next area.
 - d. Debris shall be soaked during demolition, loading, sorting, and removal operations at all times.
 - e. Comply with governing environmental-protection regulations.
 - 2. Contain water used for demolition on Site.
 - 3. Remove or pump collected water from depressions, low spots, etc. prior to backfilling.

3.04 PROTECT BUILDING AIR INTAKES AND NEARBY STRUCTURES

Take necessary precautions to prevent dust and contaminants from entering building air intakes and HVAC systems. Use appropriate precautions to prevent dust from drifting into the nearby properties.

3.05 OVERSIGHT RESPONSIBILITIES

- A. Maintain daily logs of working conditions, tasks being performed, weather conditions, dust control measures in use, problems or issues related to dust and/or exhaust fumes, and actions taken to meet requirements of Article 3.04.
- B. Take actions to modify or curtail demolition operations and modify control efforts as necessary to minimize impacts to adjacent buildings.

3.06 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing before demolition operations began.
- B. Clean adjacent streets to remove all debris from roadway daily at a minimum and as directed by the Owner to maintain dust control.

END OF SECTION

SECTION 02 82 17

ASBESTOS HAZARD ABATEMENT - LOCAL EXHAUST AND VENTILATION WORK

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Stripping of asbestos-containing materials, encapsulation, and decontamination.
- B. **Related Sections:**
 - 1. Division 1 Sections
 - 2. Section 02 82 33: Disposal of Asbestos-Containing Materials and -Contaminated Waste
- C. **Owner's Responsibilities (Unless Specified Otherwise Elsewhere):**
 - 1. Owner will remove movable furniture and equipment from work areas prior to commencement of asbestos hazard abatement work.
 - 2. Owner will coordinate and control HVAC operation and balance as necessary to assist Contractor.
 - 3. Owner will assist Contractor in identification of electrical circuits within work areas and for installation of temporary power service.
 - 4. Owner, if possible, will lock-out elevator to appropriate floors prohibiting access to work area.

1.02 QUALITY ASSURANCE

- A. **Air Monitoring of Work Area & Work Area Isolation:**
 - 1. Engineer may procure personal air samples of their employees to measure Engineer's work area exposures. If air monitoring in work area indicates a fiber concentration above one tenth of a fiber per cubic centimeter (0.1 f/cc) TWA_g or one fiber per cubic centimeter (1.0 f/cc) for a 30-minute period, implement appropriate engineering controls to reduce concentrations to or below this level.
 - 2. Engineer may perform air monitoring outside of and adjacent to work areas. If measurements indicate contamination outside work areas from asbestos hazard abatement work, Engineer may advise Owner to direct Contractor to immediately cease operations until presence of contamination is verified and cause of contamination is identified and corrected, if necessary, to satisfaction of Engineer. Resume asbestos hazard abatement work only after Owner issues written authorization.
 - 3. Facilitate and cooperate fully with air monitoring performed per Paragraph 1.02.A of this Section; take no action intended to distort or falsify measurements of fiber concentrations; and do not interfere with Engineer's air monitoring activities. In event

that Contractor fails to comply with these provisions, Engineer may advise Owner to direct Contractor to stop work.

4. Sampling and analytical work performed per Paragraph 1.02.A will be in conformance with ORM or NIOSH Method 7400 for work area monitoring and transmission electron microscopy (per Appendix A of 40 CFR 763 Subpart E), phase contrast microscopy (per NIOSH Method 7400), or fibrous aerosol monitor (FAM) procedures established by FAM manufacturer for monitoring contamination outside work areas.
5. Engineer will provide air monitoring equipment and supplies in connection with monitoring, testing and reporting performed under Paragraph 1.02.A. Owner will bear costs in connection with air sampling and reporting required in Paragraph 1.02.A except to extent that air monitoring indicates contamination by Contractor's work per Paragraph 1.02.C.3.c.

B. Air Sampling for Compliance with Clearance Standard:

1. At completion of work area decontamination, or as otherwise specified, Engineer may procure (as specified in Paragraph 3.07.B) air samples for phase contrast microscopy analysis (per NIOSH Method 7400). Air sample procurement will be performed by an Asbestos Hazard Evaluation Specialist or an Air Monitoring Technician and will comply with or exceed requirements of Chapter 3745-22 of Ohio Administrative Code. If analysis by phase contrast microscopy indicates that concentration of fiber in any of these samples exceeds limit of quantification for phase contrast microscopy (0.01 f/cc), continue to air and surface clean work area interior until air monitoring indicates fiber concentrations have fallen below this limit.
2. Provide at least two, 20-amp, 120 VAC electrical circuits for Engineer's use during clearance sampling.
3. Aggressive sampling may include use of leaf blowers or fans.
4. Copies of records of air monitoring performed per Paragraph 1.02.B will be submitted to Contractor weekly.
5. Engineer will provide air monitoring equipment and supplies in connection with monitoring, testing and reporting performed under Paragraph 1.02.B.
6. Owner will bear costs for one full episode of air sampling and reporting required in Paragraph 1.02.B for each work area. Contractor shall bear additional air sampling and reporting costs (\$65 per PCM sample procured and analyzed) accrued if limits of Paragraph 1.02.B are exceeded on initial sampling.

C. Personnel and Facility Protection:

1. **Personal Protection:** Refer to Section 01 35 24.
2. **Facility Security:**
 - a. Comply with OSHA and EPA regulations concerning signage and labeling.
 - b. Refer to Article 1.08 of Section 01 11 01 concerning access to work.

3. **Building Protection:**

- a. Existing facilities and functions in adjacent areas may remain in use throughout Work. Existing services to these adjacent areas shall be maintained throughout Work. Existing fire protection and alarm systems, both within and without work area, shall be maintained in proper working order throughout Work.
- b. Protect existing furniture and equipment, existing building finishes to remain, and existing systems and functions from damage during Work. Extra precautions shall be taken in protecting the following: wood floors; doors and trim; permanent ceiling and wall appurtenances (e.g., bells, speakers, fire protection equipment, etc.); windows; floor tile; carpet; furniture; HVAC ductwork, equipment and controls; etc. Damage to building, services, finishes, or equipment shall be remedied by Contractor at Contractor's cost.
- c. If an area of building or an area outside building appears (to Engineer) to be contaminated by Contractor activities (except isolated work areas after Work commences and disposal landfill), Contractor shall bear expenses for determination of contamination and necessary decontamination as determined by Owner.

4. **Equipment and Tool Decontamination:**

- a. Equipment and tools brought from work areas shall be decontaminated in shower room or equipment area using wet methods to remove visible contamination.
- b. Alternative cleaning procedures may be proposed for Engineer's approval for cameras, air sampling equipment and other delicate items which are susceptible to rust or water damage.

PART 2 - PRODUCTS

2.01 MANUFACTURER - SPECIFIED MATERIALS

A. Encapsulants:

1. **Residual Encapsulant:** Residual encapsulant shall be water-based, capable of adhering to any surface, quick drying, clear, designed for use as a lockdown, and not be noxious or toxic to workers.

2.02 GENERAL SUPPLIES

- A. **Disposal Containers:** Disposal containers shall be suitable to receive and retain asbestos-containing or contaminated materials until disposal at an approved site. Containers shall be labeled in accordance with OSHA, EPA, and DOT Regulations. Containers shall be air and watertight. If polyethylene bags are permitted for use, they shall be constructed of 6-mil polyethylene.
- B. **Polyethylene Film:** Polyethylene film shall conform to requirements set forth by National Fire Protection Association Standard 701, Small Scale Fire Test for Flame-Resistant Textiles and Films. Polyethylene film (translucent, unless otherwise indicated) shall be a minimum 6-mils thick and sized in appropriate lengths and widths to minimize frequency of seams.
- C. **Spray Adhesive:** Spray adhesive shall be formulated to aggressively bond polyethylene film to itself.

- D. **Surfactant (Wetting Agent):** Use a mixture of surfactant and water which results in wetting of ACM and retardation of fiber release during disturbance of asbestos-containing materials equal to or greater than that provided by use of one ounce of a surfactant consisting of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether in five gallons of water.
- E. **Tape:** Tape shall be capable of sealing joints of adjacent sheets of polyethylene film and for attachment of polyethylene film to finished or unfinished surfaces of dissimilar materials and capable of adhering under dry and wet conditions, including use of amended water.
- F. **Other Materials:** Other materials, not specifically described but required to complete Work of this Section, shall be subject to approval by Engineer.

2.03 EQUIPMENT

- A. **Airless Sprayer:** An airless sprayer, suitable for application of amended water and encapsulants, shall be used.
- B. **Air Filtration Devices (AFD):** Supply required number of AFDs in accordance with these specifications.
 - 1. Prefilters, which protect final filter by removing larger particles, are required to prolong operating life of HEPA filters. Two stages of prefiltration are required. First-stage prefilter shall be a low-efficiency type (e.g., for particles 10-micron and larger). Second-stage (or intermediate) filter shall have a medium efficiency (e.g., effective for particles down to 5-micron). Prefilters and intermediate filters shall be installed either on or in the intake grid of AFD and held in place with special housings or clamps.
 - 2. Final filter shall be a HEPA unit. Filter media (folded into closely pleated panels) must be completely sealed on edges with a structurally rigid frame.
 - a. A continuous rubber gasket shall be located between filter and filter housing to form a tight seal.
 - b. Each filter shall be individually tested and certified by manufacturer to have an efficiency of not less than 99.97 percent when challenged with 0.3 micron dioctylphthalate (DOP) particles. Testing shall be in accordance with Military Standard Number 282 and Army Instruction Manual 136-300-175A. Each filter shall bear a UL586 label to indicate ability to perform under specified conditions.
 - c. Each filter shall be marked with name of manufacturer, serial number, air flow rating, efficiency and resistance, and direction of test air flow.
- C. **Vacuums:** Vacuums used in a work area shall exhaust through a HEPA filter.
- D. **Leaf Blowers:** Leaf blowers shall be electrically powered, of at least one horsepower capacity. Leaf blowers shall be adequately protected against shock hazards. Vacuum accessories for leaf blowers shall not be used for collection of asbestos-containing or asbestos-contaminated materials.
- E. **Transportation Equipment:** Transportation equipment, as required, shall be suitable for loading, temporary storage, transit, and unloading of contaminated waste without exposure to persons or property.
- F. **Other Tools & Equipment:** Provide other suitable tools for stripping, removal, encapsulation, and disposal activities (e.g., knives, hand-held scrapers, nylon-bristle brushes, disposable paper towels, rounded edge shovels, carts, etc.). Other tools and

equipment, not specifically described but required for a complete and proper performance, shall be subject to approval by Engineer.

- G. **Owner's Tools and Equipment:** No tools or equipment of Owner shall be used.

PART 3 - EXECUTION

3.01 SEQUENCE OF EXECUTION

- A. Prepare work area (per Article 3.02).
- B. Strip asbestos-containing materials (per Article 3.03).
- C. Dispose of contaminated waste generated by work area preparation and stripping activities (per Article 3.04). Disposal shall be performed concurrently with stripping.
- D. Encapsulate building surfaces and equipment, and other materials (per Article 3.05).
- E. Decontaminate work area (per Article 3.06).
- F. Clean work area (per Article 3.08).

3.02 WORK AREA PREPARATION

- A. **Work Area Isolation:** The following isolation procedures shall be performed in order they are presented for each work area:
 - 1. Demarcate work area.
 - 2. Turn off fans in work area. Isolate and deactivate HVAC systems (supply and return). If components of HVAC system in work area are connected to system servicing a zone outside work area, seal and pressurize portion of HVAC in work area by caulking duct joints, and covering cracks and openings with two layers of polyethylene film sealed with tape. (Owner will restrict return air flow, and lock "on" power to fan supplying positive pressure.)
 - 3. Disconnect existing lighting and electrical circuits, except for operating alarm systems, as necessary to complete work safely.
 - 4. Provide safe installation of temporary power service utilizing ground fault protection devices using a licensed electrician. Temporary power service shall not violate integrity of area isolation. Auxiliary lighting in work area shall be moisture proof.
 - 5. Provide and operate AFDs per Paragraph 3.02.C.
 - 6. Provide critical barriers by sealing openings from work area (e.g., doorways, windows, etc.) with polyethylene film sealed with tape.
 - 7. Seal diffusers, return and relief grilles, and other HVAC openings with two layers of polyethylene film sealed with tape.
 - 8. Preclean fixed or immovable objects and contaminated furniture and materials (e.g., built-in cabinetry, shelving, lockers, water fountains, listening booths, chalk boards, bleacher seats, etc.) within work area, using HEPA-equipped vacuums and wet cleaning methods as appropriate, and enclose with polyethylene film sealed with tape.

9. Preclean movable contaminated furniture and materials (e.g., desks, chairs, files, bookcases, cabinets, etc.) within work area using HEPA-equipped vacuums and wet cleaning methods as appropriate.
10. Where work area terminates either in a corridor which is in use, or is adjacent to other occupied areas of the building, which is not separated from work area by existing building construction (e.g., doors, walls, etc.), construct temporary framed partition(s) consisting of full height metal studs and 1/2" gypsum board to prohibit access to work area, except through approved decontamination system(s). If barriers will abut friable or damaged non-friable asbestos-containing material, then barriers shall be installed after installation of decontamination area or equipment area.
11. Cover horizontal surfaces within five feet of work with drop cloths; these drop cloths shall be disposed as contaminated waste; they shall not be slipped along surfaces as work progresses nor be reused.
12. Introduce scaffolding and other large equipment that will not pass through decontamination area or equipment area.
13. Set up decontamination area or equipment area per Section 01 52 20 and maintain it per Paragraph 3.02.B. Once these systems are installed, they shall be utilized in specified manner for entrance and exit of personnel and equipment, except in emergency situations.
14. Strip suspended ceiling materials per Paragraph 3.02.D as required to access asbestos-containing materials.

B. Maintenance of Decontamination Areas, Equipment Areas, and Barriers:

1. Visually inspect barriers, decontamination areas, and equipment areas as they are installed and at beginning of each work shift.
2. Ensure that barriers are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.
3. Engineer may test effectiveness of barriers, decontamination areas, equipment areas, etc.

C. Local Exhaust Ventilation: Provide air filtration devices (AFDs) and other equipment in work areas to reduce fiber levels and provide local exhaust ventilation. Equipment shall perform as follows:

1. Provide local exhaust ventilation within work areas during stripping and removal activities. (See Typical Work Area Diagram in Attachment A.)
 - a. Local exhaust ventilation (LEV) means to move contaminated air away from breathing zone of employees to reduce workers' exposure to concentrations of airborne fiber during work.
 - b. LEV devices are equipment and apparatus used to provide LEV, (e.g., AFDs, ducted openings of intakes to AFDs, dust collection shrouds and hoods, etc.).
2. AFD exhaust air shall be discharged outside building to atmosphere. Exhaust shall be directed away from pedestrian routes and such that it cannot re-enter building. Exhaust shall be installed in a manner that does not allow tubing to "flap" nor "hang" outside window or door.

3. If AFD exhaust will remain in place during off-shift hours, anchor exhaust duct from AFD(s) discharging outside building in a wood framed structure covered with plywood over openings within ten feet of grade or roof (unless into an enclosed courtyard) utilized to place AFD exhaust (e.g., windows and doors). Unless approved otherwise by Engineer, all other openings shall be sealed with polyethylene film around AFD exhaust.
4. Engineer may test AFD(s) and LEV devices to determine proper functioning. If units are found to be malfunctioning (e.g., HEPA filter is missing or being bypassed, asbestos fiber is being discharged out of doors, etc.), correct or replace malfunctioning devices.
5. No intake ductwork from AFDs may pass through uncontaminated areas outside work areas; only exhaust ductwork may pass through such areas.

D. Stripping of Suspended Ceiling Materials (Beneath Areas of Asbestos-Containing Materials): Strip suspended ceiling materials as specified or as necessary to access asbestos-containing materials as follows:

1. Enclose duct openings resulting from disassembly of diffusers and grilles with two layers of polyethylene film sealed with tape.
2. Progressively strip ceiling mounted objects (e.g., lights, speakers, diffusers, etc.) as ceiling materials are stripped. Clean appurtenances using HEPA-equipped vacuum cleaners and wet cleaning methods, as appropriate. Provide identity label for each item to be salvaged, including its former location. Remove such appurtenances from work area, store in an uncontaminated area of building (identified by Owner), and protect with transparent polyethylene film. Other objects shall be disposed as construction debris or recycled, as appropriate.
3. Remove suspended ceiling material including tiles, panels, and suspension systems and decontaminate as follows:
 - a. Remove visible debris using a HEPA vacuum.
 - b. Using a soft bristle brush attachment, HEPA vacuum unfinished surface of ceiling panel in two passes, one longitudinally and one latitudinally.
4. Reinstall ceiling materials once clearance standards are met per Paragraph 1.02.B.

3.03 STRIPPING OF ASBESTOS-CONTAINING OR CONTAMINATED MATERIALS

A. General:

1. Spray asbestos-containing material with amended water or removal encapsulant.
 - a. When using amended water, apply using low pressure spray equipment capable of providing a "mist" application to reduce release of fibers. Saturate material sufficiently to wet it to substrate without causing excess dripping. Spray asbestos-containing material prior to stripping and repeatedly during work process to maintain wet condition and to minimize asbestos fiber dispersion. Spraying operation shall be performed such that material is not eroded or abraded. If paint film, barrier, ACM density or thickness, or other condition prohibits adequate saturation of asbestos-containing material, it shall be wetted continuously during removal.
 - b. When using a removal encapsulant instead of amended water, removal encapsulant shall be applied as directed by manufacturer.

2. Asbestos-containing materials in areas specified shall be stripped to substrate except where specified otherwise, using appropriate tools and methods. Asbestos-containing or asbestos-contaminated materials shall be handled carefully and deliberately. Unnecessary agitation of asbestos-containing material is prohibited. Asbestos-containing material shall not be allowed to fall more than ten feet before being caught and bagged. Bagged material shall be carefully lowered from scaffolding to floor for removal in accordance with Article 3.04 of this Section. **Use of high RPM power equipment, pressure washers, hydro-blasters, sanders, grinders, or buffers is prohibited.** Substrate and adjacent materials shall be left structurally sound.
3. After completion of stripping work, surfaces from which asbestos-containing material has been stripped shall be brushed or wet cleaned to remove visible material. During this work, surfaces being cleaned shall be kept wet. One hundred percent stripping of visible asbestos-containing material is required.
4. When removing accessories from wall or ceiling systems to remain, remove anchors, furring strips, mastics, and any other components associated with these accessories.

B. Stripping of Asbestos Cement Board:

1. Carefully strip material intact if possible.

C. Stripping of Window, Door, or Storefront Assemblies with Asbestos-Containing Glazing Tape:

1. Enclose (e.g., with duct tape) glazing tape to prevent material from dislodging during stripping of window, door, or storefront assembly.
2. If glazing tape is stripped from framing and/or glazing, strip glazing tape within negative pressure enclosures or using negative pressure glovebags.
3. Window, door, or storefront assemblies, glazing, glazing tape, and related refuse shall be disposed as contaminated waste.

D. Stripping of Ceiling and Wall Mounted Items and Associated Asbestos-Containing Mastic:

1. Carefully strip ceiling or wall mounted item (e.g., chalkboards, mirrors, tackboards, whiteboards, etc.) to minimize disturbance of mastic.
2. Strip mastic from walls after stripped of ceiling or wall mounted item.
3. If mastic cannot be stripped intact, submit proposed work practices to Engineer for review, including removal of mastic within negative pressure enclosures.
4. Ceiling and wall mounted items, mastic, and related refuse shall be disposed as contaminated waste.
5. When removing items from walls and ceilings to remain, remove associated anchors, furring strips, and any other mounting components.

3.04 DISPOSAL OF ASBESTOS-CONTAINING MATERIALS AND CONTAMINATED WASTE

Refer to Section 02 82 33.

3.05 ENCAPSULATION

A. **General:**

1. Areas from which asbestos-containing materials have been stripped shall be encapsulated with residual encapsulant as herein specified.
2. Remove visible accumulations of asbestos-containing material and debris. If necessary, wet clean surfaces.

B. **Preparation and Application of Encapsulant:**

1. Encapsulant shall be prepared and applied according to manufacturer's specifications.
2. Encapsulant shall be applied such that its penetrating agents bind tightly to substrate.
3. Encapsulant shall be applied with a minimum of two coats to specified surfaces. Each encapsulant coat may be reduced with proper thinning agent (as specified by manufacturer) to a 50 percent solution. Individual coats may be required to be color coded by tinting, with manufacturer's approved dyes. Drying times shall be not less than four hours between coats unless manufacturer's recommendation proves otherwise.

3.06 DECONTAMINATION OF WORK AREA

A. **Work Area Decontamination:** The following decontamination procedures shall be performed in order in which they are presented:

1. At completion of encapsulation activities, equipment, machinery, scaffolding, tools, etc., no longer needed in work area shall be removed from work area and cleaned with amended water in decontamination area or equipment area. Equipment, machinery, tools, scaffolding, etc., not removable through decontamination area or equipment area shall be wet cleaned with amended water and immediately sealed in polyethylene film.
2. Equipment and disposal containers used in work area shall be included in cleanup and removed from work area, via decontamination area or equipment area, at an appropriate time in cleaning sequence.
3. If Engineer finds accumulations of dust in work area, repeat wet cleaning until work area is visibly dust-free.

3.07 FIELD QUALITY CONTROL

A. Engineer will perform inspections of various stages of work as follows:

1. Prior to starting work of Article 3.03 and upon signed request of Contractor (said request being evidence that Contractor believes that work area preparation is complete), Engineer will conduct an inspection of work area to ensure completion of work listed in Article 3.02. Correct deficiencies identified by Engineer.
2. Prior to starting work of Article 3.05 and upon signed request of Contractor (said request being evidence that Contractor believes that all asbestos-containing materials have been stripped, placed in disposal containers, and removed from work area), Engineer will conduct an inspection of work area to ensure that all materials specified have been completely removed per Articles 3.03 and 3.04. Correct deficiencies identified by Engineer.

3. Prior to starting work of Article 3.06 and upon signed request of Contractor (said request being evidence that Contractor believes all surfaces have been encapsulated), Engineer will conduct an inspection of encapsulating work to ensure proper application procedure, extent of coverage, and bonding effectiveness per Article 3.05. Correct deficiencies identified by Engineer.
- B. Once Engineer determines that work area is free of visible dust, and upon signed request of Contractor (said request being evidence that Contractor believes that asbestos fiber level in the work area is sufficiently low to meet clearance standards set forth in Paragraph 1.02.B), Engineer may perform air sampling in accordance with Paragraph 1.02.B. In no case will clearance samples be procured by Engineer until at least 48 air changes have occurred after Engineer determines that work area is free of visible dust. If measured asbestos fiber level exceeds levels set in Paragraph 1.02.B, continue surface and air cleaning until specified level is reached. When asbestos fiber concentration in work area is below specified level Engineer will authorize Contractor to finish work per Article 3.08.

3.08 CLEANING

- A. Decontamination areas and equipment areas shall be removed, spaces occupied by such structures thoroughly wet cleaned, and materials from such structures disposed as contaminated waste. Remaining barriers between contaminated and clean areas, seals on openings into work areas, and fixtures shall be removed and disposed as contaminated waste. Decontaminate, using HEPA vacuum and wet cleaning methods, surfaces where dust or debris remains as a result of dismantling operations.
- B. After equipment, tools, barriers, etc., have been removed, Engineer may conduct additional clearance testing in accordance with Paragraph 1.02.B. If asbestos fiber level exceeds specified levels, continue surface and air cleaning until specified level is reached.
- C. Remove demarcation devices.

END OF SECTION

SECTION 02 82 33

DISPOSAL OF ASBESTOS-CONTAINING MATERIALS AND -CONTAMINATED WASTE

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Stripping of asbestos-containing materials, disposal, encapsulation, and decontamination.
- B. **Related Sections:**
 - 1. Section 02 82 17: Asbestos Hazard Abatement - LEV Work

PART 2 - PRODUCTS

2.01 GENERAL SUPPLIES

- A. **Disposal Containers:** Disposal containers shall be suitable to receive and retain asbestos-containing or -contaminated materials until disposal at an approved site. Containers shall be labeled in accordance with OSHA, EPA, and DOT Regulations. Containers shall be air and watertight. If polyethylene bags are permitted for use, they shall be constructed of 6-mil polyethylene.
- B. **Tape:** Tape shall be capable of sealing disposal containers.
- C. **Other Materials:** Other materials, not specifically described but required to complete Work of this Section, shall be subject to approval by Engineer.

2.02 EQUIPMENT

- A. **Transportation Equipment:** Transportation equipment, as required, shall be suitable for loading, temporary storage, transit, and unloading of contaminated waste without exposure to persons or property.
- B. **Other Tools & Equipment:** Provide other suitable tools for disposal activities. Other tools and equipment, not specifically described but required for a complete and proper performance, shall be subject to approval by Engineer.
- C. **Owner's Tools and Equipment:** No tools or equipment of Owner shall be used.

PART 3 - EXECUTION

3.01 DISPOSAL ACTIVITIES

- A. As asbestos-containing material and -contaminated waste accumulates, it must be kept wet and promptly placed in disposal containers. All asbestos-containing materials and -contaminated waste (whether included in original scope of work, added at direction of Owner, added at Contractor's option, or added due to damages or contamination caused by Contractor's Work) shall be treated as regulated asbestos-containing materials for disposal purposes.

- B. Window, door, and storefront components with adhered asbestos-containing materials enclosed with duct tape need not be placed in disposal bags or wrapped in polyethylene film if landfill will accept waste as prepared. Actual configuration of disposal containers for all other waste will vary with local Ohio EPA District and landfill requirements, but, at a minimum, disposal containers for all other waste shall be:
1. two 6-mil polyethylene bags (one inside the other, both separately sealed);
 2. one sealed 6-mil polyethylene bag inside an air and water-tight drum; or
 3. wrapped with two layers of 6-mil polyethylene film each separately sealed.
- C. NOT UTILIZED
- D. Do not allow asbestos-containing materials to dry out or collect on surfaces.
- E. Materials that cannot be decontaminated, such as polyethylene film, tape, cleaning material, and other disposable items used in work areas, shall be disposed as contaminated waste. Metal components and other materials that can be decontaminated (as approved by Engineer) shall be cleaned and be recycled or disposed as construction debris; otherwise, these materials shall be contained in fiber or metal drums, reinforced bags or similar containers (e.g., burlap bags) and disposed as contaminated waste.
- F. Reinforced bags or similar containers (e.g., burlap bags) used to containerize metal components, floor tile, etc., shall not be considered a disposal container.
- G. As disposal containers are filled, they shall be sealed and moved to a staging area adjacent to decontamination area or equipment area. Remove waste materials from work area on a regular basis, and do not permit accumulation of disposal containers to obstruct work progress or exit ways. Containers shall be stored in a manufactured solid top van-type or semi-trailer truck completely lined with polyethylene film, including a curtained doorway at opening, and shall be locked. A similarly sealed, enclosed, and locked dumpster is also acceptable; **use of roll-off open topped dumpsters is prohibited**. During load-out of waste, truck/dumpster shall be demarcated.
- H. Disposal containers shall not be loaded to make handling unduly difficult or unsafe, or threaten integrity of container, polyethylene barriers or building structures.
- I. Warning labels, having waterproof print and permanent adhesive, shall be affixed to sides of disposal containers (unless containers have pre-printed labels). Warning labels shall be conspicuous and legible, and be in accordance with EPA, OSHA and DOT regulations. Labels shall include: Abatement Contractor's name and address (street, city and state) from which asbestos-containing waste was generated.
- J. Waste disposal containers shall be decontaminated and removed from work area before final cleanup is started and isolation barrier is taken down.
- K. Exterior surfaces of disposal containers shall be decontaminated as follows:
1. Workers at staging area shall check seals, HEPA vacuum gross debris from containers, and load them into decontamination area or equipment area.
 2. In shower room (if applicable) or equipment area, surfaces of disposal container shall be sprayed with water or wet cleaned to remove visible contamination. Workers, who are wearing respirators, shall then pass cleaned containers (through curtained doorway) to other workers in uncontaminated area, who are also wearing approved respiratory equipment.

- 3. If polyethylene bags are used as disposal containers, outside bag shall be installed on clean room side of shower room (if applicable) or equipment area.
- L. After decontamination, promptly transport disposal containers to disposal site, or secure them from unauthorized personnel.
- M. Contaminated waste shall be transported from contaminated work area in approved disposal containers which have been properly decontaminated.
- N. Determine current waste handling, transportation, and disposal regulations for work site and each waste disposal landfill. Comply fully with these regulations and DOT and EPA requirements.
- O. Once a shipment of disposal containers has accumulated, promptly transport them to disposal site.
- P. Disposal containers shall be transported to disposal site in a van-type or semi-trailer truck that is securely lined with polyethylene film.
- Q. Vehicles used to transport waste shall be marked in accordance with EPA, DOT, and OSHA regulations during loading, transportation, and unloading of waste.
- R. Polyethylene film liner shall be disposed with each shipment of disposal containers.

END OF SECTION

SECTION 02 84 17

HANDLING OF UNIVERSAL AND HAZARDOUS WASTE

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Minimum specifications regarding the proper handling of fluorescent/HID lamps, non-electronic ballasts, batteries, lead traps, mercury-containing devices, and refrigerants.
- B. **Related Sections:**
 - 1. Section 01 33 01 - Submittal Procedures

1.02 DEFINITIONS AND REFERENCES

- A. "Electronic Ballast" is a ballast which is labeled specifically as "Electronic" or has a "No PCB" label and does not contain diethylhexyl phthalate (DEHP) either confirmed by testing or by checking with the ballast's manufacturer.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 FLUORESCENT LAMPS

- A. Fluorescent and high intensity discharge lamps shall be removed from light fixtures and be recycled/incinerated per applicable regulations. At a minimum:
 - 1. Remove and store lamps in cardboard lamp boxes labeled "Mercury Lamps for Recycling" and labeled with one of the following designations: "Universal Waste Lamps;" "Waste Lamps;" or "Used Lamps." Lamps shall remain intact.
 - 2. Lamps shall be transported to an EPA-approved recycler.

3.02 MERCURY-CONTAINING DEVICES

- A. Mercury-containing devices (switches, thermostats, thermometers, etc.) shall be removed intact and recycled per applicable regulations.

3.03 BATTERIES

- A. Batteries shall be removed from exit signs and emergency lighting fixtures and be recycled or disposed as appropriate per applicable regulations.

3.04 REFRIGERANTS

- A. Refrigerants shall be recovered from cooling units and be properly handled per applicable regulations.
- B. Once refrigerants have been reclaimed, cooling units shall be properly tagged.

3.05 CHEMICALS (LABS, CLEANING, ETC)

- A. Under Base Bid Known Work, walk entire facility and Site to locate all lab waste, paint, cleaning supplies, etc.
- B. Safely move all such chemicals to a centralized location, inventory said chemicals, and restrict access until they are removed from Site.
- C. Have chemicals recycled or disposed, as appropriate, using a qualified subcontractor. Removal of chemicals and proper handling of waste off-site will be paid per Section 01 21 13 or 01 22 01.

END OF SECTION

SECTION 02 84 33

REMOVAL AND DISPOSAL OF POLYCHLORINATED BIPHENYLS (PCBs)

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Removal and disposal of electrical equipment with liquid PCBs at concentrations of greater than or equal to 50 parts per million (ppm).
1. A generator of PCB waste who relinquishes control over the wastes by transporting, or offering for transport by its own vehicle or by a vehicle owned by another person, or relinquishing for commercial off-site storage or off-site disposal is required to prepare a manifest on EPA Form 8700-22 in accordance with 40 CFR 761, Part 207. The generator shall specify the following on the manifest:
 - a. For each bulk load of PCBs, identify of PCB waste, the earliest date of removal from service for disposal, and weight in kilograms of the PCB waste.
 - b. For each PCB Article Container or PCB Container, the unique identifying number, type of PCB waste (e.g., soil, debris, small capacitors), earliest date of removal from service for disposal, and weight in kilograms of the PCB waste contained.
 - c. For each PCB Article not in a PCB Container or PCB Article Container, the serial number if available, or other identification if there is no serial number, the date of removal from service for disposal, and weight in kilograms of the PCB waste in each PCB Article.
 - d. Off-site commercial storage or disposal facility approved for the commercial storage or disposal of the PCBs and PCB Items described on the manifest.
- B. **Definitions Specific to Work with PCB-Containing Electrical Equipment:**
1. "Leak" means any instance in which a PCB Article, PCB Container, or PCB Equipment has any PCBs on any portion of its external surface.
 2. "PCBs" as used in this specification means the same as PCBs, PCB Article, PCB Article Container, PCB Container, PCB Equipment, PCB Item, PCB Transformer, PCB-Contaminated Electrical Equipment, as defined in 40 CFR 761, Section 3, Definitions.
 3. "Spill" means both intentional and unintentional spills, leaks, and other uncontrolled discharges when the release results in any quantity of PCBs running off or about to run off the external surface of the equipment or other PCB source, as well as the contamination resulting from those releases.

1.02 QUALITY ASSURANCE

- A. **Training:** Instruct employees on the dangers of PCB exposure, respirator use, decontamination, and applicable OSHA and EPA regulations. Provide proof of training.
- B. **Surveillance Personnel:** Surveillance personnel may enter PCB control areas for brief periods of time provided they wear protection against dermal contact (disposable polyethylene gloves and disposable polyethylene foot covers, as a minimum) and protection against inhalation of PCBs or material containing PCBs.

- C. Comply with OSHA regulations for protective clothing and respiratory protection program. Additionally, workers shall wear and use personal protective equipment (PPE), as recommended by the Contractor's Competent Person, upon entering a PCB control area. If PPE is not required by the Competent Person, note as such in the PCB Removal Work Plan. At a minimum, workers shall be provided with the following:
 - 1. Disposable coveralls;
 - 2. Gloves (disposable rubber gloves may be worn under these);
 - 3. Disposable foot covers (polyethylene);
 - 4. Chemical safety goggles; and
 - 5. Half-mask air purifying respirator with appropriate filters.
- D. OSHA's PEL for PCBs with 54% chlorine is 0.5 mg/m³ and for PCBs with 42% chlorine is 1 mg/m³ on an 8-hour time weighted average basis.
- E. **Special Hazards:**
 - 1. Do not expose PCBs to open flames or other high temperature sources since toxic decomposition by-products may be produced; and
 - 2. Do not heat PCBs to temperatures of 135 degrees F or higher without University's concurrence.

1.03 SUBMITTALS

- A. Refer to Section 01 33 01 for additional submittal requirements.
- B. **PCB Removal Work Plan:** Submit a detailed job-specific plan of the work procedures to be used for removal of PCB-containing materials to Engineer at least two weeks prior to start of work. Provide a Table of Contents for each abatement submittal which follows the sequence of requirements in the Contract. Include in the plan a sketch showing the location, size, and details of PCB control areas (location and details of decontamination rooms, change rooms, shower facilities, and mechanical ventilation system). Include in the plan, eating, drinking, smoking, and restroom procedures, interface of trades, sequencing of PCB related work, PCB disposal plan, respirators, protective equipment, and a detailed description of the method of containment of the operation to ensure that PCB contamination is not spread or carried outside of the control area. Include provisions to ensure that airborne PCB concentrations are not exceeding OSHA's PEL outside the PCB Control Area. Include air sampling, training and strategy, sampling methodology, frequency, duration of sampling, and qualifications of air monitoring personnel in the air sampling portion of the plan. Obtain acceptance of the plan prior to commencement of PCB removal work.
- C. **PCB Disposal Plan:** Submit a PCB disposal plan to Engineer at least two weeks prior to start of work and obtain acceptance of Plan prior to commencement. Comply with applicable requirements of Federal, State, and local PCB waste regulations and address:
 - 1. Identification of PCB wastes associated with the work.
 - 2. Estimated quantities of waste to be generated and disposed.
 - 3. Names and qualifications of each contractor that will be transporting, storing, treating, and disposing of the waste. Include the facility location and a 24-hour point of contact. Furnish two copies of Ohio EPA and local PCB waster permit applications and permits and EPA identification numbers.

4. Names and qualifications (experience and training) of personnel who will be working on-site with PCB waste.
 5. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
 6. Spill prevention, containment, and cleanup contingency measures to be implemented.
 7. Work plan and schedule for PCB waste containment, removal, and disposal. Clean up and containerize waste daily.
- D. **Qualifications of Contractor's Competent Person:** Submit the name, address, and telephone number of the Contractor's Competent Person selected to perform the duties of this Section. Submit proper documentation that the competent person is properly trained.
- E. Notifications, if required.
- F. Transporter Certification of notification to EPA of their PCB waste activities and EPA ID numbers
- G. Certification of Decontamination for PCB Spill
- H. Post Cleanup Sampling Data
- I. Certificate of Disposal

1.04 SEQUENCING

- A. De-energize electrical equipment to allow Engineer opportunity to sample associated liquids for PCBs.
- B. If samples are found to contain PCBs, removal and disposal of PCB liquids and/or PCB contaminated PCB Articles will be paid for under terms of Allowance A-2. All other work related to removal of this Equipment shall be included in Bid for "Known Work."

PART 2 - PRODUCTS

2.01 GENERAL SUPPLIES

- A. **PCB Spill Kit:** Assemble a spill kit which includes the following items:
1. Disposable gloves (polyethylene) – 6 pairs;
 2. Gloves with a high degree of impermeability to PCBs – 6 pairs;
 3. Disposal coveralls with permeation resistance to PCBs – 6 count;
 4. Chemical safety goggles – 2 count;
 5. Disposable foot covers (polyethylene) – 6 pairs;
 6. PCB Caution Sign reading "PCB Spill – Authorized Personnel Only" – 2 count;
 7. Banner guard or equivalent banner material – 100 feet;

8. Absorbent material – 5 bags;
 9. Blue polyethylene waste bags – 5 count;
 10. Cloth backed tape – 1 roll;
 11. Brattice cloth, 6' x 6' – 1 piece;
 12. Rags – 20 count;
 13. Herculite, 4' x 4' and 8' x 8' – 2 count and 1 count, respectively; and
 14. Waste containers - 55 gallon drum (may be used as container for kit) – 1 count.
- B. **Solvent:** Solvent used to clean/flush PCB Article (e.g., Transformer), after PCB containing liquid has been drained, shall be kerosene, xylene, toluene, or other solvents in which PCBs are readily soluble.

PART 3 - EXECUTION

3.01 SEQUENCE OF EXECUTION

- A. Establish PCB Control Area (per Paragraph 3.02.A).
- B. Provide PCB Caution Signs (per Paragraph 3.02.B).
- C. Provide Decontamination Room when specified (per Paragraph 3.02.C).
- D. Provide and obtain advance approval of PCB storage sites (per Paragraph 3.04.D.4).
- E. Maintaining spill kit (per Paragraph 2.01.A).
- F. Remove PCBs (per Article 3.03).
- G. Dispose of PCBs (per Article 3.04).

3.02 WORK AREA PREPARATION

- A. **PCB Control Area:** Isolate PCB control area by physical boundaries to prevent unauthorized entry of personnel. Food, drink, and smoking materials are not permitted in areas where PCBs are handled or PCB Items are stored.
- B. **PCB Caution Sign (29 CFR 1910.145):** Provide signs at entries to PCB Control Areas. Locate signs at such a distance that personnel may read the sign and take the necessary precautions before entering the PCB Control Area.
- C. If work involves clean-up of large PCB spills or if airborne contamination exceeds OSHA's PELs, provide **Decontamination Room** as follows:
 1. Provide material and labor for construction of a decontamination room, a clean room, and shower facilities. Provide rooms with doors and attach to the exit ways of PCB work areas. Provide rooms of sufficient size to accommodate the Contractor's operations. Provide shower facilities between the clean room and decontamination room. Provide separate clothing lockers or containers in each room to prevent contamination of street and work clothes.

2. Remove PCB-contaminated PPE in the decontamination room before proceeding to showers. Workers must shower before lunch and at the end of each work day. Hot water, towels, soap, and hygienic conditions are the responsibility of the Contractor.

3.03 REMOVAL OF PCBs

A. **PCB Transformers & Elevator Hydraulic Equipment:**

1. **Draining of Liquid.** Perform work in accordance with 49 CFR 171 through 179, Subchapter C and as specified herein. Drain the transformer, switches, and regulators of free flowing liquid prior to transportation. After PCB liquid is drained twice, fill PCB Article with solvent and allow to stand for at least 18 consecutive hours before draining solvent. Place the drained liquid and solvents in DOT drums. The drums must not contain more than 50 gallons of oil. If the equipment cannot be drained, then place it in DOT drums. DOT drum specifications must meet UN 1A1/Y1.6 (steel drum) or UN 1H1/Y1 (plastic drum).
2. **Markings.** Provide drums and drained PCB-contaminated electrical equipment with caution label markings as follows:
 - a. Transformers, less than 499 ppm. Add absorbent material to absorb residue oil remaining after draining. Write the date drained on the transformer.
 - b. Transformers, greater than 500 ppm. Stencil date drained on the transformer.
 - c. Drums. Stencil on DOT-approved 55 gallon drums containing PCB liquid the following:
 - 1) ppm;
 - 2) Date drum filled;
 - 3) Serial number of transformer from which liquid was removed; and
 - 4) National Stock Number: "9999-00-Oil" for <50 ppm; "9999-00-CONPCB" for 50-499 ppm; "9999-00-PCBOIL" for >500 ppm. Do not mix different ppms in the same drum. Drums have a two inch ullage space from the top of the drum.
3. **Laboratory Analyses.** Provide all transformers with laboratory analysis using a gas chromatograph test (EPA Method 608, 8082 or ASTM Standard D-4059); attach a copy of the lab analysis to the transformer itself. The only two exceptions to this requirement are:
 - a. The transformer is hermetically sealed (solder sealed or fusion sealed with no access port or openings); and
 - b. The name plate states that the transformer contains Pyranol, Interteen, etc.

B. **PCB Removal:** Select PCB removal procedure to minimize contamination of work areas with PCB or other PCB-contaminated debris/waste. Handle PCBs such that no skin contact occurs. PCM removal process should be described in the work plan.

1. **Confined Spaces.** As feasible, do not carry out PCB handling operations in confined spaces.

2. Control Area. Establish a PCB Control Area around the PCB item as specified in Paragraph 3.02.B. Only personnel trained per Paragraph 1.02.A shall be allowed into the area.
3. Exhaust Ventilation. If used, discharge exhaust ventilation for PCB operations outside and away from personnel/walk-ways.
4. Temperatures. As feasible, handle PCBs at ambient temperatures and not at elevated temperatures.
5. Solvent cleaning. Clean contaminated tools, containers, etc., after use by rinsing three times with an appropriate solvent or by wiping down three times with a solvent wetted rag. Suggested solvents are Stoddard Solvent or Hexane.
6. Drip pans. Drip pans are required under portable PCB transformers and rectifiers in use or stored for use. Provide the pans with a contaminant volume of at least one and one-half times the internal volume of the PCB Item.
7. Evacuation Procedures. Provide written procedures for evacuation of injured workers. Do not delay aid for a seriously injured worker for reasons of decontamination.

C. PCB Spill Cleanup Requirements:

1. PCB Spills. Immediately report to the University and Engineer any PCB spills on the ground or in the water, PCB spills in drip pans, or PCB leaks.
2. PCB Spill Control Area. Close off area around the edges of a PCB leak or spill and post a "PCB Spill Authorized Personnel Only" caution sign. Immediately transfer leaking items to a drip pan or other container.
3. PCB Spill Cleanup (40 CFR 761, Subpart G): Initiate cleanup of spills as soon as possible, but no later than 48 hours of discovery. To clean up spills, personnel shall wear PPE prescribed in Paragraph 1.02.D. If misting, elevated temperatures, or open flames are present, or if spill is in a confined space, notify the University or Engineer. Mop up the liquid with rags or other conventional absorbent. Properly contain and dispose spent adsorbent as solid PCB waste.
4. Records and Certification. Document the cleanup with records of decontamination in accordance with 40 CFR 761, Section 125, Requirements for PCB Spill Cleanup. Provide certification of documentation.
5. Sampling Requirements. Perform post cleanup sampling as required by 40 CFR 761, Section 130, Sampling Requirements. Do not remove boundaries of the PCB Control Area until site is determined satisfactory clean by Engineer.

3.04 DISPOSAL OF PCBs

- A. Comply with disposal requirements and procedures outlines in 40 CFR 761. Do not ship PCB waste unless it is accompanied by a manifest signed by the University. Ensure that the manifest accompanies the PCB waste at all times. Submit transporter certification of notification to EPA of their PCB waste activities.
- B. 40 CFR 761, Subpart C. Affix labels to PCB waste containers and other PCB-contaminated items. Provide label with sufficient print size to be clearly legible, with bold print on a contrasting background, displaying the following: CAUTION: Contains PCBs (Polychlorinated Biphenyls).

- C. Furnish labor, materials, services, and equipment necessary for the complete removal of PCBs located at the site as indicated or specified in accordance with local, state, or federal regulations. Package and mark PCB as required by EPA and DOT regulations and dispose off site in accordance with EPA, DOT, and local regulations at a permitted site.
- D. Storage for Disposal:
 - 1. Storage Containers for PCBs (49 CFR 178): Store liquid PCBs in DOT Specification 17E containers. Store nonliquid PCB mixtures, articles, or equipment in DOT specification 5, 5B, or 17C containers with removable heads.
 - 2. Label Waste Containers with the following:
 - a. "Solid (or Liquid) Waste Polychlorinated Biphenyls";
 - b. PCB waste label; and
 - c. Date item was placed in storage and name of the cognizant activity/building.
 - 3. PCB Articles and PCB-Contaminated Items: Label per Paragraph 3.04.D.
 - 4. Approval of PCB Storage Site. Obtain in advance University and Engineer approval using the following criteria without exception.
 - a. Adequate roof and walls to prevent rainwater from reaching the stored PCBs.
 - b. An adequate floor which has continuous curbing with a minimum 6-inch high curb. Such floor and curbing must provide a containment volume equal to at least two times the internal volume of the largest PCB Article or PCB Container stored therein or 25 percent of the total internal volume of all PCB Equipment or Containers stored therein, whichever is greater.
 - c. No drain valves, floor drains, expansion joints, sewer lines, or other openings that would permit liquids to flow from the curbed area.
 - d. Floors and curbing constructed of continuous smooth and impervious materials such as Portland cement, concrete or steel to prevent or minimum penetrations of PCBs.
 - e. Not located at a site which is below the 100 year floor water elevation.
 - f. Post each stored site with the PCB Caution Sign, paragraph xxx.
- E. Cleanup. Maintain surfaces of the PCB control area free of accumulation of PCBs. Restrict the spread of dust and debris. Do not remove the PCB Control Area and warning signs prior to the Engineer's approval. Reclean areas showing residual PCBs.
- F. Certificate of Disposal (40 CFR 761): Submit (within 30 days) the disposal manifest. Include in the certificate for the PCBs and PCB Items disposed the following:
 - 1. Identity of the disposal facility (name, address, and EPA identification number);
 - 2. Identity of the PCB waste affected by the Certificate of Disposal including reference to the manifest number for the shipment;
 - 3. Statement certifying that disposal of the identified PCB waste, including the date of disposal, and identifying the disposal process used; and

4. Certification as defined in 40 CFR 761, Section 3.

END OF SECTION

SECTION 03 01 30

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Provision of cast-in-place concrete, including formwork, reinforcement, concrete materials, mix design, placement procedures, and finishes. Work includes:

1. Sidewalks;
2. Formwork, steel reinforcement, and accessories;
3. Bollards;
4. Foundations;
5. Fence post bases; and
6. Quality control testing and inspection.

- B. **Related Sections:**

1. Section 01 45 23: Testing Laboratory and Inspection Services
2. Section 02 21 14: Site Work
3. Section 07 92 00: Joint Sealants
4. Section 31 00 11: Earthwork and Site Restoration
5. Division 26: Electrical

- C. **Definitions:**

Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, and other pozzolans, ground granulated blast-furnace slag, and silica fume.

1.02 SUBMITTALS

- A. **Product Data:** For each type of manufactured material and product indicated.
- B. **Design Mixes:** For each concrete mix, include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments. Indicate amounts of mix water to be withheld for later addition at Site.
- C. **Steel Reinforcement Shop Drawings:** Details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- D. **Material Test Reports:** From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing

of current materials.

- E. **Material Certificates:** Signed by manufacturers certifying that each of the following items complies with requirements:

1. Cementitious materials and aggregates;
2. Form materials and form-release agents;
3. Steel reinforcement and reinforcement accessories;
4. Admixtures;
5. Waterstops;
6. Curing materials;
7. Bonding agents;
8. Adhesives;
9. Epoxy joint filler;
10. Joint-filler strips;
11. Repair materials; and
12. Epoxy adhesives.

- F. Concrete delivery tickets.

1.03 QUALITY ASSURANCE

- A. Comply with Section 02 21 14 requirements.
- B. **Installer Qualifications:** An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Work and whose work has resulted in construction with a record of successful in-service performance.
- C. **Manufacturer Qualifications:** A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C94 requirements for production facilities and equipment. Manufacturer shall be certified according to National Ready Mixed Concrete Association's Certification of Ready Mixed Concrete Production Facilities.
- D. **Testing Agency Qualifications:** An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C1077 and ASTM E329 to conduct the testing indicated, as documented according to ASTM E548. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- E. **Source Limitations:** Obtain each type or class of cementitious material of the same brand from same manufacturer's plant, each aggregate from one source, and each admixture from same manufacturer.
- F. **ACI Publications:** Comply with the following, unless more stringent provisions are indicated:
1. ACI 301, "Specification for Structural Concrete."
 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle steel reinforcement to prevent bending and damage.

1.05 PROJECT CONDITIONS

- A. **Work notification:** Notify Engineer or Owner at least 24 hours before installation of concrete.
- B. Establish and maintain required lines and grade elevations.
- C. Do not install concrete work over wet, saturated, muddy, or frozen subgrade.
- D. Unless coordinated otherwise with Engineer, do not install concrete when air temperature is projected to be below 33 degrees F. within 24 hours. Use of calcium chloride, salt, or any other admixture to prevent concrete from freezing is prohibited.
- E. Protect adjacent work. Provide temporary barriers and warning lights as required for protection of project work and public safety.

1.06 FIELD QUALITY CONTROL BY CONTRACTOR

- A. **Testing Agency:** Engage a qualified independent testing and inspecting agency (per Section 01 45 23) to sample materials, perform tests, and submit test reports during concrete placement. Sampling and testing for quality control may include those specified in this Article.
- B. **Testing Services:** Testing of composite samples of fresh concrete obtained according to ASTM C172 shall be performed according to the following requirements:
 - 1. **Testing Frequency:** Obtain one composite sample for each day's pour of each concrete mix exceeding five cubic yards, but less than 25 cubic yards, plus one set for each additional 50 cubic yards or fraction thereof. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mix, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 2. **Slump:** ASTM C143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
 - 3. **Air Content:** ASTM C231, pressure method, for normal-weight concrete; ASTM C173, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
 - 4. **Concrete Temperature:** ASTM C1064; one test hourly when air temperature is 40 degrees F. and below and when 80 degrees F. and above, and one test for each composite sample.
 - 5. **Compression Test Specimens:** ASTM C31; cast and laboratory cure one set of four standard cylinder specimens for each composite sample. Cast and field cure one set of four standard cylinder specimens for each composite sample.
 - 6. **Compressive-Strength Tests:** ASTM C39; test one laboratory-cured specimens at seven days and two at 28 days. Hold one cylinder for testing at 56 days if required.
 - a. Test two field-cured specimens at seven days and two at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated.

- C. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
- D. Strength of each concrete mix will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- E. Test results shall be reported in writing to Owner and Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- F. **Nondestructive Testing:** Impact hammer, sonoscope, or other nondestructive device may be permitted by Owner or Engineer but shall not be used as sole basis for approval or rejection of concrete.
- G. **Additional Tests:** Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Owner or Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42 or by other methods as directed by Owner or Engineer.

1.07 FIELD QUALITY CONTROL BY OWNER

- A. **Owner's Testing Agency:** Engineer and Owner may engage a qualified testing agency to perform additional field quality-control testing (in addition to that being performed by Contractor under Section 01 45 23).
- B. If Owner elects to have additional field quality control testing performed, allow Owner's testing agency to sample materials and perform tests during concrete placement at frequency determined appropriate by Engineer. Tests may include the following for each day's pour: slump, air content in concrete, temperature, compression, etc.
- C. If Owner's testing agency reports that any test results does not meet appropriate ASTM Standard or specified requirement, submit and implant corrective action plan to Engineer.

PART 2 – PRODUCTS

2.01 FORM-FACING MATERIALS

- A. **Smooth-Formed Finished Concrete:** Form-facing panels (plywood, metal, or otherwise approved material) that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable size to minimize number of joints.
- B. **Rough-Formed Finished Concrete:** Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. **Forms for Cylindrical Slab Openings and Guardrail Post Supports:** Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- D. **Chamfer Strips:** Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

- E. **Form-Release Agent:** Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- F. **Form Ties:** Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal. Furnish ties that, when removed, will leave holes not larger than one inch in diameter in concrete surface.

2.02 STEEL REINFORCEMENT

- A. **Reinforcing Bars:** ASTM A615, Grade 60, deformed.
- B. **Plain-Steel Welded Wire Fabric:** ASTM A185, fabricated from as-drawn steel wire into flat sheets.

2.03 REINFORCEMENT ACCESSORIES

- A. **Bar Supports:** Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and for concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports.

2.04 CONCRETE MATERIALS

- A. **Portland Cement:** ASTM C150, Type I.
 - 1. Fly Ash: ASTM C618, Class C or F.
 - 2. Ground Granulated Blast-Furnace Slag: ASTM C989, Grade 100 or 120.
- B. **Normal-Weight Aggregate:** ASTM C33, uniformly graded, and as follows:
 - 1. Class: Severe weathering region, but not less than 3S.
 - 2. Nominal Maximum Aggregate Size: 1 inch (25 mm).
- C. **Water:** Potable and complying with ASTM C94.

2.05 ADMIXTURES

- A. **General:** Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride.
- B. **Air-Entraining Admixture:** ASTM C260.
- C. **Water-Reducing Admixture:** ASTM C494, Type A.
- D. **High-Range, Water-Reducing Admixture:** ASTM C494, Type F.
- E. **Water-Reducing and Accelerating Admixture:** ASTM C494, Type E.
- F. **Water-Reducing and Retarding Admixture:** ASTM C494, Type D.

2.06 CURING MATERIALS

- A. **Absorptive Cover:** AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.
- B. **Water:** Potable.
- C. **Clear, Waterborne, Membrane-Forming Curing Compound:** ASTM C309, Type 1, Class B.
- D. **Products:** Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Clear, Waterborne, Membrane-Forming Curing Compound:
 - a. AH Clear Cure WB; Anti-Hydro International, Inc.
 - b. Klear Kote WB II Regular; Burke Chemicals.
 - c. Safe-Cure & Seal 20; ChemMasters.
 - d. High Seal; Conspec Marketing & Manufacturing Co., Inc.
 - e. Safe Cure and Seal; Dayton Superior Corporation.
 - f. Aqua Cure VOX; Euclid Chemical Co.
 - g. Cure & Seal 309 Emulsion; Kaufman Products Inc.
 - h. Glazecote Sealer-20; Lambert Corporation.
 - i. Dress & Seal WB; L&M Construction Chemicals, Inc.
 - j. Vocomp-20; W. R. Meadows, Inc.
 - k. Metcure; Metalcrete Industries.
 - l. Cure & Seal 150E; Nox-Crete Products Group, Kinsman Corporation.
 - m. Rich Seal 14 percent E; Richmond Screw Anchor Co.
 - n. Kure-N-Seal WB; Sonneborn, Div. of ChemRex, Inc.
 - o. Florseal W.B.; Sternson Group.
 - p. Cure & Seal 14 percent E; Symons Corporation.
 - q. Seal Cure WB 150; Tamms Industries Co., Div. of LaPorte Construction Chemicals of North America, Inc.
 - r. Hydro Seal; Unitex.
 - s. Starseal 309; Vexcon Chemicals, Inc.

2.07 RELATED MATERIALS

- A. **Joint-Filler Strips:** ASTM D1751, asphalt-saturated cellulosic fiber.
- B. **Bonding Agent:** ASTM C1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.08 REPAIR MATERIALS

- A. **Repair Topping:** Traffic-bearing, cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch (6 mm).
1. Cement Binder: ASTM C150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C219.
 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3 to 6 mm) or coarse sand as recommended by topping manufacturer.
 4. Compressive Strength: Not less than 5700 psi (39 MPa) at 28 days when tested according to ASTM C109/C109M.

2.09 CONCRETE MIXES

- A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:
1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301; and
 2. Proportion lightweight structural concrete according to ACI 211.2 and ACI 301.

- B. Concrete Requirements and Location in Job:

	<u>Class Location</u>	<u>Special F'c</u>	<u>Requirements</u>
I.	Slabs, Footings, Walls, And All Concrete Not Otherwise Noted	4000 Psi	5% $\pm$ 1% Air Content
II.	Earth Fill	1500 Psi	No Tests

Submit concrete mixes for approval in accordance with ACI 301 before placing any concrete.

- C. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the laboratory trial mix basis.
- D. Maximum Water-Cementitious Materials Ratio 0.50.
- E. **Air Content:** Where indicated add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows within a tolerance of plus or minus 1.0 percent.
- F. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- G. **Admixtures:** Use admixtures according to manufacturer's written instructions.
1. Use water-reducing admixture in all concrete except lean concrete.
 2. Use high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.

3. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.10 FABRICATING REINFORCEMENT

Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.11 CONCRETE MIXING

- A. **Ready-Mixed Concrete:** Measure, batch, mix, and deliver concrete according to ASTM C94, and furnish batch ticket information.
- B. **Ready-Mixed Concrete:** Measure, batch, mix, and deliver concrete according to ASTM C94 and ASTM C1116, and furnish batch ticket information.
 1. When air temperature is between 85 and 90 degrees F., reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 degrees F., reduce mixing and delivery time to 60 minutes.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine substrates and installation conditions. Do not start concrete work until unsatisfactory conditions are corrected.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
 1. Class B, 1/4 inch at all exposed concrete.
 2. Class C, 1/2 inch unless noted otherwise.
- C. Construct forms tight enough to prevent loss of concrete mortar.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal. Do not use rust-stained steel form-facing material.
- E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- F. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at

inconspicuous locations.

- G. Chamfer exterior corners and edges of permanently exposed concrete.
- H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.03 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor bolts, accurately located, to elevations required.
 - 2. Install pulling loops for electrical work.

3.04 REMOVING AND REUSING FORMS

- A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 50 degrees F. for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.
- B. Leave formwork, for beam soffits, joists, slabs, and other structural elements, that supports weight of concrete in place until concrete has achieved the following:
 - 1. At least 70 percent of 28-day design compressive strength.
 - 2. Determine compressive strength of in-place concrete by testing representative field- or laboratory-cured test specimens according to ACI 301.
 - 3. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- C. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- D. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Owner or Engineer.

3.05 SHORES AND RESHORES

- A. Comply with ACI 318, ACI 301, and recommendations in ACI 347R for design, installation, and removal of shoring and reshoring.
- B. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and

provide adequate reshoring to support construction without excessive stress or deflection.

3.06 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.07 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Owner or Engineer.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated.
 - 2. Form from preformed galvanized steel, plastic keyway-section forms, or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
 - 3. Install horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs, unless otherwise indicated.
 - 4. Space vertical joints in walls as indicated. Install joints beside piers integral with walls, near corners, and in concealed locations where possible.
 - 5. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

3.08 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Before placing concrete, water may be added at Site, subject to limitations of ACI 301. Do not add water to concrete after adding high-range water-reducing admixtures to mix.
- C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.
- D. Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.
 - 1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and

procedures for consolidating concrete recommended by ACI 309R.

2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least six inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.
 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 4. Slope surfaces uniformly to drains where required.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and complete work as follows: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When air temperature has fallen to or is expected to fall below 40 degrees F., uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F. and not more than 80 degrees F. at point of placement.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
- G. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:
1. Cool ingredients before mixing to maintain concrete temperature below 90 degrees F. at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.09 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ACI 347R limits for class of surface specified.

- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch in height.
 - 1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.
 - 2. Do not apply rubbed finish to smooth-formed finish.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.10 MISCELLANEOUS CONCRETE ITEMS

Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.

3.11 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water; and
 - b. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 - 2. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.12 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions. Defer joint filling until concrete has aged at least six months. Do not fill joints until construction traffic has permanently ceased.

- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid epoxy joint filler full depth in saw-cut joints and at least two inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.13 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas to Project Representative's approval. Remove and replace concrete that cannot be repaired and patched to Owner's or Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part Portland cement to two and one-half parts fine aggregate passing a No. 16 (1.2-mm) sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 - 2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance to Owner's or Engineer's approval.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 - 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, and cracks in excess of 1/16 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 - 2. After concrete has cured at least 14 days, correct high areas by grinding.
 - 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 - 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 - 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor

elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

6. Repair defective areas, except random cracks and single holes one inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes one inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Owner's or Engineer's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Owner's or Engineer's approval.

END OF SECTION

SECTION 04 01 20.63

BRICK MASONRY REPAIR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Repairing brick masonry, including replacing units.
 - 2. Removing abandoned anchors.
 - 3. Painting steel uncovered during the work.
- B. Related Sections include the following:
 - 1. Division 04 Section "Unit Masonry"
 - 2. Division 04 Section "Brick Masonry and Stone Repointing" for repointing requirements related to exterior masonry and stone façade restoration and for water repellant applications on unit masonry and stone.
 - 3. Division 07 Section "Joint Sealants" for sealing control and expansion joints in unit masonry.

1.3 DEFINITIONS

- A. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm.
- B. Rebuilding (Setting) Mortar: Mortar used to set and anchor masonry in a structure, distinct from pointing mortar installed after masonry is set in place.
- C. Saturation Coefficient: Ratio of the weight of water absorbed during immersion in cold water to weight absorbed during immersion in boiling water; used as an indication of resistance of masonry units to freezing and thawing.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project Site.
 - 1. Review methods and procedures related to brick masonry repair including, but not limited to, the following:
 - a. Verify brick masonry repair specialist's personnel, equipment, and facilities needed to make progress and avoid delays.

- b. Materials, material application, sequencing, tolerances, and required clearances.
- c. Quality-control program.
- d. Coordination with building occupants.

1.5 SEQUENCING AND SCHEDULING

- A. Work Sequence: Perform brick masonry repair work in the following sequence, which includes work specified in this and other Sections:
 - 1. Remove plant growth.
 - 2. Inspect masonry for open mortar joints and point them before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
 - 3. Remove paint.
 - 4. Clean masonry.
 - 5. Rake out mortar from joints surrounding masonry to be replaced and from joints adjacent to masonry repairs along joints.
 - 6. Repair masonry, including replacing existing masonry with new masonry materials.
 - 7. Rake out mortar from joints to be repointed.
 - 8. Point mortar and sealant joints.
 - 9. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.
 - 10. Where water repellents are to be used on or near masonry work, delay application of these chemicals until after pointing and cleaning.
- B. As scaffolding is removed, patch anchor holes used to attach scaffolding. Patch holes in masonry units according to "Masonry Unit Patching" Article. Patch holes in mortar joints according to Division 04 Section "Brick Masonry Repointing."

1.6 QUALITY ASSURANCE

- A. Brick Masonry Repair Specialist Qualifications: Engage an experienced brick masonry repair firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience in only installing masonry is insufficient experience for masonry repair work.
 - 1. Field Supervision: Brick masonry repair specialist firm shall maintain experienced full-time supervisors on Project site during times that brick masonry repair work is in progress.
 - 2. Brick Masonry Repair Worker Qualifications: When masonry units are being patched, assign at least one worker per crew who is trained and certified by manufacturer of patching compound to apply its products.
- B. Mockups: Prepare mockups of brick masonry repair to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation.
 - 1. Masonry Repair: Prepare sample areas for each type of masonry repair work performed. If not otherwise indicated, size each mockup not smaller than two adjacent whole units

or approximately 48 inches in least dimension. Construct sample areas in locations in existing walls where directed by Owner or Architect unless otherwise indicated. Demonstrate quality of materials, workmanship, and blending with existing work. Include the following as a minimum:

- a. Replacement: Four brick units replaced.
 - b. Patching: Three small holes at least 1 inch in diameter for each type of brick indicated to be patched.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver masonry units to Project site strapped together in suitable packs or pallets or in heavy-duty cartons and protected against impact and chipping.
- B. Deliver packaged materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
- C. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- D. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.
- E. Store sand where grading and other required characteristics can be maintained and contamination avoided.
- F. Handle masonry units to prevent overstressing, chipping, defacement, and other damage.

1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit brick masonry repair work to be performed according to product manufacturers' written instructions and specified requirements.
- B. Temperature Limits, General: Repair masonry units only when air temperature is between 40 and 90 deg F and is predicted to remain so for at least seven days after completion of the Work unless otherwise indicated.
- C. Cold-Weather Requirements: Comply with the following procedures for masonry repair unless otherwise indicated:
 1. When air temperature is below 40 deg F, heat mortar ingredients, masonry repair materials, and existing masonry walls to produce temperatures between 40 and 120 deg F.

2. When mean daily air temperature is below 40 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for seven days after repair.
- D. Hot-Weather Requirements: Protect masonry repairs when temperature and humidity conditions produce excessive evaporation of water from mortar and repair materials. Provide artificial shade and wind breaks, and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F and above unless otherwise indicated.
- E. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Source Limitations: Obtain each type of material for repairing brick masonry (brick, cement, sand, etc.) from single source with resources to provide materials of consistent quality in appearance and physical properties.

2.2 MASONRY MATERIALS

- A. As indicated in Division 04 Section "Unit Masonry."

2.3 MORTAR MATERIALS

- A. As indicated in Division 04 Section "Unit Masonry."

2.4 MANUFACTURED REPAIR MATERIALS

- A. Brick Patching Compound: Factory-mixed cementitious product that is custom manufactured for patching brick masonry.
 1. Use formulation that is vapor and water permeable (equal to or more than the masonry unit), exhibits low shrinkage, has lower modulus of elasticity than masonry units being repaired, and develops high bond strength to all types of masonry.
 2. Use formulation having working qualities and retardation control to permit forming and sculpturing where necessary.
 3. Formulate patching compound in colors and textures to match each masonry unit being patched. Provide sufficient number of colors to enable matching of the color, texture, and variation of each unit.

2.5 ACCESSORY MATERIALS

- A. Setting Buttons and Shims: Resilient plastic, nonstaining to masonry, sized to suit joint thicknesses and bed depths of masonry units, less the required depth of pointing materials unless removed before pointing.
- B. Masking Tape: Nonstaining, nonabsorbent material; compatible with mortar, joint primers, sealants, and surfaces adjacent to joints; and that easily comes off entirely, including adhesive.

- C. Antirust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer according to MPI #23 (surface-tolerant, anticorrosive metal primer) or SSPC-Paint 20 or SSPC-Paint 29 zinc-rich coating.
 - 1. Surface Preparation: Use coating requiring no better than SSPC-SP 2, "Hand Tool Cleaning surface preparation according to manufacturer's literature or certified statement.
 - 2. VOC Limit: Use coating with a VOC content of 400 g/L or less.
- D. Other Products: Select materials and methods of use based on the following, subject to approval of a mockup:
 - 1. Previous effectiveness in performing the work involved.
 - 2. Minimal possibility of damaging exposed surfaces.
 - 3. Consistency of each application.
 - 4. Uniformity of the resulting overall appearance.
 - 5. Do not use products or tools that could leave residue on surfaces.

2.6 MORTAR MIXES

- A. As indicated in Division 04 Section "Unit Masonry."

PART 3 - EXECUTION

3.1 PROTECTION

- A. Prevent mortar from staining face of surrounding masonry and other surfaces.
 - 1. Cover sills, ledges, and other projecting items to protect them from mortar droppings.
 - 2. Keep wall area wet below rebuilding and repair work to discourage mortar from adhering.
 - 3. Immediately remove mortar splatters in contact with exposed masonry and other surfaces.

3.2 MASONRY REPAIR, GENERAL

- A. Appearance Standard: Repaired surfaces are to have a uniform appearance as viewed from 20 feet away by Owner's Representative and/or Architect.

3.3 ABANDONED ANCHOR REMOVAL

- A. Remove abandoned anchors, brackets, and other extraneous items no longer in use unless indicated to remain and as indicated to be removed.
 - 1. Remove items carefully to avoid spalling or cracking masonry.
 - 2. Notify Architect before proceeding if an item cannot be removed without damaging surrounding masonry. Do the following where directed:
 - a. Cut or grind off item approximately 3/4 inch beneath surface and core drill a recess of same depth in surrounding masonry as close around item as practical.

- b. Immediately paint exposed end of item with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended dry film thickness per coat. Keep paint off sides of recess.
3. Patch hole where each item was removed unless directed to remove and replace masonry unit.

3.4 BRICK REMOVAL AND REPLACEMENT

- A. At locations indicated, remove bricks that are damaged, spalled, or deteriorated. Carefully remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.
 1. When removing single bricks, remove material from center of brick and work toward outside edges.
- B. Support and protect remaining masonry that surrounds removal area.
- C. Maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition. Coordinate with new flashing, reinforcement, and lintels, which are specified in other Sections.
- D. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.
- E. Remove in an undamaged condition as many whole bricks as possible.
 1. Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.
 2. Remove sealants by cutting close to brick with utility knife and cleaning with solvents.
 3. Store brick for reuse. Store off ground, on skids, and protected from weather.
 4. Deliver cleaned brick not required for reuse to Owner unless otherwise indicated.
- F. Clean masonry surrounding removal areas by removing mortar, dust, and loose particles in preparation for brick replacement.
- G. Replace removed damaged brick with other removed brick in good condition, where possible, or with new brick matching existing brick. Do not use broken units unless they can be cut to usable size.
- H. Install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.
 1. Maintain joint width for replacement units to match existing joints.
 2. Use setting buttons or shims to set units accurately spaced with uniform joints.
- I. Lay replacement brick with rebuilding (setting) mortar and with completely filled bed, head, and collar joints. Butter ends with enough mortar to fill head joints and shove into place. Wet both replacement and surrounding bricks that have ASTM C 67 initial rates of absorption

(suction) of more than 30 g/30 sq. in. per min. Use wetting methods that ensure that units are nearly saturated but surface is dry when laid.

1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.
2. Rake out mortar used for laying brick before mortar sets according to Division 04 Section "Brick Masonry and Stone Repointing." Point at same time as repointing of surrounding area.
3. When mortar is hard enough to support units, remove shims and other devices interfering with pointing of joints.

J. Curing: Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.

1. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.

3.5 PAINTING STEEL UNCOVERED DURING THE WORK

A. Notify Architect if steel is exposed during masonry removal. Where Architect determines that steel is structural, or for other reasons cannot be totally removed, prepare and paint it as follows:

1. Surface Preparation: Remove paint, rust, and other contaminants according to SSPC-SP 2, "Hand Tool Cleaning", as applicable to comply with paint manufacturer's recommended preparation.
2. Antirust Coating: Immediately paint exposed steel with two coats of antirust coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).

B. If on inspection and rust removal, the thickness of a steel member is found to be reduced from rust by more than 1/16 inch, notify Owner and Architect before proceeding.

3.6 MASONRY UNIT PATCHING

A. Patch the following masonry units unless another type of repair or replacement is indicated:

1. Units indicated to be patched.
2. Units with holes.
3. Units with chipped edges or corners. Patch chipped edges or corners measuring more than 3/4 inch in least dimension.
4. Units with small areas of deep deterioration. Patch deep deteriorations measuring more than 3/4 inch in least dimension and more than 1/4 inch deep.

B. Remove and replace existing patches where indicated unless otherwise indicated or approved by Owner or Architect.

C. Patching Bricks:

1. Remove loose material from masonry surface. Carefully remove additional material so patch does not have feathered edges but has square or slightly undercut edges on area to be patched and is at least 1/4 inch thick, but not less than recommended in writing by patching compound manufacturer.
2. Mask adjacent mortar joint or rake out for repointing if patch extends to edge of masonry unit.
3. Mix patching compound in individual batches to match each unit being patched. Combine one or more colors of patching compound, as needed, to produce exact match.
4. Rinse surface to be patched and leave damp, but without standing water.
5. Brush-coat surfaces with slurry coat of patching compound according to manufacturer's written instructions.
6. Place patching compound in layers as recommended in writing by patching compound manufacturer, but not less than 1/4 inch or more than 2 inches thick. Roughen surface of each layer to provide a key for next layer.
7. Trowel, scrape, or carve surface of patch to match texture and surrounding surface plane or contour of masonry unit. Shape and finish surface before or after curing, as determined by testing, to best match existing masonry unit.
8. Keep each layer damp for 72 hours or until patching compound has set.
9. Remove and replace patches with hairline cracks or that show separation from brick at edges, and those that do not match adjoining brick in color or texture.

3.7 FINAL CLEANING

- A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water applied by low-pressure spray.
 1. Do not use metal scrapers or brushes.
 2. Do not use acidic or alkaline cleaners.
- B. Clean adjacent nonmasonry surfaces. Use detergent and soft brushes or cloths.
- C. Remove masking materials, leaving no residues that could trap dirt.

3.8 WATER REPELLANT APPLICATION

- A. Refer to Division 04 Section "Brick Masonry and Stone Repointing" for applications of water repellant products on completed repairs, repointing, and cleaned exterior masonry and stone façade restoration areas.

3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner may engage a qualified testing agency to perform tests and inspections. Allow inspectors use of lift devices and scaffolding, as needed, to perform inspections.
- B. Architect's Project Representatives: Upon Owner's request, Architect will assign a Project representative to help carry out Architect's responsibilities at the site, including observing progress and quality of portion of the Work completed. Allow Architect's Project

representative use of lift devices and scaffolding, as needed, to observe progress and quality of portion of the Work completed.

- C. Notify Owner's and Architect's Project representatives in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until Owner's or Architect's Project representatives have had reasonable opportunity to make observations of work areas at lift device or scaffold location.

3.10 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property.
- B. Masonry Waste: Remove masonry waste and legally dispose of off Owner's property.

END OF SECTION

SECTION 04 01 20.65

BRICK MASONRY REPOINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Repointing joints with mortar.
 - 2. Repointing joints with sealant.
 - 3. Application of water repellants on brick masonry façade restoration areas.
- B. Related Sections include the following:
 - 1. Division 04 Section "Unit Masonry"
 - 2. Division 04 Section "Brick Masonry Repair" for face brick repair requirements related to exterior masonry façade restoration.
 - 3. Division 07 Section "Joint Sealants" for sealing control and expansion joints in unit masonry

1.3 DEFINITIONS

- A. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project Site.
 - 1. Review methods and procedures related to repointing brick masonry including, but not limited to, the following:
 - a. Verify brick masonry repointing specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Materials, material application, sequencing, tolerances, and required clearances.
 - c. Quality-control program.
 - d. Coordination with building occupants.

1.5 SEQUENCING AND SCHEDULING

- A. Work Sequence: Perform brick masonry repointing work in the following sequence, which includes work specified in this and other Sections:
 - 1. Remove plant growth.

2. Inspect masonry for open mortar joints and permanently or temporarily point them before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
 3. Remove paint.
 4. Clean masonry.
 5. Rake out mortar from joints surrounding masonry to be replaced and from joints adjacent to masonry repairs along joints.
 6. Repair masonry, including replacing existing masonry with new masonry materials.
 7. Rake out mortar from joints to be repointed.
 8. Point mortar and sealant joints.
 9. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.
 10. Where water repellents are to be used on or near masonry work, delay application of these chemicals until after pointing and cleaning.
- B. As scaffolding is removed, patch anchor holes used to attach scaffolding. Patch holes in masonry units according to Division 04 Section "Brick Masonry Repair." Patch holes in mortar joints according to "Repointing Masonry" Article.

1.6 QUALITY ASSURANCE

- A. Brick Masonry Repointing Specialist Qualifications: Engage an experienced brick masonry repointing firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance. Experience in only installing masonry is insufficient experience for masonry repointing work.
1. Field Supervision: Brick masonry repointing specialist firms shall maintain experienced full-time supervisors on Project site during times that brick masonry repointing work is in progress.
- B. Mockups: Prepare mockups of brick masonry repointing to demonstrate aesthetic effects and to set quality standards for materials and execution.
1. Repointing: Rake out joints in two separate areas, each approximately 36 inches high by 48 inches wide for each type of repointing required, and repoint one of the areas.
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver packaged materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

- C. Store hydrated lime in manufacturer's original and unopened containers. Discard lime if containers have been damaged or have been opened for more than two days.
- D. Store sand where grading and other required characteristics can be maintained and contamination avoided.

1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit repointing work to be performed according to product manufacturers' written instructions and specified requirements.
- B. Temperature Limits, General: Repoint mortar joints only when air temperature is between 40 and 90 deg F and is predicted to remain so for at least seven days after completion of the Work unless otherwise indicated.
- C. Cold-Weather Requirements: Comply with the following procedures for mortar-joint pointing unless otherwise indicated:
 - 1. When air temperature is below 40 deg F, heat mortar ingredients and existing masonry walls to produce temperatures between 40 and 120 deg F.
 - 2. When mean daily air temperature is below 40 deg F, provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for seven days after pointing.
- D. Hot-Weather Requirements: Protect mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar materials. Provide artificial shade and wind breaks, and use cooled materials as required to minimize evaporation. Do not apply mortar to substrates with temperatures of 90 deg F and above unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Source Limitations: Obtain each type of material for repointing brick masonry (cement, sand, etc.) from single source with resources to provide materials of consistent quality in appearance and physical properties.

2.2 MORTAR MATERIALS

- A. As indicated in Division 04 Section "Unit Masonry."

2.3 ACCESSORY MATERIALS

- A. Sealant Materials:
 - 1. Sealant manufacturer's standard elastomeric sealant(s) of base polymer and characteristics indicated below and according to applicable requirements in Division 07 Section "Joint Sealants."
 - a. Type: Single-component, nonsag urethane sealant.

2. Colors: Provide colors of exposed sealants to match colors of mortar adjoining installed sealant unless otherwise indicated.
3. Ground-Mortar Aggregate: Custom crushed and ground pointing mortar sand or existing mortar retrieved from joints. Grind to a particle size that matches the adjacent mortar aggregate and color. Remove all fines passing the No. 100 sieve.

B. Joint-Sealant Backing:

1. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) or Type B (bicellular material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
2. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended in writing by sealant manufacturer for preventing sealant from adhering to rigid, inflexible, joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

C. Masking Tape: Nonstaining, nonabsorbent material; compatible with mortar, joint primers, sealants, and surfaces adjacent to joints; and that easily comes off entirely, including adhesive.

D. Other Products: Select materials and methods of use based on the following, subject to approval of a mockup:

1. Previous effectiveness in performing the work involved.
2. Minimal possibility of damaging exposed surfaces.
3. Consistency of each application.
4. Uniformity of the resulting overall appearance.
5. Do not use products or tools that could leave residue on surfaces.

2.4 MORTAR MIXES

A. As indicated in Division 04 Section "Unit Masonry."

2.5 WATER REPELLANT PRODUCTS

A. All water repellant products indicated are intended for exterior masonry wall surfaces repaired, replaced, and repointed, as indicated on Drawing A4-1 for exterior façade restoration.

B. At face brick and all similar clay masonry: Protectosil Aqua-trete EM.

C. Subject to compliance with requirements, products by any of the following manufacturers is acceptable.

1. Clemons Concrete Coatings.
2. Protectosil.
3. Prosoco.
4. Saver Systems.

PART 3 - EXECUTION

3.1 PROTECTION

- A. Prevent mortar from staining face of surrounding masonry and other surfaces.
 - 1. Cover sills, ledges, and other projecting items to protect them from mortar droppings.
 - 2. Keep wall area wet below pointing work to discourage mortar from adhering.
 - 3. Immediately remove mortar splatters in contact with exposed masonry and other surfaces.

3.2 MASONRY REPOINTING, GENERAL

- A. Appearance Standard: Repaired surfaces are to have a uniform appearance as viewed from 20 feet away by Owner's Representative and/or Architect.

3.3 REPOINTING MASONRY

- A. Rake out and repoint joints to the following extent:
 - 1. All joints in areas indicated.
 - 2. Joints indicated as sealant-filled joints.
 - 3. Joints at locations of the following defects:
 - a. Holes and missing mortar.
 - b. Cracks that can be penetrated 1/4 inch or more by a knife blade 0.027 inch thick.
 - c. Cracks 1/16 inch or more in width and of any depth.
 - d. Hollow-sounding joints when tapped by metal object.
 - e. Eroded surfaces 1/4 inch or more deep.
 - f. Deterioration to point that mortar can be easily removed by hand, without tools.
 - g. Joints filled with substances other than mortar.
- B. Do not rake out and repoint joints where not required.
- C. Rake out joints as follows, according to procedures demonstrated in approved mockup:
 - 1. Remove mortar from joints to depth of joint width plus 1/8 inch, but not less than 1/2 inch or not less than that required to expose sound, unweathered mortar. Do not remove unsound mortar more than 2 inches deep; consult Architect for direction.
 - 2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
 - 3. Do not spall edges of masonry units or widen joints. Replace or patch damaged masonry units as directed by Architect.
- D. Notify Owner and Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, loose masonry units, rotted wood, rusted metal, and other deteriorated items.
- E. Pointing with Mortar:

1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
 2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch until a uniform depth is formed. Fully compact each layer, and allow it to become thumbprint hard before applying next layer.
 3. After deep areas have been filled to same depth as remaining joints, point joints by placing mortar in layers not greater than 3/8 inch. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry units have worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to featheredge the mortar.
 4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.
 5. Cure mortar by maintaining in thoroughly damp condition for at least 72 consecutive hours, including weekends and holidays.
 6. Hairline cracking within mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.
- F. Pointing with Sealant: Use only at brick masonry control and expansion joints exhibiting cracking; comply with Division 07 Section "Joint Sealants." and as follows:
1. After raking out, keep joints dry and free of mortar and debris.
 2. Clean and prepare joint surfaces. Prime joint surfaces unless sealant manufacturer recommends against priming. Do not allow primer to spill or migrate onto adjoining surfaces.
 3. Fill sealant joints with specified joint sealant.
 - a. Install cylindrical sealant backing beneath the sealant. Where space is insufficient for cylindrical sealant backing, install bond-breaker tape.
 - b. Install sealant using only proven installation techniques that ensure that sealant is deposited in a uniform, continuous ribbon, without gaps or air pockets, and with complete wetting of the joint bond surfaces equally on both sides. Fill joint flush with surrounding masonry and matching the contour of adjoining mortar joints.
 - c. Install sealant as recommended in writing by sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead:
 - 1) Fill joints to a depth equal to joint width, but not more than 1/2 inch deep or less than 1/4 inch deep.
 - d. Tool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant from surfaces adjacent to joint.
 - e. Sanded Joints: Immediately after first tooling, apply ground-mortar aggregate to sealant, gently pushing aggregate into the surface of sealant. Lightly retool sealant to form smooth, uniform beads, slightly concave. Remove excess sealant and aggregate from surfaces adjacent to joint.
 - f. Do not allow sealant to overflow or spill onto adjoining surfaces, or to migrate into the voids of adjoining surfaces, particularly rough textures. Remove excess and spillage of sealant promptly as the work progresses. Clean adjoining surfaces

by the means necessary to eliminate evidence of spillage, without damage to adjoining surfaces or finishes, as demonstrated in an approved mockup.

- G. Where repointing work precedes cleaning of existing masonry, allow mortar to harden at least 30 days before beginning cleaning work.

3.4 FINAL CLEANING

- A. After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water applied by low-pressure spray.
 - 1. Do not use metal scrapers or brushes.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Owner or Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Protect adjacent non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 - 5. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
 - 6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surface.
- B. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
- C. Clean adjacent non-masonry surfaces. Use detergent and soft brushes or cloths.
- D. Remove masking materials, leaving no residues that could trap dirt.

3.5 WATER REPELLANT APPLICATION

- A. Verify all areas of exterior masonry façade restoration have been repaired, replaced, and repointed, cleaned, and allowed to thoroughly dry prior to the application of any water repellants.
- B. Apply all specified water repellent products for brick masonry in strict accordance with manufacturer's written instructions.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Owner may engage a qualified testing agency to perform tests and inspections. Allow inspectors use of lift devices and scaffolding, as needed, to perform inspections.
- B. Architect's Project Representatives: Upon Owner's request, Architect will assign a Project representative to help carry out Architect's responsibilities at the site, including observing progress and quality of portion of the Work completed. Allow Architect's Project

representative use of lift devices and scaffolding, as needed, to observe progress and quality of portion of the Work completed.

- C. Notify Owner's and Architect's Project representatives in advance of times when lift devices and scaffolding will be relocated. Do not relocate lift devices and scaffolding until Owner's or Architect's Project representatives have had reasonable opportunity to make observations of work areas at lift device or scaffold location.

END OF SECTION

SECTION 04 20 00

UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes Unit Masonry Assemblies.
- B. Related Sections:
 - 1. Section 072100 "Thermal Insulation" for continuous insulation to be installed in cavity wall where matching existing construction.
 - 2. Section 040120.63 "Brick Masonry Repair" for work to repair and replace face on existing masonry walls where indicated.
 - 3. Section 040120.65 "Brick Masonry Repointing" for work to repoint and apply water repellent coatings on existing masonry walls where indicated.

1.3 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For the following:
 - 1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
 - 2. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
- C. Samples for Verification: For each type and color of the following:
 - 1. Facebrick, in the form of straps of five or more bricks.
 - 2. Special brick shapes.

3. Pigmented mortar. Make Samples using same sand and mortar ingredients to be used on Project.
 4. Weep holes/vents.
 5. Accessories embedded in masonry.
- D. Material Certificates: For each type and size of the following certifying that each material is in compliance. Include materials test reports for masonry units:
1. Masonry units.
 - a. Include data on material properties.
 - b. For brick, include size-variation data verifying that actual range of sizes falls within specified tolerances.
 - c. For exposed brick, include test report for efflorescence according to ASTM C 67.
 - d. For surface-coated brick, include test report for durability of surface appearance after 50 cycles of freezing and thawing per ASTM C 67.
 - e. For all masonry units, include data and calculations establishing average net-area compressive strength of units.
 2. Mortar and grout mixes, materials and admixtures.
 3. Anchors, ties and metal accessories.
 4. Masonry Membrane Flashing Compatibility Data: Masonry membrane flashings, fluid-applied membrane air & water resistive barriers over substrates, sealants and other related materials shall be compatible with one another under conditions of service and application, as demonstrated by masonry membrane flashing manufacturer based on testing and field experience.
- E. Mix Designs: For each type of mortar. Include description of type and proportions of ingredients.
1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C109/C109M for compressive strength, ASTM C1506 for water retention, and ASTM C91/C91M for air content.
- F. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.5 QUALITY ASSURANCE

- A. Sample Panels: Build sample panels to verify selections made under sample submittals and to demonstrate aesthetic effects.

1. Build sample panels for each type of exposed unit masonry construction in sizes approximately 32 inches long by 32 inches high.
2. Where masonry is to match existing, erect panels adjacent and parallel to existing surface.
3. Clean exposed faces of panels with masonry cleaner indicated.
4. Protect approved sample panels from the elements with weather-resistant membrane.
5. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.
 - a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless such deviations are specifically approved by Architect in writing.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained, and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.7 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 1. Extend cover a minimum of 24 inches down both sides of walls and hold cover securely in place.

2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 2. Protect sills, ledges, and projections from mortar droppings.
 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
- E. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6 and in Table 1 included below.
1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

TABLE I: COLD WEATHER REQUIREMENTS

Temperature Range	Procedures
40 to 32 °F (4 to 0 °C)	<ol style="list-style-type: none"> 1. Heat mixing water or sand to produce mortar temperatures between 40 and 120 °F (4 and 49 °C). 2. Cover masonry with a weather-resistant membrane for 48 hours after construction.
32 to 25 °F (0 to -4 °C)	<ol style="list-style-type: none"> 1. Heat mixing water and sand to produce mortar temperatures between 40 and 120 °F (4 and 49 °C). 2. Heat grout materials to produce grout temperatures between 40 and 120 °F (4 and 49 °C). 3. Maintain mortar and grout above freezing until used in masonry. 4. Cover masonry with a weather-resistant membrane for 48 hours after construction.
25 to 20 °F (-4 to -7 °C)	<ol style="list-style-type: none"> 1. Heat mixing water and sand to produce mortar temperatures between 40 and 120 °F (4 and 49 °C). 2. Heat grout materials to produce grout temperatures between 40 and 120 °F (4 and 49 °C). 3. Maintain mortar and grout above freezing until used in masonry. 4. Heat masonry units to 40 °F (4 °C) if grouting. 5. Use heat on both sides of walls under construction. 6. Cover masonry with insulating blankets or provide enclosure and heat for 48 hours after construction to prevent freezing. 7. Install wind breaks when wind velocity exceeds 15 mi./h (25 km/h).
20 °F (-7 °C) and Below	<ol style="list-style-type: none"> 1. Heat mixing water and sand to produce mortar temperatures between 40 and 120 °F (4 and 49 °C). 2. Heat grout materials to produce grout temperatures between 40 and 120 °F (4 and 49 °C). 3. Maintain mortar and grout above freezing until used in masonry. 4. Heat masonry units to 40 °F (4 °C). 5. Provide enclosures and use heat on both sides of walls under construction to maintain temperatures above 32 °F (0 °C) within the enclosures. 6. Provide enclosure and heat to maintain temperatures above 32 °F (0 °C) for 48 hours after construction.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 UNIT MASONRY, GENERAL

- A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.
- C. Finish and Appearance:
 - 1. Interior and exterior finished unit masonry appearance shall be required to conform to quality standards set by the approved masonry sample panels.
- D. Fire-Resistance Ratings: Where indicated, provide units that comply with requirements for fire-resistance ratings indicated as determined by testing according to ASTM E 119, by equivalent masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

2.3 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
 - 2. For ends of sills and caps and for similar applications that would otherwise expose unfinished surfaces, provide units without cores or frogs and with exposed surfaces finished.
 - 3. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
 - 4. Provide bullnose units for outside corners unless otherwise indicated.
- B. CMUs: ASTM C 90.
 - 1. Density Classification: Medium weight unless otherwise indicated.
 - 2. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
 - 3. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.
- C. Concrete Building Brick: ASTM C 55.
 - 1. Density Classification: Medium weight.

2.4 BRICK

- A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:
1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
 2. Provide special shapes for applications where stretcher units cannot accommodate special conditions, including those at corners, movement joints, bond beams, sashes, and lintels.
 3. Provide special shapes for applications requiring brick of size, form, color, and texture on exposed surfaces that cannot be produced by sawing.
 4. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
 5. Provide special shapes as indicated on drawings.
- B. Clay Face Brick: Facing brick complying with ASTM C 216.
1. Basis of Design: Subject to compliance with requirements, provide facebrick by Bowerston Shale or comparable products by one of the following:
 - a. Belden Brick
 - b. Glen Gary Brick Company.
 2. Grade: SW.
 3. Type: FBS.
 4. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 3000 psi.
 5. Initial Rate of Absorption: Less than 30 g/30 sq. in. per minute when tested per ASTM C 67.
 6. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated "not effloresced."
 7. Size (Actual Dimensions): 3-5/8 inches wide by 2-1/4 inches high by 7-5/8 inches long.
 8. Application: Use where brick is exposed unless otherwise indicated.
 9. Where shown to "match existing," provide face brick matching color range, texture, and size of existing adjacent brickwork.
 10. Color and Texture: The basis-of-design brick is a blend composed of four (4) bricks.
 - a. 30% Olde Windsor.

- b. 30% Frisco Blend.
- c. 30% Burgundy Blend.
- d. 10% Cocoa Modular.

2.5 MORTAR AND GROUT MATERIALS

A. Mortar Cement: ASTM C1329.

1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Fairborn Cement Company, MIAMI Mortar Cement.
 - b. Holcim US.; Holcim Mortar Cement.
 - c. Lafarge North America; Lafarge Mortar Cement.
 - d. Lehigh Hanson, Heidelberg Cement Group; Lehigh Mortar Cement.
 - e. Preblended mortar mix with sand:
 - 1) SPEC MIX: Mortar Cement & Sand Masonry Mortar (80 lb. bags and 3000 lb. bulk bag mix for use in silo system).

B. Colored Cement Product: Packaged blend made from mortar cement and mortar pigments, all complying with specified requirements, and containing no other ingredients.

1. Colored Mortar Cement:
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Fairborn Cement Company, Colored MIAMI Mortar Cement.
 - 2) Lafarge Holcim US.; Holcim Mortamix Rainbow Custom Color Mortar Cement.
 - 3) Preblended mortar mix with sand:
 - a) SPEC MIX; Colored Mortar Cement & Sand Masonry Mortar (80 lb. bags and 3000 lb. bulk bag mix for use in silo system).
2. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors.
3. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C 979. Use only pigments with a record of satisfactory performance in masonry mortar.

- a. Pigments shall not exceed 5 percent of masonry cement or mortar cement by weight.
 - b. Use only colored cement products.
 - c. Color: to be selected from manufacturer's full range of colors.
- 4. Provide custom blend to match existing.
- C. Aggregate for Mortar: ASTM C 144.
 - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
 - 2. For joints less than 1/4-inch-thick, use aggregate graded with 100 percent passing the No. 16 sieve.
 - 3. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.
- D. Aggregate for Grout: ASTM C 404.
- E. Water: Potable.

2.6 TIES AND ANCHORS

- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.
 - 1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M; with ASTM A 153/A 153M, Class B-2 coating.
 - 2. Stainless-Steel Wire: ASTM A 580/A 580M, Type 304.
 - 3. Galvanized Steel Sheet: ASTM A 653/A 653M, Commercial Steel, G60 (Z180) zinc coating.
 - 4. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A 153/A 153M, Class B coating.
 - 5. Stainless-Steel Sheet: ASTM A 666, Type 304.
 - 6. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
 - 7. Stainless-Steel Bars: ASTM A 276 or ASTM A 666, Type 304.
- B. Adjustable Masonry-Veneer Anchors:

1. General: Provide anchors that allow vertical adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to wood or metal studs, and as follows:
 - a. Structural Performance Characteristics: Capable of withstanding a 100-lbf load in both tension and compression without deforming or developing play in excess of 0.0625 inch.
2. Screw-Attached, Masonry-Veneer Anchors: Units consisting of a wire tie and a metal barrel style screw anchor section. Provide manufacturer's standard screw type appropriate for connecting to substrate.
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Heckman Building Products, Inc.; Pos-I-Tie with Thermal Wing Nut and #668-LE415 Brick Veneer to Concrete/Block Screw for use CMU or Concrete backup.
 - 2) Hohmann & Barnard, Inc.; Thermal Concrete 2-Seal Wing Nut Anchor for use with concrete and CMU backup.
 - 3) Wire-Bond; Sure Tie WS Tapcon Thermal with #4532 SureTie WS Tapcon, #4590 Thermal Grip Washer and #4515 Sure Tie WS Adjustable Double Hook for use with concrete and CMU backup.
 - b. Anchor Section: Corrosion-resistant, eye-screw designed to receive wire tie. Eye-screw has barrel that seats directly against framing and is same thickness as insulation plus sheathing and includes gasketed EPDM washer head that sits tight against wall sheathing.
 - c. Wire Ties: Triangular shaped wire ties fabricated from 0.187-inch-diameter, hot-dip galvanized steel wire.
 - d. Insulation Washer: Manufacturer's plastic wedge shaped for flat insulation washer pressed over the outboard end of slotted anchor and held tightly in place by wire tie.

2.7 EMBEDDED FLASHING MATERIALS

- A. Masonry Metal Flashing: Provide metal flashing complying with Division 07 Section – Sheet Metal Flashing and Trim, and as follows:
 1. Stainless Steel: ASTM A 240/A 240M or ASTM A 666, Type 304, thickness as indicated.
 2. Masonry Metal Flashing (General Use) - Through-Wall Flashing, Counter Flashing and Inside /Outside Corners: Fabricate from .030 inches (22 gauge), type 304 stainless steel.
 - a. Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet. Fabricate to profiles indicated.

- b. Through-Wall Flashing to extend back to face of sheathing and have leg turned up minimum 4 inches.
- c. Provide shop fabricated inside and outside corners and any custom shapes as indicated on drawings.
- d. Fabricate inside and outside corners of through wall flashing and counter flashing as single piece with welded miter seams.
 - 1) At inside corners, extend 6 inches at the outer face of masonry in each direction.
 - 2) At exterior corners, extend 6 inches at the face of the backup structure, Exterior sheathing or CMU, in each direction.
- e. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counterflashing.
- f. Fabricate through-wall flashing with drip edge unless otherwise indicated. Fabricate by extending flashing 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed.

B. Masonry Membrane Flashing

- 1. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a 0.040-inch polyester-reinforced ethylene interpolymer alloy.
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Hohmann & Barnard, Inc.; Flex-Flash.
 - 2) Hyload: Flashing Membrane.
 - 3) Dupont: Thru-wall Flashing.
 - b. Accessories:
 - 1) Primer: Recommended by manufacturer.
 - a) Utilize supplemental spray adhesive recommended by manufacturer when additional adhesion is required.
 - 2) Sealants: Approved by flashing manufacturer and compatible with Fluid-Applied Membrane Barrier manufacturer.

- C. Base-Wall Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.040 inch.
 - 1. Subject to compliance with requirements, provide one of the following:
 - a. Henry Company; Blueskin TWF.
 - b. Carlisle Coatings & Waterproofing; CCW-705-TWF.
 - c. W. R. Meadows, Inc.; Air-Shield Thru-Wall Flashing.
 - d. Tremco Incorporated, an RPM Company; ExoAir 110.
 - e. Grace Construction Products; Perm-A-Barrier.
 - 2. Accessories: Provide materials produced by flashing manufacturer.
 - 3. Coordination with fluid applied air barrier: Utilize material from manufacturer of selected fluid applied air barrier to ensure compatibility.
- D. Sealants for Sheet Metal Flashings: As specified in Section 076200 "Sheet Metal Flashing and Trim."
- E. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.
- F. Termination Bars for Masonry Flashing: Type 304 stainless steel sheet 1/8 inch-thick by 1-1/8 inch by 8-foot-long with 1/4 inch holes spaced at 8 inches on center.
 - 1. Hohmann & Barnard, Inc.; T1– Termination Bar.

2.8 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- D. Weep/Vent Products:
 - 1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene Copolymer, full height and width of head joint and depth 1/8 inch less than depth of outer wythe, in color selected from manufacturer's standard. Products:

- a. Advanced Building Products, Inc.; Mortar Maze weep vent.
 - b. Heckmann Building Products, Inc.; No. 85 Cell Vent.
 - c. Hohmann & Barnard, Inc.; Quadro-Vent.
 - d. Wire-Bond; Cell Vent.
 - e. Sandel; Cell Vent.
- 2. Round Plastic Weep: Medium-density polyethylene, 3/8 inch OD by 4 inches long with brass mesh screen and cotton wick.
 - a. Use only where cellular weep/vent cannot to be used.
 - b. Product: Hohmann & Barnard, Inc. #341, W/S.
- G. Backer Rod: ASTM C-1330, Type C, closed cell polyethylene round rod to close cavity at jamb conditions.

2.9 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Diedrich Technologies, Inc.
 - b. EaCo Chem, Inc.
 - c. ProSoCo, Inc.

2.10 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Use mortar cement mortar only. Masonry cement is not permitted.
 - 3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
 - 1. For exterior masonry above grade and below grade or in contact with earth, use Type S.
 - 2. For reinforced masonry, use Type S.
 - 3. For mortar parge coats, use Type S.
- D. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with table 1.15.1 in TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
 - 2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2500 psi. Utilize coarse grout.
 - 3. Provide grout with a slump of 10 to 11 inches as measured according to ASTM C 143/C 143M.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
 - 2. Verify that foundations are within tolerances specified.
 - 3. Verify that reinforcing dowels are properly placed.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
 - 1. Mix units from several pallets or cubes as they are placed.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.
- G. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.3 TOLERANCES

- A. Dimensions and Locations of Elements:
 - 1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch.
 - 2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.
 - 3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2-inch total.
- B. Lines and Levels:
 - 1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
 - 2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
 - 3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.

4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
5. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

C. Joints:

1. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
2. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
3. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.
4. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Facebrick: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4-inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. Cover work at the end of each shift. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- F. Slope mortar fill towards exterior at base flashing locations indicated to facilitate drainage of water from cavity.

3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow brick and CMUs as follows:
 - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
 - 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
 - 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
 - 4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.
 - 1. Provide flush struck joints at walls to receive waterproofing and fluid applied air barrier.
- E. Dissimilar Materials: Provide continuous bond breaker material (building paper) at horizontal joints between brick and dissimilar materials. Rake mortar joints to a depth of 3/8 inch and provide sealant or repoint.

3.6 CAVITY WALLS

- A. Bond wythes of cavity walls together using one of the following methods:
 - 1. Masonry Joint Reinforcement: Installed in horizontal mortar joints.
 - 2. Masonry Veneer Anchors: Comply with requirements for anchoring masonry veneers.
- B. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Do not attempt to trowel or remove mortar fins protruding into cavity.

- C. Sequence and coordinate work with the installation of the air and water resistive barrier.
- D. Installing Cavity-Wall Insulation (Continuous Insulation per ASHRAE 90.1.): Apply continuous across all structural members without thermal bridges other than fasteners and service openings. Install in a manner consistent with an accepted NFPA 285 assembly. Where required, fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
 - 1. Confirm complete installation of air barrier prior to installation of insulation.
 - 2. Cut slots to fit tight around any penetrations and attach over sheathing and air and water resistive barrier membrane with screw attached masonry anchors.
 - 3. Provide continuous bead of sealant at entire perimeter of insulation board.
 - 4. Fill cracks and open gaps in insulation board with compatible crack sealer.
 - 5. Install masonry-veneer anchor with plastic insulation washer to provide tight fit to hold insulation tight to sheathing.
 - 6. Cavity wall insulation is not intended to be exposed for extended periods of time (i.e.: in excess of 60 days) without adequate protection. Protect exposed insulation per manufacturer's instructions.
 - 7. Cut top of insulation to slope towards exterior at flashing locations indicated.
 - 8. At CMU backup, install insulation so masonry joint reinforcement occurs at insulation seams and utilizes rain barrier clip. Maximum spacing at 16 inches o.c.
- E. Install cavity backer rod and expanding polyurethane foam at jambs of openings through exterior envelope to seal cavity from adjoining components.
 - 1. Close off cavity vertically and horizontally.
 - 2. Areas include but are not limited to:
 - a. Exterior soffits.
 - b. Exterior masonry that extends into interior.

3.7 ANCHORING MASONRY VENEERS

- A. Anchor masonry veneers to wall framing with masonry-veneer anchors to comply with the following requirements:
 - 1. Fasten screw-attached anchors through sheathing to wall framing with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.

2. Size and install anchor screw fastener with appropriate length for slotted wing nut and insulation washer. Install insulation slotted wing nut and washer to have tight friction fit to insulation boards and hold them tightly against the sheathing. If manufacturers insulation washer is a 'flat' type, provide multiple washers as required for a tight installation.
3. Confirm solid anchorage to metal wall framing. If solid anchorage does not occur, remove anchor and seal hole with sealant compatible with the fluid applied membrane air barrier system.
4. Embed tie sections in masonry joints. Provide not less than 2-1/4 inches of air space between back of masonry veneer and face of sheathing/insulation.
5. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
6. Space anchors as indicated, but not more than 16 inches o.c. vertically and 16 inches o.c. horizontally with not less than 1 anchor for each 1.75 sq. ft. of wall area. Install additional anchors within 12 inches of openings and at intervals, not exceeding 16 inches, around perimeter. Do not install anchors through flashing materials.

3.8 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

- A. Anchor masonry to structural steel and concrete where masonry abuts or faces structural steel or concrete to comply with the following:
 1. Provide an open space not less than 1/2-inch-wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
 2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
 3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

3.9 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, where parapets abut vertical walls, other obstructions to downward flow of water in wall, and where indicated. Install vents at shelf angles, ledges, and other obstructions to promote upward flow of air in cavities, and where indicated.
 1. Flashing: Utilize manufacturers recommended primer for proper adhesion.
- B. Install flashing as follows unless otherwise indicated:
 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, adhere flashing to masonry unit or metal flashing and cover with mortar. Before covering with mortar, seal

penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

2. At base of multiwyth and veneer masonry walls, install Base-Wall Flashing as shown on the Drawings.
 - a. Continuous composite flashing product is to be installed as to connect the foundation waterproofing system to the back-up wall's air barrier system. This flashing occurs below where through wall flashing extends out to face of wall.
 - b. Use manufacturer's adhesive products for additional adhesion.
 - c. Install continuous termination bar fastened at 8 inches o.c. with a continuous bead of sealant cant along the top. Coat / cover each termination bar fastener with sealant.
 - d. Flash over Base-Wall Flashing as detailed.
3. At base of multiwyth masonry walls, including cavity walls and extend Masonry Metal Flashing through outer wythe, across air space and up face of inner wythe minimum of 8 inches.
 - a. Lap joints between metal flashing 4 inches with a continuous bead of sealant. Provide a loose lock expansion joint at every third joint or at maximum 30 feet.
 - b. Lap metal flashing with metal corner pieces with a continuous bead of sealant.
 - c. Corner pieces are to have soldered joints.
 - d. Continuously flash over Masonry Metal Flashing with thermoplastic Masonry Membrane Flashing. Extend up inner wythe surface as shown. Maintain 24 inches minimum between masonry membrane flashing laps and metal flashing laps.
 - e. Use manufacturer's adhesive products for additional adhesion.
 - f. Install continuous termination bar fastened at 8" on center with continuous sealant cant along the top. Coat / cover each termination bar fastener with sealant.
4. At base of masonry-veneer walls, extend Metal Flashing through veneer, across air space and up face of sheathing minimum 8 inches.
 - a. Lap joints between metal flashing 4 inches with a continuous bead of sealant. Provide a loose lock expansion joint at every third joint or at maximum 30 feet.
 - b. Lap metal flashing with metal corner pieces with a continuous bead of sealant.
 - c. Corner pieces are to have welded miter joints.

- d. Continuously flash over Masonry Metal Flashing with thermoplastic Masonry Membrane Flashing. Extend up inner wythe surface as shown. Maintain 24 inches minimum between masonry membrane flashing laps and metal flashing laps.
 - e. Use manufacturer's adhesive products for additional adhesion.
 - f. Install continuous termination bar fastened at 8" on center with a continuous bead of sealant cant along the top. Coat / cover each termination bar fastener with sealant.
- 5. Extend Masonry Flashing 1/4 inch from face of wall where Metal Flashing drip edges are not utilized.
 - 6. Lap continuous Masonry Flashing a minimum of 8 inches. Coat the contacting surfaces with manufacturer's recommended supplemental adhesive or sealant. Apply continuous sealant at edges of all laps. Utilize rollers to ensure full adhesion of flashing to substrate.
 - 7. Provide additional masonry flashing at inside and outside corners to lap ends of adjacent flashing terminations.
 - 8. End Dams: Provide end dams at the following locations.
 - a. At all terminations of flashings unless noted otherwise. Provide additional length of flashing to fold and form into end dam.
 - b. At openings at base of walls such as doors.
 - c. At all inside corners.

3.10 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

3.11 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

3.12 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

END OF SECTION

SECTION 06 10 53

MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes, but is not limited to the following:

1. Wood blocking and nailers.
2. Plywood blocking.
3. Plywood backing panels.

1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 2. NHLA: National Hardwood Lumber Association.
 3. NLGA: National Lumber Grades Authority.
 4. SPIB: The Southern Pine Inspection Bureau.
 5. WCLIB: West Coast Lumber Inspection Bureau.
 6. WWPA: Western Wood Products Association.

1.4 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 1. Factory mark each piece of lumber with grade stamp of grading agency.
 2. For exposed lumber indicated to receive a stained or natural finish, omit grade stamp and provide certificates of grade compliance issued by grading agency when requested by Authority Having Jurisdiction.
 3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

4. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWPAC U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
 2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
1. For exposed lumber indicated to receive a stained or natural finish, omit marking and provide certificates of treatment compliance issued by inspection agency when requested by Authority Having Jurisdiction.
- D. Application: Pressure treated wood as indicated on the drawings and in the following locations that are not required to be fire-retardant.
1. Wood placed in direct contact with soil or subject to insect infestation.
 2. Wood placed in direct contact with concrete, concrete masonry or any below grade application subject to moisture over time.
 3. Wood exposed to exterior weather.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including, but not limited to the following:
1. Blocking.
 2. Nailers.
 3. Rooftop equipment bases and support curbs.
 4. Cants.
 5. Furring.
 6. Grounds.
 7. Utility shelving.

- B. For items of dimension lumber size, provide Construction or No. 2 and maximum moisture content of 19 percent.
- C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:
 - 1. Mixed southern pine, No. 2 grade; SPIB.
 - 2. Hem-fir or hem-fir (north), Construction or No. 2 Common grade; NLGA, WCLIB, or WWPA.
 - 3. Spruce-pine-fir (south) or spruce-pine-fir, Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
 - 4. Eastern softwoods, No. 2 Common grade; NELMA.
 - 5. Northern species, No. 2 Common grade; NLGA.
 - 6. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.
- D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.4 PLYWOOD BACKING PANELS

- A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- D. Wood Screws and Lag Screws: ASME B18.2.1, ASME B18.6.1, or ICC-ES AC233.
- E. Screws for Fastening to Metal Framing: ASTM C 954, length as recommended by screw manufacturer for material being fastened.

- F. Carbon Steel Bolts: ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers all hot-dip zinc coated.
- G. Stainless Steel Bolts: ASTM F593, Alloy Group 1 or 2 with ASTM F594, Alloy Group 1 or 2 hex nuts and, where indicated, flat washers.
- H. Post-Installed Anchors: Chemical or torque-controlled expansion anchors of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.6 MISCELLANEOUS MATERIALS

- A. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
- B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- C. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.
- D. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- E. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- F. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 1. Use inorganic boron for items that are continuously protected from liquid water.
 2. Use copper naphthenate for items not continuously protected from liquid water.
- G. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 1. NES NER-272 for power-driven fasteners.
 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
 3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

3.2 WOOD BLOCKING AND NAILER INSTALLATION

- A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

3.3 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect miscellaneous rough carpentry from weather. If, despite protection, miscellaneous rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION

SECTION 06 16 00

SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Glass-mat gypsum sheathing.
- B. Related Requirements:
 - 1. Division 06 Section "Miscellaneous Rough Carpentry" for plywood backing panels.
 - 2. Division 07 Section "Weather Barriers" for water-resistive barrier applied over sheathing.

1.3 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-resistance Ratings: As tested according to ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Fire-resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.
- B. Fire-Test-Response Characteristics: For assemblies with fire-resistance ratings, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.

2.2 GLASS-MAT GYPSUM SHEATHING

- A. Glass-Mat Gypsum Sheathing: ASTM C 1177/1177M.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. CertainTeed Corporation; GlasRoc Sheathing.
 - b. Georgia-Pacific Building Products; Dens-Glass Fireguard Sheathing.
 - c. National Gypsum Company; Gold Bond eXP Fire-Shield Sheathing.
 - d. United States Gypsum Co.; Securock Brand UltraLight Glass-Mat Sheathing.
 - 2. Type and Thickness: Type X, 5/8" thick.
 - 3. Size: 48 by 96 inches for vertical installation.

2.3 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

- A. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C 834, compatible with sheathing tape and sheathing, and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.
 - 1. Sheathing Tape for Glass-Mat Gypsum Sheathing: Self-adhering glass-fiber tape, minimum 2 inches wide, 10 by 10 or 10 by 20 threads/inch, of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing board and with a history of successful in-service use.

2.4 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. For sheathing, provide fasteners with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.
- B. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES-AC70.
- C. Screws for Fastening Plywood Sheathing to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
- D. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached.
 1. For steel framing less than 0.0329-inch-thick, use screws that comply with ASTM C 1002.
 2. For steel framing from 0.033 to 0.112-inch-thick, use screws that comply with ASTM C 954.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
 1. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
 2. ICC-ES evaluation report for fastener.
- D. Coordinate sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 GYPSUM SHEATHING INSTALLATION

- A. Comply with GA-253 and with manufacturer's written instructions.
 - 1. Fasten gypsum sheathing to cold-formed metal framing with screws.
 - 2. Install panels with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
 - 3. Install panels with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.
- B. Apply fasteners so heads bear tightly against face of sheathing boards but do not cut into facing.
- C. Horizontal Installation: Install sheathing with long edges in contact with edges of adjacent panels without forcing. Abut ends over centers of studs, and stagger end joints of adjacent panels not less than one stud spacing. Attach at perimeter and within field of panel to each steel stud.
 - 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
- D. Vertical Installation: Install vertical edges centered over studs. Abut ends and edges with those of adjacent panels. Attach at perimeter and within field of panel to each stud.
 - 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
- E. Seal sheathing joints according to sheathing manufacturer's written instructions.
 - 1. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal penetrations, openings and perimeter of sheathing.

END OF SECTION

SECTION 07 21 00

THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Extruded polystyrene foam-plastic board.
2. Polyisocyanurate foam-plastic board.

B. Related Requirements:

1. Section 04 20 00 "Unit Masonry" for insulation, specified in this section, installed in masonry cavity wall construction.
2. Section 07 42 13.23 "Metal Composite Material Wall Panels" for cladding support systems that secure foil-faced polyiso board cavity insulation.

1.3 SUBMITTALS

- A. Product Data: For each type of product.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect foam-plastic board insulation as follows:
 1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site until just before installation time.

3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

PART 2 - PRODUCTS

- 2.1 EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD (Rigid Insulation - under slab-on-grade, at foundation walls and base of grouted masonry walls)
 - A. Extruded polystyrene boards in this article are also called "XPS boards." Roman numeral designators in ASTM C578 are assigned in a fixed random sequence, and their numeric order does not reflect increasing strength or other characteristics.
 - B. Extruded Polystyrene Board, Type IV: ASTM C578, Type IV, 25-psi minimum compressive strength; unfaced; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E84.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
 - a. Dupont Styrofoam Brand
 - b. Kingspan Greenguard.
 - c. Owens Corning Foamular.
- 2.2 POLYISOCYANURATE FOAM-PLASTIC BOARD (Continuous Insulation - Polyiso Board)
 - A. Polyisocyanurate (Polyiso) Foil Faced Board: ASTM C1289, foil faced, Type I, Class 1, 25 psi.
 1. Products: Subject to compliance with requirements, provide one of the products specified.
 - a. Atlas Roofing Corporation; Energy Shield Pro.
 - b. Hunter Panels; Xci Foil (Class A).
 - c. Rmax, Inc.: ECOMAXci FR.
 2. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
 - a. The combination of selected foil faced polyiso board cavity insulation and selected fluid-applied membrane air and water resistive barriers (see related Section 072726) must be listed together within a compliant NFPA 285 report.

2.3 ACCESSORIES

- A. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.3 INSTALLATION OF SLAB INSULATION

- A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.
 - 1. If not otherwise indicated, extend insulation a minimum of 24 inches below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.
 - 1. If not otherwise indicated, extend insulation a minimum of 48 inches in from exterior walls.

3.4 INSTALLATION OF EXTERIOR WALL CONTINUOUS INSULATION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Install continuous insulation behind composite metal panels.
- C. Foam-Plastic Board Insulation: Install with closely fitting joints in both directions. Fit courses of insulation between obstructions, with edges butted tightly. Retain units firmly against sheathing substrates by using cladding support system attachment method according to manufacturer's written instructions. [Use spindle type impaling pin anchor attachment method in addition to cladding support system where required].

3.5 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION

SECTION 07 25 00

WEATHER BARRIERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Building wrap system including flexible flashing.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
 - 1. For building wrap, include data on air and water-vapor permeance based on testing according to referenced standards.
 - 2. For building wrap, include preparation instructions and recommendations and installation methods.
- B. Shop Drawings: Show details of building wrap at terminations, openings, and penetrations. Show details of flexible flashing applications.
- C. Evaluation Reports: For water-resistive barrier and flexible flashing, from ICC-ES.

PART 2 - PRODUCTS

2.1 WATER-RESISTIVE BARRIER

- A. Building Wrap: ASTM E1677, Type I air barrier; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E84; UV stabilized; and acceptable to authorities having jurisdiction.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow Chemical Company (The); Styrofoam Weathermate Plus Brand Housewrap.
 - b. DuPont Building Innovations; Tyvek Commercial Wrap.

- c. Kingspan Insulation, LLC: GreenGuard Max Building Wrap.
 - 2. Water-Vapor Permeance: Not less than 8 perms per ASTM E96/E96M, Desiccant Method (Procedure A).
 - 3. Air Permeance: Not more than 0.004 cfm/sq. ft. at 0.3-inch wg when tested according to ASTM E2178.
 - 4. Allowable UV Exposure Time: Not less than three months.
 - 5. Flame Propagation Test: Materials and construction shall be as tested according to NFPA 285.
- B. Building-Wrap Tape: Pressure-sensitive plastic tape recommended by building-wrap manufacturer for sealing joints and penetrations in building wrap.
- C. Flexible Flashing – Butyl Rubber Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.016 inch.
- 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. DuPont Building Innovations; DuPont Flashing Tape.
 - b. Grace Construction Products; W.R. Grace & Co.- Conn.; Vycor Butyl Self Adhered Flashing.
 - c. Kingspan Insulation, LLC: Kingspan GreenGuard Butyl Flashing.
 - 2. Flame Propagation Test: Materials and construction shall be as tested according to NFPA 285.
- D. Primer for Flexible Flashing: Product recommended in writing by flexible flashing manufacturer for substrate.
- E. Mechanical Fasteners: Screws for Fastening Through Gypsum Sheathing to Cold-Formed Metal Framing - steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached.
- 1. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C1002.
 - 2. For steel framing from 0.033 to 0.112 inch thick, use screws that comply with ASTM C954.
 - 3. Provide fasteners with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.
 - 4. Install screws with white plastic cap washers 7/8 inch diameter.

PART 3 - EXECUTION

3.1 WATER-RESISTIVE BARRIER INSTALLATION

- A. Cover exposed exterior surface of sheathing with building wrap securely fastened to framing immediately after sheathing is installed.
 - 1. Install mechanical fasteners with washers in minimum spacing recommended by the manufacturer.
- B. Building Wrap: Cover sheathing as follows:
 - 1. Cut back barrier 1/2 inch on each side of the break in supporting members at expansion- or control-joint locations.
 - 2. Apply barrier to cover vertical flashing with a minimum 4-inch overlap unless otherwise indicated.
 - 3. Comply with manufacturer's written instructions and warranty requirements.
 - a. Seal seams, edges, fasteners, and penetrations with tape.
 - b. Extend into jambs of openings and seal corners with tape.
- C. Flexible Flashing: Apply where indicated to comply with manufacturer's written instructions.
 - 1. Prime substrates as recommended by flashing manufacturer.
 - 2. Lap seams and junctures with other materials at least 4 inches except that at flashing flanges of other construction, laps need not exceed flange width.
 - 3. Lap flashing over water-resistive barrier at bottom and sides of openings.
 - 4. Lap water-resistive barrier over flashing at heads of openings.
 - 5. After flashing has been applied, roll surfaces with a hard rubber or metal roller to ensure that flashing is completely adhered to substrates.

END OF SECTION

SECTION 07 42 13.23

METAL COMPOSITE MATERIAL WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:

- 1. Metal composite material panels
 - 2. Metal composite material systems.
 - 3. Cladding support system.

- B. Related Sections include the following:

- 1. Section 06 16 00 "Sheathing" for exterior sheathing substrate.
 - 2. Section 07 62 00 "Sheet Metal Flashing and Trim" for metal flashing and trim not provided in this Section.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

- 1. Meet with Owner, Architect, metal composite material panel Installer, metal composite material panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal composite material panels, including installers of doors, windows, and louvers.
 - 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 3. Review methods and procedures related to metal composite material panel installation, including manufacturer's written instructions.
 - 4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
 - 5. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that affect metal composite material panels.
 - 6. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
 - 7. Review temporary protection requirements for metal composite material panel assembly during and after installation.
 - 8. Review procedures for repair of panels damaged after installation.

9. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
 2. Provide data sheets for NFPA 285 testing of the Metal Composite Material Wall Panel Systems.
- B. Shop Drawings:
 1. Include fabrication and installation layouts of metal composite material panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment assembly, trim, flashings, closures, and accessories; and special details.
 2. Accessories: Include details of the flashing, trim and anchorage, at a scale of not less than 1-1/2 inches per 12 inches.
 3. Provide signed and sealed drawings, by a qualified design professional in Project jurisdiction, of metal composite material system showing compliance with performance requirements and design criteria identified for this Project.
- C. Samples for Verification: For each type of Metal Composite Material Panel and System required, with factory-applied color finishes.
 1. Metal Composite Material Panel: 4 by 6 inches.
 2. Metal Composite Material System: 24 by 24 inches, fabricated into panel systems indicated. Include horizontal and vertical reveals, extruded aluminum framing, fasteners, closures, and other Metal Composite Material System ~~panel~~-accessories. Panel sample need not be provided in the specified color.
- D. Delegated-Design Submittal: Metal Composite Wall Panel System Fabricators complete system including the Framing Support System. Submittal to show compliance with performance requirements and design criteria, including analysis data and calculations, signed and sealed by the qualified professional engineer responsible for their preparation.
- E. Qualification Data: For Installer.
- F. Sample Warranties: For special warranties.
- G. Maintenance Data: For metal composite material panels to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Fabricator: Approved by MCM panel manufacturer.
- B. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal composite material panels, and other manufactured items so as not to be damaged or deformed. Package metal composite material panels for protection during transportation and handling.
- B. Unload, store, and erect metal composite material panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal composite material panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal composite material panels to ensure dryness, with positive slope for drainage of water. Do not store metal composite material panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal composite material panels during installation.

1.7 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal composite material panels to be performed according to manufacturers' written instructions and warranty requirements.

1.8 COORDINATION

- A. Coordinate metal composite material panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.9 WARRANTY

- A. Panel Integrity and System Warranty: manufacturer agrees to repair or replace components of metal composite material panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.
 - b. Deterioration of metals and other materials beyond normal weathering.
 - 2. Warranty Period: Two (2) years from date of Substantial Completion.
- B. Finishes Warranty: Manufacturer agrees to repair finish or replace metal composite material panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D2244.

- b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
- c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: Twenty (20) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer to design Metal Composite Wall Panel System.
- B. System Description for Design Requirements:
 - 1. Metal Composite Wall Panel System consist of the following:
 - a. Aluminum-Faced Composite Wall Panels.
 - b. Extruded aluminum panel framing, and panel supports.
 - c. Cladding support system.
 - 2. Pressure Equalized Rainscreen (PER) System: Wall Panel System to meet test protocols of AAMA 508.
 - a. System to include required air/water barrier and be designed to allow air movement behind panels and to drain any moisture in provided weep holes and channel framing.
- C. Structural Performance: Provide metal composite material panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E330:
 - 1. Wind Loads: As indicated on Drawings.
 - 2. Other Design Loads: As indicated on Drawings.
 - 3. Deflection Limits for wind loads:
 - a. For panel perimeter framing no greater than 1/180 of the span.
 - b. For panel face material and stiffeners no greater than 1/60 of the span.
- D. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. when tested according to ASTM E283 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 6.24 lbf/sq. ft.
- E. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E331 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 6.24 lbf/sq. ft.

- F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- G. Fire Propagation Characteristics: Metal composite material wall panel system is to be part of an exterior wall assembly that has passed NFPA 285 testing.

2.2 METAL COMPOSITE MATERIAL WALL PANELS (Composite Metal Panels)

- A. Metal Composite Material Wall Panel Systems: Provide factory-formed and -assembled, metal composite material wall panels fabricated from two metal facings that are bonded to a solid, extruded thermoplastic core; formed into profile for installation method indicated. Include attachment assembly components, panel stiffeners, and accessories required for weathertight system.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Arconic, Inc.: Reynobond FR.
 - b. ALUCOBOND; 3A Composites USA, Inc.; Alucobond Plus.
 - c. Mitsubishi Chemical Composite America, Inc.; ALPOLIC/fr.
- B. Aluminum-Faced Composite Wall Panels: Formed with 0.020-inch- thick, coil-coated aluminum sheet facings.
 - 1. Panel Thickness: 0.157 inch (4mm).
 - 2. Core: Fire retardant.
 - 3. Exterior Finish: Two-coat fluoropolymer.
 - a. Color: Magnolia (The Classic Collection).
 - b. Finishes:
 - 1) Smooth.
- C. Attachment System: Pressure Equalized Rainscreen (PER) System.
 - 1. Metal composite material formed and mounted on system fabricators panel frame extrusions which are field installed on panel systems support extrusions.
 - 2. Recessed reveals between panels – Metal composite material bent forming sides of reveal and panel material spline/reveal strip at back of reveal fixed in aluminum panel frame extrusions.
- D. Attachment System Components:
 - 1. Formed from extruded aluminum ASTM B221, 6063-T5 Aluminum.

- a. Attachment system to meet the specified design loads and system test performance according to the metal composite material systems fabricators design.
 - b. Galvanized steel cold formed steel clips or staggered aluminum angles are not to be acceptable for panel to panel attachment.
- 2. Panel stiffeners as required, shall be positively engaged in the perimeter extrusion or mechanically to the perimeter extrusion and secured with to the rear face of the metal composite panel with silicone or high-strength double-sided tape.
 - a. Panel stiffeners to be extruded aluminum or 300 Series stainless steel. Galvanized or metal composite material are not to be used.

2.3 CLADDING SUPPORT SYSTEM (Option 1 - Coated Steel Girts)

- A. Basis of Design Product: Subject to compliance with requirements, provide HCl horizontal girt by Knight Wall Systems.
- B. Coating: ASTM A1046 zinc-aluminum-magnesium min thickness ZM40.
 - 1. ASTM A653 galvanized steel is not acceptable.
- C. Steel Classification: Structural Steel, Grade 50, 50 ksi yield.
- D. Spacing: Per Delegated Design Engineer's requirements.
- E. Horizontal Girt: Stiffened horizontal girt with pre-punched drainage holes, directly attached on top of rigid insulation at spacing dictated by delegated Design Engineer with manufacturer's engineered thermally isolated fasteners.
 - 1. Steel thickness: Minimum 18 gauge
 - 2. Profile Depth: 3/4-inch
 - 3. Girt Fastening Face: 2 inches
 - 4. Overall Girt Profile: 5-1/8 inches
 - 5. Finish: Mill finish.

2.4 CLADDING SUPPORT SYSTEM – (Option 2 - Stainless Steel Hat Channels)

- A. Manufacturer: Subject to compliance with requirements, provide hat channels by, but not inclusive of, Johnson Brothers Metal Forming Co.
- B. Steel Classification: Structural Steel, Grade 50, 50 ksi yield.
- C. Spacing: Per Delegated Design Engineer's requirements.

- D. Horizontal Girt: Stainless steel horizontal girt with pre-punched drainage holes, directly attached on top of rigid insulation at regular spacing with stainless steel thermally isolated fasteners or fasteners rated for use with dissimilar materials.
1. Stainless Steel thickness: Minimum 0.054-inches.
 2. Profile Depth: 3/4-inch.
 3. Girt Fastening Face: Minimum 2 inches.
 4. Overall Girt Profile: Minimum 5 inches.
 5. Finish: Mill finish.

2.5 CLADDING SUPPORT SYSTEM (Option 3 - Extruded Aluminum Girts)

- A. Basis of Design Product: Subject to compliance with requirements, provide EXO Ci Framing System by RAM North America, Inc.
- B. Extruded Aluminum Profiles: Extrusions complying with ASTM B221 with strength and durability properties not less than alloy 6063-T52 (for extrusions 0.51 to 1.0-inches thick).
- C. Spacing: Per Delegated Design Engineer's requirements.
- D. Horizontal Girt: Extruded aluminum girt with integral V-grooves for self-drilling, directly attached on top of rigid insulation at regular spacing with stainless steel thermally isolated fasteners or fasteners rated for use with dissimilar materials.
1. Profile: Hat channel or custom profile.
 2. Aluminum thickness: 0.10-inch.
 3. Profile Depth: 0.70-inches.
 4. Width: 4.5-inches.
 5. Flanges: 2- 0.75-inch wide x 0.10-inch thick.
 6. Finish: Mill finish.

2.6 MISCELLANEOUS MATERIALS

- A. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal composite material panels unless otherwise indicated.
- B. Flashing and Trim: Provide flashing and trim formed from same material as metal composite material panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal composite material panels.
- C. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal composite material panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.

D. Cladding Support System Fasteners:

1. Sufficient length to provide solid attachment through rigid insulation to structure as required by delegated design engineer.
2. Thermal Isolating Washers: Minimum 0.125 inch thick Polyoxymethylene copolymer (POM) washers with integral centering lip to act as a thermal break between wall anchor fasteners and girt.
 - a. Tensile Yield Strength: 9.57 ksi per ISO 527.
 - b. Melting Temperature: 329 degrees Fahrenheit per ISO 3146.
 - c. Basis of Design: ThermaStop Isolator by Knight Wall Systems.
3. Steel stud framing substrate: Self-drill hex-washer-head stainless steel with 1,000 hour salt-spray rated thermoset polyester coating.
 - a. Embedment depth: 0.625 inches or three full threads minimum, whichever is greater.
 - b. Minimum ultimate pull-out capacity from 18 gauge steel: 450 pounds.
4. Concrete and Concrete Masonry Units Substrate:
 - a. Embedment depth: 1.25 inches minimum.
 - b. Minimum ultimate pull-out capacity from substrate material: 450 pounds.
 - c. 1/4-inch Kwik-Con II+ by Hilti.

- E. Panel Sealants: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal composite material panels and remain weathertight; and as recommended in writing by metal composite material panel manufacturer.

2.7 FABRICATION

- A. General: Fabricate and finish metal composite material panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Fabricate metal composite material panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- C. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
4. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

2.8 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Aluminum Panels and Accessories:
 1. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal composite material panel supports, and other conditions affecting performance of the Work.
 1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal composite material wall panel manufacturer.
 2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal composite material wall panel manufacturer.

- a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Examine roughing-in for components and assemblies penetrating metal composite material panels to verify actual locations of penetrations relative to seam locations of metal composite material panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal composite material panel manufacturer's written recommendations.

3.3 SUBFRAMING INSTALLATION

- A. Cladding Support System Installation: Verify horizontal girt (or hat channel) does not cantilever past rigid insulation.
 - 1. Install in strict accordance with manufacturer's installation instructions.
 - 2. Use laser or chalk line to mark starting height of horizontal girt.
 - 3. Do not use shims to plumb the wall between the horizontal girt and insulation.
 - 4. Minimum length of installed cut girt is 24-inches and shall be attached with at least two (2) fasteners.
 - 5. Mount stiffened horizontal girts, fastened up to 36 inches on center (as determined by the Delegated Design engineering calculations) over installed rigid insulation, using one self-tapping screw with thermal isolator, for each pre-punched attachment hole at spacing indicated on engineering calculations.
 - a. Check plumb of horizontal girts both parallel and perpendicular to the structure.
 - b. Tighten screws that attach horizontal girt through insulation to substructure to a snug tight condition and not stripped. Do not over-torque beyond manufacturer's recommendation. If installed using hand tools, verify for each installer at beginning of project using snug-tight criteria. Do not use stripped holes.
 - c. Where obstructions are present and unavoidable (i.e. window openings), use laser or chalk line to restart girt.
 - d. Use shearing instruments (i.e. snips, nibbler, etc.) for cutting metal framing components. Saws are not recommended, as the sparks produced during cutting will damage the anti-corrosion coating. If sparks are generated during cutting, be sure the portion of the component to be installed on the building is protected from sparks and that any stockpile near the cutting station is also protected.
 - e. The systems components should not be cut while installed on the building, unless using a shearing instrument.
 - f. Replace thermal isolator pieces that break during installation.
 - g. Provide a 3/8" – 1/2" gap between girts for expansion when multiple lengths of horizontal girts are installed.

3.4 METAL COMPOSITE MATERIAL SYSTEM INSTALLATION

- A. General: Install metal composite material panels according to manufacturer's written instructions in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to supports unless otherwise indicated. Anchor metal composite material panels and other components of the Work securely in place, with provisions for thermal and structural movement.
1. Shim or otherwise plumb substrates receiving metal composite material panels.
 2. Flash and seal metal composite material panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air-water-resistive barriers and flashings that will be concealed by metal composite material panels are installed.
 3. Install screw fasteners in predrilled holes.
 4. Locate and space fastenings in uniform vertical and horizontal alignment.
 5. Install flashing and trim as metal composite material panel work proceeds.
 6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
 7. Align bottoms of metal composite material panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
 8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
 9. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action with gaskets or as recommended in writing by metal composite material system manufacturer.
 10. Attach metal composite material panels to supports at locations, spacings, and with fasteners recommended by manufacturer to meet listed performance requirements.
 - a. Use aluminum or stainless-steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized-steel fasteners for surfaces exposed to the interior.
- B. Attachment Assembly, General: Install attachment assembly required to support metal composite material panels and to provide a complete weathertight wall system, including subgirts, perimeter extrusions, tracks, drainage channels, panel clips, and anchor channels.
1. Include attachment to supports, panel-to-panel joinery, panel-to-dissimilar-material joinery, and panel-system joint seals.
- C. Pressure Equalized Rainscreen (PER) System Installation: Install vertical and horizontal tracks/channels providing compartmentalization at locations, at spacings, and with fasteners recommended by system manufacturer.
1. Attach metal composite material panels by interlocking panel clips or perimeter extrusion into tracks/ channels in a sequential series.
 2. Insert matching metal composite material spline into tracks/channels at joint reveal locations.
 3. Install wall panels to allow individual panels to “free float” and be installed and removed without disturbing adjacent panels.
 4. Do not apply sealants to joints unless otherwise indicated.

- D. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal composite material panel assembly including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal composite material panel manufacturer; or, if not indicated, provide types recommended in writing by metal composite material panel manufacturer.
- E. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible and set units true to line and level as indicated. Install work with laps, joints, and seams that are permanently watertight.
 - 1. Install exposed flashing and trim that is without buckling and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof performance.
 - 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

3.5 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align metal composite material wall panel units within installed tolerance of 1/4 inch in 20 feet, non-accumulative, on level, plumb, and location lines as indicated, and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.6 FIELD QUALITY CONTROL

- A. Work Observations: Owner may engage a qualified agent to perform quality control observations.
- B. Repair or remove and replace components of metal composite material wall panels system where quality control observations indicate that they do not comply with specified requirements.
- C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.
- D. Owner's agent will prepare test and inspection reports.

3.7 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal composite material panels are installed, unless otherwise indicated in manufacturer's written installation

instructions. On completion of metal composite material panel installation, clean finished surfaces as recommended by metal composite material panel manufacturer. Maintain in a clean condition during construction.

- B. After metal composite material panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.
- C. Replace metal composite material panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Miscellaneous fabrications including:

- a. Metal wall flashing shapes.
 - b. Fenestration trim.
 - c. Flashing at wall openings.
 - d. Exposed aluminum flashing.

- B. Related Sections:

- 1. Division 04 Section "Unit Masonry" for stainless steel flashing installed in masonry assemblies.
 - 2. Division 06 Section "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
 - 3. Division 07 Section "Joint Sealants" for sealants referenced in this section.

1.3 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1. Review construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and condition of other construction that affect sheet metal flashing and trim.
3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
4. Review requirements for insurance and certificates if applicable.
5. Review sheet metal flashing observation and repair procedures after flashing installation.
6. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work. Include the following:
 1. Include plans, elevations, sections, and attachment details.
 2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
 3. Include identification of material, thickness, weight, and finish for each item and location in Project.
 4. Include details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
 5. Include details for joining, supporting, and securing sheet metal flashing and trim, including layout of fasteners, cleats, clips, and other attachments. Include pattern of seams.
 6. Include details of termination points and assemblies, including fixed points.
 7. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction.
 8. Include details of roof-penetration flashing.
 9. Include details of special conditions.
 10. Include details of connections to adjoining work.

11. Detail formed flashing and trim at a scale of not less than 3 inches per 12 inches.

- C. Samples for Color Selection and Verification of Material Thickness: For each type of sheet metal flashing, trim, and accessory indicated provide a minimum 4-inch by 6-inch sample with factory-applied color finishes.
- D. Maintenance Data: For sheet metal flashing, trim, and accessories to include in maintenance manuals.
- E. Warranty: Sample of special warranty.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing and trim installation.

1.8 WARRANTY

- A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.
- B. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required with smooth, flat surface.
 - 1. Exposed Coil-Coated Finishes:
 - a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 2. Color: As selected by Architect from manufacturer's full range.
 - 3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

2.3 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
 - 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
 - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
 - 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
- C. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2-inch-wide and 1/8 inch thick.
- D. Silicone Transition Sheet: Low modulus, pre-cured silicone rubber sheet for use sealing flashing transitions.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow, Dowsil Silicone Transition Strip.
 - b. GE Silicones, UST – Pre-Cured Silicone Transition Sheet.
- E. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane or silicone polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- G. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.
- H. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.4 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.
 - 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 - 2. Obtain field measurements for accurate fit before shop fabrication.
 - 3. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
 - 4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.
- B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
 - 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
 - 2. Use lapped expansion joints only where indicated on Drawings.
- D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.
- E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- F. Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" for application, but not less than thickness of metal being secured.
- G. Seams (Stainless Steel): Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use.
- H. Seams (Aluminum with Coated Finish): Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use.
 - 1. Rivet joints where necessary for strength.

- I. Do not use graphite pencils to mark metal surfaces.

2.5 ROOF DRAINAGE SHEET METAL FABRICATIONS

A. Hanging Gutters:

1. Fabricate to cross section indicated, complete with end pieces, outlet tubes, and other accessories as required.
2. Fabricate in minimum 96-inch- long sections.
3. Furnish flat stock gutter spacers and straps fabricated from same metal as gutters, of size recommended by SMACNA but not less than twice the gutter thickness.
4. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters.
 - a. Shop fabricate interior and exterior corners.
5. Gutter Style: SMACNA designation D.
6. Expansion Joints: Butt type with cover plate.
7. Fabricate from the following materials:
 - a. Aluminum: 0.040 inch thick.

B. Downspouts: Fabricate rectangular downspouts complete with mitered elbows. Furnish with metal hangers, from same material as downspouts, and anchors.

1. Fabricated Hanger Style: SMACNA figure designation 1.35 B.
2. Fabricate from the following materials:
 - a. Aluminum: 0.032 inch thick.
 - b. All edges are to be hemmed.

C. Parapet Scuppers: Fabricate scuppers of dimensions required with closure flange trim to exterior, 4-inch- wide wall flanges to interior, and base extending 4 inches beyond cant or tapered strip into field of roof. Fabricate from the following materials:

1. Aluminum: 0.032 inch thick.

D. Conductor Heads: Fabricate conductor heads with flanged back and stiffened top edge and of dimensions and shape indicated complete with outlet tubes, exterior flange trim, and built-in overflows.

1. Fabricated conductor head style: SMACNA figure designation 1-25F.
2. Fabricate from the following materials:

- a. Aluminum .032 inch thick.
- E. Splash Pans: Fabricate from the following materials:
 - 1. Aluminum: 0.040 inch thick.
- 2.6 MISCELLANEOUS STAINLESS STEEL SHEET METAL FABRICATIONS
 - A. Manufacturer: Subject to compliance with requirements, provide fabrications by, but not limited to, the following:
 - 1. The K Company, Akron, Ohio 330 773 5152. Contact: Hank Martin
hankm@thekcompany.com
 - B. Metal Flashing Shapes: Fabricate from the following materials:
 - 1. Stainless Steel: 0.036 inch (20 gauge), unless noted otherwise.
 - C. Fenestration Trim: Fabricate from the following materials:
 - 1. Stainless Steel: 0.036 inch (20 gauge), unless noted otherwise.
 - D. Flashing at Window Sill and Jamb Openings: Fabricate from the following materials:
 - 1. Stainless Steel: 0.109 inch (12 gauge).
- 2.7 MISCELLANEOUS ALUMINUM SHEET METAL FABRICATIONS
 - A. Base Metal Flashing under Exposed Metal Flashing or Drip:
 - 1. Aluminum: 0.032 inch thick.
 - 2. Finish: Two-Coat Fluoropolymer.
 - B. Exposed Metal Flashing or Drip:
 - 1. Aluminum: 0.032 inch thick.
 - 2. Finish: Two-Coat Fluoropolymer.
 - 3. Provide hemmed drip.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of the Work.
 - 1. Verify compliance with requirements for installation tolerances of substrates.
 - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- B. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 - 1. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 - a. Install sealant tape where indicated.
 - 2. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
 - 3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
 - 5. Install continuous cleats where shown, with fasteners spaced not more than 12 inches o.c.
 - 6. Space individual cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
 - 7. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
 - 8. Torch cutting of sheet metal flashing and trim is not permitted.

9. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
 1. Coat back side of uncoated aluminum sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.
 1. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection.
 2. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
 3. Use lapped expansion joints only where indicated on Drawings.
- D. Fastener Sizes: Use fasteners of sizes that will penetrate substrates.
 1. For wood sheathing, nails shall not be less than 1-1/4 inches long and wood screws not less than 3/4 inches long.
 2. For metal stud, decking or other metal substrate, use sizes not less than recommended by fastener manufacturer to achieve maximum pull out resistance.
- E. Seal joints as shown and as required for watertight construction.
 1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
 2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."
- F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.
 1. Pre-tin edges of sheets with solder to width of 1-1/2 inches; however, reduce pre-tinning where pre-tinned surface would show in completed Work.
 2. Do not solder metallic-coated steel and aluminum sheet.

3. Do not use torches for soldering.
 4. Heat surfaces to receive solder, and flow solder into joint.
 - a. Fill joint completely.
 - b. Completely remove flux and spatter from exposed surfaces.
 5. Stainless Steel Soldering:
 - a. Tin edges of uncoated sheets, using solder for stainless steel and acid flux.
 - b. Promptly remove acid-flux residue from metal after tinning and soldering.
 - c. Comply with solder manufacturer's recommended methods for cleaning and neutralization.
- G. Rivets: Rivet joints in uncoated aluminum where indicated and where necessary for strength.

3.3 ROOF DRAINAGE SYSTEM INSTALLATION

- A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.
- B. Hanging Gutters: Join sections with riveted and soldered joints or with lapped joints sealed with sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchored straps spaced not more than 36 inches apart. Provide end closures and seal watertight with sealant. Slope to downspouts.
1. Fasten gutter spacers to front and back of gutter.
 2. Loosely lock straps to front gutter bead and anchor to roof deck.
 3. Anchor and loosely lock back edge of gutter to continuous [cleat] [eave or apron flashing].
 4. Install gutter with expansion joints at locations indicated, but not exceeding, 50 feet apart. Install expansion-joint caps.
- C. Downspouts: Join sections with 1-1/2-inch telescoping joints.
1. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches o.c. in between.
 2. Provide elbows at base of downspout to direct water away from building.

3.4 MISCELLANEOUS FLASHING INSTALLATION

- A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.
- B. Exposed Metal Flashing or Drip Splice (Silicone Sheet Flashing Boot Splice): Coordinate installation of exposed metal flashings and drips with installation of various openings; curtain wall, storefront, and louvers and other cladding system components.
 - 1. Install base metal flashing at location where splices occur at continuous runs of exposed metal flashing and drips. At openings, extend flashing under window or louver units a minimum of 1-inch inboard of the primary weather seal.
 - 2. Center silicone transition sheet at splice location on top of base metal flashing. Place silicone transition sheet in continuous bead of a compatible silicone or butyl sealant applied at all edges of the sheet.
 - 3. Exposed metal flashings or drips shall have ends meet at center of transition sheet. Leave 1/4-to-3/8-inch gap between metal flashing or drip ends. Place metal flashings or drips in two continuous ribbons of a compatible silicone or butyl sealant applied at all horizontal and vertical surfaces. Sealant ribbons shall be installed parallel to the gap between the metal flashings or drips.
 - 4. At claddings, where flashings or drips are used at the base of a wall or transition to another material such as roofing system membrane; provide positive drainage by lapping weather barriers or air & water-resistive barriers over the up-turned flashing or drip leg by using a compatible transition membrane.

3.5 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- B. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

3.6 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean off excess sealants.
- C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On

completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction.

- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Silicone joint sealants.
 - 2. Urethane joint sealants.
 - 3. Butyl joint sealants.
 - 4. Latex joint sealants.
- B. Related Sections:
 - 1. Division 08 Section "Glazing" for glazing sealants.

1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Warranties: Sample of special warranties.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

- C. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.5 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.6 WARRANTY

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty for Exterior Joints: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: five years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
 - 1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 - 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 - 3. Mechanical damage caused by individuals, tools, or other outside agents.
 - 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- D. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 URETHANE JOINT SEALANTS

- A. Urethane, S, NS, 25, NT: Single-component, nonsag, nontraffic-use, plus 25 percent and minus 25 percent movement capability, urethane joint sealant; ASTM C920, Type S, Grade NS, Class 25, Use NT (vertical and horizontal non-traffic locations).
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Corporation Construction Systems; MasterSeal NP1 or MasterSeal TX1.
 - b. Pecora Corporation; Dynatrol I-XL.
 - c. Sika Corporation, Construction Products Division; Sikaflex - 1a.
 - d. Tremco Incorporated; Dymonic 100 or Vulkem 116.

2.3 SILICONE JOINT SEALANTS

- A. Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow; 791 Silicone Weatherproofing Sealant.
 - b. GE Construction Sealants; SCS2000 SilPruf.
 - c. Pecora Corporation; PCS.

- d. Sika Corporation; Sikasil WS-295.
- e. Tremco Incorporated; Spectrem 2.

2.4 BUTYL JOINT SEALANTS

A. Butyl-Rubber-Based Joint Sealants: ASTM C1311.

- 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Bostik, Inc.; Chem-Calk 300.
 - b. Pecora Corporation; BC-158.
 - c. Tremco Incorporated: Tremco Butyl Sealant.

2.5 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF.

- 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Building Systems; Sonolac.
 - b. Pecora Corporation; AC-20+.
 - c. Sherwin Williams Company; 950A.
 - d. Tremco Incorporated; Tremflex 834.

2.6 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - d. Exterior insulation and finish systems.

3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
 2. Completely fill recesses in each joint configuration.

3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
 4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
 5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.
- G. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant JS-2: Urethane, S, NS, 25, NT.
1. Joint Locations: Exterior joints in vertical surfaces and horizontal nontraffic surfaces

- a. Control and expansion joints in unit masonry.
 - b. Joints between different materials listed above.
 - c. Other joints as indicated.
- 2. Joint-Sealant Color(s): As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant JS-3: Urethane, S, NS, 25, NT.
 - 1. Joint Locations: Interior joints in vertical and horizontal nontraffic surfaces
 - a. Construction joints in cast-in-place concrete(vertical).
 - b. Control and expansion joints in unit masonry.
 - c. Other joints as indicated.
 - 2. Joint-Sealant Color(s): As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant JS-4: Silicone, S, NS, 100/50 **[50]**, NT.
 - 1. Joint Locations: Exterior joints in vertical surfaces
 - a. Joints between metal wall panels.
 - b. Joints between materials listed above and adjacent materials.
 - c. Perimeter joints between exterior cladding materials and frames of doors, windows, and louvers.
 - d. Other joints as indicated.
 - 2. Joint-Sealant Color(s): As selected by Architect from manufacturer's full range of colors.
- D. Joint-Sealant JS-5: Butyl-Rubber Based.
 - 1. Joint Locations: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
 - a. Where noted on the Drawings or called for in other sections.
- E. Joint-Sealant JS-6: Acrylic Latex.
 - 1. Joint Locations: Interior joints in vertical surfaces and horizontal nontraffic surfaces
 - a. Control joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints on exposed interior side of exterior openings.
 - c. Vertical joints on exposed surfaces of interior unit masonry and concrete walls and partitions.
 - d. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
 - e. Other joints as indicated.
 - 2. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION

SECTION 08 41 13

ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Exterior storefront framing.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work.
 - 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
 - 2. Include full-size isometric details of each type of vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:
 - a. Joinery, including concealed welds.
 - b. Anchorage.
 - c. Expansion provisions.
 - d. Glazing.
 - e. Flashing and drainage.

3. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
 4. Include point-to-point wiring diagrams showing the following:
 - a. Power requirements for each electrically operated door hardware.
 - b. Location and types of switches, signal device, conduit sizes, and number and size of wires.
 - C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
 - D. Delegated-Design Submittal: For aluminum-framed entrances and storefronts indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - E. Qualification Data: For Installer and the following:
 1. For professional engineer's experience with providing delegated-design engineering services of the kind indicated, including documentation that engineer is licensed in the state in which Project is located.
 - F. Energy Performance Certificates: For aluminum-framed entrances and storefronts, accessories, and components, from manufacturer.
 1. Basis for Certification: NFRC-certified energy performance values for each aluminum-framed entrance and storefront.
 - G. Product Test Reports: For aluminum-framed entrances and storefronts, for tests performed by a qualified testing agency.
 - H. Manufacturer's installation instructions for each system specified.
 - I. Sample Warranties: For special warranties.
 - J. Maintenance Data: For aluminum-framed entrances and storefronts to include in maintenance manuals.
- 1.5 QUALITY ASSURANCE
- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
 - B. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.

1.6 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Structural failures, including, but not limited to, excessive deflection.
 - b. Noise or vibration created by wind and thermal and structural movements.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - d. Water penetration through fixed glazing and framing areas.
 - e. Failure of operating components.
2. Warranty Period: Five years from date of Substantial Completion.

- B. Special Finish Warranty, Factory-Applied Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of baked enamel, powder coat, or organic finishes within specified warranty period.

1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Warranty Period: 20 years from date of Substantial Completion.

- C. Special Finish Warranty, Anodized Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of anodized finishes within specified warranty period.

1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Delta E units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, peeling, or chipping.

2. Warranty Period: 10 years from date of Substantial Completion

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain all components of aluminum-framed entrance and storefront system, including framing and accessories, from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer to design aluminum-framed entrances and storefronts.
- B. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
 1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure, including, but not limited to, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
 2. Failure also includes the following:
 - a. Thermal stresses transferring to building structure.
 - b. Glass breakage.
 - c. Noise or vibration created by wind and thermal and structural movements.
 - d. Loosening or weakening of fasteners, attachments, and other components.
 - e. Failure of operating units.
- C. Structural Loads:
 1. Wind Loads: As indicated on Drawings.
 2. Other Design Loads: As indicated on Drawings.
- D. Deflection of Framing Members: At design wind pressure, as follows:
 1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans of up to 13 feet 6 inches and to 1/240 of clear span plus 1/4 inch for spans greater than 13 feet 6

inches or an amount that restricts edge deflection of individual glazing lites to 3/4 inch whichever is less.

2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components to less than 1/8 inch.

E. Structural: Test according to ASTM E 330/E 330M as follows:

1. When tested at positive and negative wind-load design pressures, storefront assemblies, including entrance doors, do not evidence deflection exceeding specified limits.
2. When tested at 150 percent of positive and negative wind-load design pressures, storefront assemblies, including entrance doors and anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
3. Test Durations: As required by design wind velocity, but not less than 10 seconds.

F. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:

1. Fixed Framing and Glass Area:
 - a. Maximum air leakage of 0.06 cfm/sq. ft. at a static-air-pressure differential of 6.24 lbf/sq. ft.
2. Entrance Doors:
 - a. Single Doors: Maximum air leakage of 0.5 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.

G. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:

1. No evidence of water penetration through fixed glazing and framing areas, including entrance doors, when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 10 lbf/sq. ft.

H. Seismic Performance: Aluminum-framed entrances and storefronts shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

I. Energy Performance: Certify and label energy performance according to NFRC as follows:

1. Thermal Transmittance (U-factor): Fixed glazing and framing areas as a system shall have U-factor of not more than 0.36 Btu/sq. ft. x h x deg F as determined according to NFRC 100.
2. Solar Heat Gain Coefficient (SHGC): Fixed glazing and framing areas as a system shall have SHGC of no greater than those shown in Division 08 'Glazing' as determined according to NFRC 200.

3. Condensation Resistance: Fixed glazing and framing areas as a system shall have an NFRC-certified condensation resistance rating of no less than 69 for both glass (1" insulated with low-e coating) and framing as determined according to NFRC 500.
- J. Noise Reduction: Test according to ASTM E 90, with ratings determined by ASTM E 1332, as follows.
 1. Outdoor-Indoor Transmission Class: Minimum 26.
- K. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes.
 1. Temperature Change: 120 deg F ambient; 180 deg F material surfaces.
 2. Thermal Cycling: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.
 - a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of 180 deg F.
 - b. Low Exterior Ambient-Air Temperature: 0 deg F.
 - c. Interior Ambient-Air Temperature: 75 deg F.

2.3 STOREFRONT SYSTEMS

- A. Basis-of-Design Product for Exterior Storefront System (SF-6): Subject to compliance with requirements, provide Trifab 601UT by Kawneer North America; an Arconic company or comparable product by one of the following:
 1. Series 6000 XT; Oldcastle Building Envelope.
 2. YES 60 XT High Performance Storefront; by YKK AP America.
 3. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
 - a. Exterior Framing Construction: Thermally broken, 2 inches by 6-inch.
 - b. Glazing System: Retained mechanically with gaskets on four sides.
 - c. Glazing Plane: Center.
 - d. Finish: High-performance organic finish Color anodic finish.
 - e. Fabrication Method: Screw spline system.
 - f. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

- g. Steel Reinforcement: As required by manufacturer.
 - B. Extruded Framing Components and Trim: Fabricate from extruded aluminum, profiles as indicated on the drawings. Finish to match entrance and storefront system.
 - 1. Sill Flashing: Exterior storefront system framing to have manufacturers thermally broken sill flashing with vertical leg at interior and which weeps water to the exterior. Provide end dam covers.
 - 2. Jamb and Head Backer Plates: The backside of jamb and head framing abutting adjacent construction, if not integral to the framing, is to have extruded aluminum closing off the framing.
 - a. Kawneer "Flat Filler" thermally broken extrusion or equal.
 - C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
 - D. Snap in or fastened aluminum caps, or plastic caps to seal off open extrusions at the concealed top and bottom of vertical mullions.
- 2.4 GLAZING
- A. Glazing: Comply with Section 08 80 00 "Glazing."
 - B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers, complying with Section 08 80 00 "Glazing."
 - C. Glazing Sealants: As recommended by manufacturer and complying with Section 08 80 00 "Glazing."
- 2.5 MATERIALS
- A. Aluminum Sheet and Plate: ASTM B 209.
 - B. Aluminum Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 6063-T6 alloy and temper.
 - 1. Extrusions shall not have less than 0.070 inch wall thickness at any location for the main framing.
 - ~~C. Aluminum Extruded Structural Pipe and Tubes: ASTM B 429.~~
 - D. Aluminum Structural Profiles: ASTM B 308-
 - E. Steel Reinforcement:
 - 1. Structural Shapes, Plates, and Bars: ASTM A 36.

2. Cold-Rolled Sheet and Strip: ASTM A 1008-
3. Hot-Rolled Sheet and Strip: ASTM A 1011-
4. Primer: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.

2.6 ACCESSORIES

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 2. Reinforce members as required to receive fastener threads.
 3. Use exposed fasteners with countersunk Phillips screw heads, fabricated from 300 series stainless steel and finished to match framing system.
- B. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- C. Concealed Flashing: Dead-soft, 0.018-inch-thick stainless steel, complying with ASTM A 240/A 240M, of type recommended by manufacturer.
- D. Storefront Aluminum Sheet Flashing: ASTM B209, fabricate from 0.063-inch aluminum, profiles as indicated on the drawings. Finish to match curtain wall system.
- E. Framing Sealant: Storefront Manufacturer's recommended silicone sealant required within fabricated entrance and storefront system. Sealant to meet requirements of ASTM C 920, Type S; Grade NS; Class 50; Uses NT, G, A, and O, AAMA 802.3 Type II, AAMA 803.
- F. Bituminous Paint: Cold-applied asphalt-mastic paint containing no asbestos, formulated for 30-mil thickness per coat.
- G. Rigid PVC Filler.

2.7 FABRICATION

- A. Form or extrude aluminum shapes before finishing.

- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Physical and thermal isolation of glazing from framing members.
 - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 5. Provisions for field replacement of glazing from exterior.
 - 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
 - 7. The top and bottom of vertical framing extrusions are closed off with aluminum caps where they are open at head and sill locations. Seal or weld to make watertight.
 - a. Closing off these extrusions allows sealant and joint filler to be placed continuously along horizontal and vertical head and sill framing transitions.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Exterior Storefront Framing: Fabricate components for assembly using screw-spline system.
- F. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.8 ALUMINUM FINISHES

- A. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.
 - 1. Product: Kawneer Permanodic.
 - a. Color: To match adjacent existing aluminum storefront systems.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General:

1. Comply with manufacturer's written instructions.
2. Do not install damaged components.
3. Fit joints to produce hairline joints free of burrs and distortion.
4. Rigidly secure nonmovement joints.
5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
6. Seal perimeter and other joints watertight unless otherwise indicated.

B. Metal Protection:

1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting, applying sealant or tape to contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
3. Shims to be non-metallic.

- C. Set continuous sill members and flashing in full sealant bed, as specified in Section 07 92 00 "Joint Sealants," to produce weathertight installation.

- D. Install components plumb and true in alignment with established lines and grades.

3.3 INSTALLATION OF GLAZING

- A. Install glazing as specified in Section 08 80 00 "Glazing."

3.4 ERECTION TOLERANCES

- A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:

1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
3. Alignment:

- a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
 - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch; wide, limit offset from true alignment to 1/8 inch.
 - c. Where surfaces are separated by reveal or protruding element of 1 inch; wide or more, limit offset from true alignment to 1/4 inch.
4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

END OF SECTION

SECTION 08 80 00

GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. Glass designated on Drawings and scheduled.
 - a. Glass products.
 - b. Insulated glass.
 - 2. Glazing sealants and accessories.

1.3 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. IBC: International Building Code.

1.4 COORDINATION

- A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.5 SUBMITTALS

- A. Product Data: For each type of product.
- B. Glass Samples: For each type of glass product other than clear monolithic vision glass, 12 inches square.

- C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- D. Product Certificates: For glass.
- E. Product Test Reports: For insulating glass and glazing sealants, for tests performed by a qualified testing agency.
 - 1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.
- F. Preconstruction adhesion and compatibility test report.
- G. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- B. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.
- C. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.

1.7 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion and Compatibility Testing: For insulated or laminated glass types installed with glazing sealants, test each glass product, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.
 - 1. Testing is not required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
 - 2. Use ASTM C 1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
 - 3. Test no fewer than eight samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.
 - 4. Schedule enough time for testing and analyzing results to prevent delaying the Work.
 - 5. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including the use of specially formulated primers.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 - 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.

1.10 WARRANTY

- A. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the criteria noted:
 - 1. Provide fully tempered glass in insulated units where required for safety glazing.
- C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E 1300.

1. Design Wind Pressures: Determine design wind pressures applicable to Project according to ASCE/SEI 7, based on heights above grade indicated on Drawings.
 - a. Wind Design Data: As indicated on Drawings.
 2. Design Snow Loads: As indicated on Drawings.
 3. Thickness of Patterned Glass: Base design of patterned glass on thickness at thinnest part of the glass.
 4. Probability of Breakage for Sloped Glazing: For glass surfaces sloped more than 15 degrees from vertical, design glass for a probability of breakage not greater than 0.001.
 5. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch, whichever is less.
 6. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.
- D. Safety Glazing: Where safety glazing is indicated and required, provide glazing that complies with 16 CFR 1201, Category II.
1. Provide safety glazing in all hazardous locations as defined and listed in the Ohio Building Code OBC 2024, Section 2406. The following is a general list of required safety glazing locations., it is not meant to be inclusive of all required locations:
 - a. Glazing in swinging doors
 - b. Glazing in sliding doors.
 - c. Glazing in panels adjacent to door openings within 24 inches of the opening edge up to 60 inches above the floor.
 - d. Glazing in panels with all of the following: bottom edge below 18 inches above the floor, top edge 36 inches above the floor, walking surface within 36 inches of the panel and overall area of panel is greater than 9 square feet.
- E. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
 2. For laminated-glass lites, properties are based on products of construction indicated.
 3. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 4. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW computer program, expressed as Btu/sq. ft. x h x deg F.

5. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW computer program.
6. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.2 GLASS PRODUCTS, GENERAL

- A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 1. NGA Publications: "Laminated Glazing Reference Manual" and "Glazing Manual."
 2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR A7, "Sloped Glazing Guidelines."
 3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Guidelines for Sloped Glazing."
 4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- C. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.
 1. Minimum Glass Thickness for Exterior Lites: 6 mm.
 2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.
- D. Strength: Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.

2.3 GLASS PRODUCTS

- A. Refer to schedule at end of section for applicable glass products utilized on Project.
- B. Fully Tempered Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.

- C. Heat-Strengthened Float Glass: ASTM C 1048, Kind HS (heat strengthened), Type I, Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
 - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.

2.4 INSULATING GLASS, IG-X

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190.
 - 1. Sealing System: Dual seal, with polyisobutylene and silicone primary and secondary sealants.
 - 2. Spacer Manufacturer/Model: Provide manufacturer's standard corner construction. No aluminum, foam or all thermoplastic spacers are permitted.
 - a. TechnoForm Glass Insulation: TGI spacer, light gray.
 - b. Roll Tech: Chromatech Ultra, light gray.
 - c. Thermix: Thermix TX-N Plus, light gray.
 - d. Viracon: VTS Viracon Thermal Spacer, standard black matte.
 - 3. Desiccant: Molecular sieve or silica gel, or a blend of both.

2.5 GLAZING SEALANTS

- A. General:
 - 1. Compatibility: Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 - 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 - 3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- B. Glazing Sealant: Nonstaining silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.
 - 1. Subject to compliance with requirements provide one of the following:

- a. Dow Corning Corporation; 795.
 - b. GE Silicones; SilPruf NB.
 - c. Pecora Corporation; 895NST.
 - d. Tremco Incorporated, Spectrum 2.
- 2. Color: Black.
- C. Glazing Sealants for Fire-Resistive and Fire Protective Glazing Products: Identical to products used in test assemblies to obtain fire-protection rating.

2.6 GLAZING ACCESSORIES

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, with requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
 - 1. Fire-Resistive and Fire-Protective Products; Approved by testing agencies that listed and labeled fire resistive and fire protective glazing products with which products are used for applications and ratings indicated. Comply with manufacturer's requirements.
- B. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
 - 1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 - 2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- C. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
 - 1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
 - 2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.
- D. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- E. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- F. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

- G. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- H. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.7 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
 - 1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
 - a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.
- C. Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep systems.
 - 3. Minimum required face and edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.
- C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- F. Provide spacers for glass lites where length plus width is larger than 50 inches.
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
 - 1. For fire rated glazing, place coatings or film facing fire side.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.
- L. Glazing Film: When utilized install glazing film per manufacturers installation instructions.

3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- G. Fire resistive and Fire Protective Glazing: Install tapes and sealants per manufacturer's instructions.

3.5 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

- E. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 CLEANING AND PROTECTION

- A. Immediately after installation remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
 - 1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.
- C. Remove and replace glass that is damaged during construction period.
- D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.8 GLASS SCHEDULE

- A. See attached schedule.

END OF SECTION

SECTION 09 22 16

NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Non-load-bearing steel framing systems for interior partitions.
 - 2. Suspension systems for interior ceilings and soffits.
 - 3. Grid suspension systems for gypsum board ceilings.

1.3 SUBMITTALS

- A. Product Data: Manufacturers technical literature for each type of product and system indicated.
 - 1. Include manufacturers specifications for materials, construction details and installation instructions.
 - 2. For conventional and embossed stud products, provide manufacturers limiting height tables for the stud framing being used and highlight the studs being proposed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E119 by an independent testing agency.
- B. Sound Control Partitions: For sound control assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.
- C. Horizontal Deflection:

1. For composite and non-composite wall assemblies, limited to L/240 of the wall height based on horizontal loading of 5 lbf/sq. ft.
 2. For composite and non-composite wall assemblies with applied ceramic tile, limited to L/360 of the wall height based on horizontal loading of 5 lbf/sq. ft.
- D. Steel Stud Manufacturers Association (SSMA): Conventional metal stud designations, stud and track section properties, limiting wall heights, bracing requirements and other requirements are to be based on the SSMA Technical Guide as well as requirements adopted by the Authority Having Jurisdiction and the stud and track manufacturers product data.

2.2 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C754 for conditions indicated.
1. Steel Sheet Components: Comply with AISI S220 and ASTM C645, Section 10 requirements for steel unless otherwise indicated.
 2. Protective Coating: ASTM A653/A653M, G40 (Z120) hot-dip galvanized unless otherwise indicated.
 - a. Coating with equivalent corrosion resistance of ASTM A 653/A 653M, G40 (Z120) or Clark Dietrich DiamondPlus® coating; roll-formed from steel meeting mechanical and chemical requirements of ASTM A 1003 with a zinc-based coating are acceptable. Galvannealed products are not acceptable.
 - 1) Coatings shall demonstrate equivalent corrosion resistance with an evaluation report acceptable to the authorities having jurisdiction.
 - b. Provide G60 (Z180) for structural designated framing.
 3. Definitions - The following are to aid in the use of this specification and to indicate when channel bridging is required for wall bracing. Refer to metal framing manufactures definitions and requirements and with the SFIA or SSMA definitions and requirements for wall assembly design.
 - a. Composite Wall Assemblies – Gypsum Board, 5/8-inch Type X, installed full height on both sides steel stud and track framing. No horizontal bracing (Channel Bridging) required.
 - b. Non-Composite Fully Braced Wall Assemblies – Gypsum Board, 5/8-inch Type X, installed on steel stud and track framing.
 - 1) Gypsum board installed only to ceiling height on both sides to have horizontal bracing (Channel Bridging) as required through the framing above the gypsum board.

- 2) Gypsum board installed full height one side and ceiling height on the other to have horizontal bracing (Channel Bridging) as required through the framing above the gypsum board.
 - c. Non-Composite Braced at 48" o.c. Wall Assemblies – Gypsum Board, 5/8-inch Type X, installed full height on one side of steel stud and track framing. Framing to have horizontal bracing (Channel Bridging) at 48 inches on center with horizontal bracing maximum 12 inches from the top of the assembly.
- B. Studs and Tracks: AISI S220 and ASTM C645, Section 10. Use either conventional steel studs and tracks or embossed steel studs and tracks as follows:
1. Contractor is to verify that proposed wall assemblies meet manufacturers published limiting- height tables. Verify that the height of the proposed wall assemblies, based on items listed, do not exceed allowed heights.
 - a. Defined wall assembly type per gypsum board location and heights.
 - b. Established allowable horizontal deflection and horizontal loading.
 - c. Stud type, depth and spacing.
 - d. Stud and track thickness.
 2. Conventional Steel Studs and Tracks:
 - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products may be incorporated into the work.
 - b. Typical Minimum Base-Steel Thickness: 0.0296 inch (30 mil, 33 ksi) unless horizontal deflection performance requires greater thickness.
 - 1) Structural Studs: Provide 0.0329-inch (33 mil, 33 ksi) or 0.0428-inch (43 mil, 33 ksi) studs at locations where indicated on Drawings and as required for horizontal deflection requirements.
 - c. Flange Size: 1-1/4 inches for 30 and 33 mil, minimum 1-3/8 inches for 43 mil.
 - d. Web Depth: As indicated on Drawings.
 - e. Maximum Spacing: 16 inches on center, unless noted otherwise.
 3. Embossed Steel Studs and Tracks: Roll-formed and embossed with surface deformations to stiffen the framing members matching conventional ASTM C645 steel studs and tracks.
 - a. Manufacturers/Products: Subject to compliance with requirements provide products by one of the following:
 - 1) Clark Dietrich; ProSTUD 30MIL (30 mil., 33 ksi).

- 2) MarinoWARE; Viper 30mil (30 mil., 33 ksi).
 - b. Flange Size: 1-1/4 inches.
 - c. Web Depth: As indicated on Drawings.
 - d. Maximum Spacing: 16 inches on center, unless noted otherwise.
4. Embossed Steel Studs and Tracks, Equivalent Gage: Roll-formed and embossed with surface deformations to stiffen the framing members so that they are structurally comparable to conventional ASTM C645 steel studs and tracks.
- a. Manufacturers/Products: Subject to compliance with requirements provide products by one of the following:
 - 1) Clark Dietrich; ProSTUD 20 (18 mil., 70 ksi 20 gauge EQ).
 - 2) MarinoWARE; Viper 20 (18 mil., 70 ksi 20 gauge EQ).
 - b. Minimum Base-Steel Thickness: 0.0181-inch (18 mil.) unless horizontal deflection performance requires greater thickness.
 - 1) Minimum Design Thickness: 0.0190 inch.
 - c. Flange Size: 1-1/4 inches.
 - d. Web Depth: As indicated on Drawings.
 - e. Maximum Spacing: 16 inches on center.
- C. Slip-Type Head Joints: Typical at all Wall Assemblies unless indicated otherwise. Provide the following:
- 1. Single Long-Leg Track System: AISI S220 top track with 2-inch- deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top track and with continuous bridging, at Non-Composite walls, located within 12 inches of the top of studs to provide lateral bracing.
- D. Channel Bridging: Use the bridging channels that correspond with the steel stud and track system that is being used.
- 1. Conventional Steel Studs and Tracks – Steel U-Channel, 0.0538-inch minimum base-steel thickness, with minimum 1/2-inch- wide flanges.
 - a. Depth: 1-1/2 inches.
 - b. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch- thick, galvanized steel.
 - 2. Embossed Steel Studs and Tracks - Pre-notched steel, 7/8 inch by 7/8 inch by 50 inches, 0.0329-inch minimum base steel thickness.

- a. Product: Provide Clark-Dietrich Spazzer 9200 Bridging and Spacer Bar or equivalent product by other approved manufacturers.
- E. Hat-Shaped, Rigid Furring Channels: AISI S220.
 - 1. Minimum Base-Steel Thickness: 0.0296 inch.
 - 2. Depth: As indicated on Drawings.

2.3 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.
- B. Hanger Attachments to Concrete:
 - 1. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193 or AC308 as appropriate for the substrate.
 - a. Uses: Securing hangers to structure.
 - b. Type: Torque-controlled expansion anchor, torque-controlled adhesive anchor or adhesive anchor.
 - c. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B633 or ASTM F1941 (ASTM F1941M), Class Fe/Zn 5, unless otherwise indicated.
 - d. Material for Exterior or Interior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F593 (ASTM F738M), and nuts, ASTM F594 (ASTM F836M).
 - 2. Power-Actuated Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- C. Wire Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
- D. Flat Hangers: Steel sheet, 1 by 3/16 inch by length indicated.
- E. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a base-steel thickness of 0.0538 inch and minimum 1/2-inch- wide flanges.
 - 1. Depth: 2-1/2 inches unless indicated otherwise on Drawings.
- F. Furring Channels (Furring Members):
 - 1. Cold-Rolled Channels: 0.0538-inch uncoated-steel thickness, with minimum 1/2-inch- wide flanges, 3/4 inch deep.

2. Steel Studs and Tracks: AISI S220 and ASTM C645, Section 10.
 - a. Minimum Base-Steel Thickness: 0.0296 inch.
 - b. Depth: As indicated on Drawings.
 3. Embossed, High-Strength Steel Studs and Tracks: AISI S220 and ASTM C645, Section 10.
 - a. Minimum Base-Steel Thickness: 0.0181 inch
 - b. Depth: As indicated on Drawings.
 4. Hat-Shaped, Rigid Furring Channels: AISI S220, 7/8 inch deep.
 - a. Minimum Base-Steel Thickness: 0.0296 inch.
 5. Resilient Furring Channels: 1/2-inch- deep members designed to reduce sound transmission.
 - a. Configuration: Asymmetrical or hat shaped.
- G. Grid Suspension System for Gypsum Board Ceilings: ASTM C645, direct-hung system composed of main beams and cross-furring members that interlock.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Armstrong Ceiling & Wall Solutions; Inc.; Drywall Grid Systems.
 - b. Rockfon, ROCKWOOL International; Chicago Metallic Corporation; 640/660 Drywall Ceiling Suspension System.
 - c. USG Corporation; Drywall Suspension System.

2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Sill Sealer Gasket at Exterior Walls: Closed-cell polyethylene foam, 3/16 to 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.
1. Product:
 - a. Dow Weathermate Sill Seal Foam Gasket.
 - b. Owens Corning FoamSealR Gasket.

- c. Reflectix Inc. Pro Sill Sealer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
 - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.
- B. Install sill sealer gaskets at exterior walls to isolate the underside of wall bottom track or rim track and the top of foundation wall or slab at stud or joist locations.

3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C754, except comply with framing sizes and spacing indicated.
 - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.
- F. Framing cannot be supported by the roof decking.
 - 1. Soffit framing and any other framing that does not bear on floor structure cannot be fastened to and supported by the overhead roof deck. Framing must be supported by the

structural roof framing by using non-structural metal framing, cold-formed metal-framing or steel angle or channel shapes as required.

3.4 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 - 1. Single-Layer Application: 16 inches o.c., unless otherwise indicated.
 - 2. Multilayer Application: 16 inches o.c., unless otherwise indicated.
 - 3. Tile Backing Panels: 16 inches o.c., unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
 - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
 - 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
 - 4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - 5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
 - 6. Curved Partitions:

- a. Cut top and bottom track/runners through leg and web at 2-inch intervals for arc length. In cutting lengths of runners, allow for uncut straight lengths of not less than 12 inches at ends of arcs.
 - b. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
 - c. Support outside (cut) leg of track/runners by clinching a 1-inch high by 0.0209-inch thick steel sheet strip to inside of cut legs using metal lock fasteners.
 - d. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches o.c.
- E. Direct Furring:
- 1. Screw to wood framing.
 - 2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- F. Z-Shaped Furring Members:
- 1. Erect insulation, specified in Section 072100 "Thermal Insulation," vertically and hold in place with Z-shaped furring members spaced 24 inches o.c.
 - 2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
 - 3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.
- G. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION

SECTION 09 91 13

EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Steel.
 - 2. Galvanized and galvanized metal.
 - 3. Aluminum (not anodized or otherwise coated).
- B. Related Sections include the following:
 - 1. Division 09 Section "Interior Painting" for surface preparation and the application of paint systems on interior substrates.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.5 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.6 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Subject to compliance with requirements provide products by the Sherwin Williams Company or comparable products by the following:
 - 1. Benjamin Moore & Co.
 - 2. Pratt and Lambert.

2.2 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Colors: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Masonry (Clay and CMU): 12 percent.
 - 2. Gypsum Board: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- G. Aluminum Substrates: Remove surface oxidation.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
- B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:
 - 1. Owner may engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will perform tests for compliance of paint materials with product requirements.
 - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

A. CMU Substrates:

- 1. Latex System (Existing Substrates) :
 - a. Prime Coat: One coat Loxon Acrylic Block Surfacer A24W200 16 mils WFT/8 mils DFT.
 - b. Topcoats: Two coats A-100 satin 4 mils WFT/1.3 mils DFT per coat.
- 2. Latex Over Alkali – Resistant Primer System (New Substrates):
 - a. Prime Coat: One coat Loxon Acrylic Block Surfacer A24W200 8 mils DFT.
 - b. Topcoats: Two coats A-100 satin 4 mils WFT/1.3 mils DFT per coat.

B. Steel Substrate:

- 1. Acrylic Over Water-Based Primer System:
 - a. Prime Coat: One coat Pro-Cryl Universal Metal Primer B66-310 Series 6 mils WFT / 3 mils DFT.
 - b. Topcoats: Two coats Pro Industrial Acrylic B66-650 Series 2.5-4.0 mils DFT.
- 2. High Performance Polyurethane, Pigmented Coating System:
 - a. Prime Coat: One coat Macropoxy 646 FC Epoxy B58-600 Series @ 5-10 mils DFT.
 - b. Topcoats: Two coats Pro Industrial Acrolon 100, Waterbased Urethane @ 3-5 mils DFT.

C. Galvanized and Galvannealed Metal Substrates:

- 1. Acrylic Over Water-Based Primer System:
 - a. Prime Coat: One coat Pro-Cryl Universal Water Based Primer B66-310 series 5 mils WFT/2 mils DFT.
 - b. Topcoats: Two coats Pro Industrial Acrylic B66-650 Series 2.5-4.0 mils DFT.
- 2. High Performance Polyurethane Pigmented Coating System:
 - a. Prime Coat: One coat Macropoxy 646 FC Epoxy B58-600 Series @ 5-10 mils DFT.
 - b. Topcoats: Two coats Pro Industrial Acrolon 100, Waterbased Urethane @ 3-5 mils DFT.

D. Aluminum Substrates (Not anodized or otherwise coated.):

1. Latex Systems:

- a. Prime Coat: One coat Pro-Cryl Universal Water Based Primer B66-310 series 5 mils WFT/2 mils DFT.
- b. Topcoats: Two coats Pro Industrial Acrylic B66-650 Series 2.5-4.0 mils DFT.

END OF SECTION

SECTION 09 91 23

INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Concrete masonry units (CMU).
 - 2. Steel.
 - 3. Galvanized and galvanized metal.
 - 4. Aluminum (not anodized or otherwise coated).
- B. Related Sections include the following:
 - 1. Section 09 91 13 "Exterior Painting" for surface preparation and the application of paint systems on exterior substrates.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.5 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.6 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Subject to compliance with requirements provide paints by the Sherwin Williams Company or comparable products by the following:
 - 1. Benjamin Moore & Co.
 - 2. Pratt and Lambert.

2.2 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Colors: As selected by Architect from manufacturer's full range.

2.3 RELATED MATERIALS

- A. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, aromatic polyurea with a Type A shore durometer hardness range of 90 to 95 according to ASTM D 2240.
 - 1. Use semirigid joint fillers at contraction or control joints, construction joints, and isolation joints in slabs-on-grade that are to receive floor coatings or sealers.

- B. Colors: Architect to select from the manufacturer's full range of colors.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Masonry (Clay and CMU): 12 percent.
 - 2. Gypsum Board: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

- E. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
- F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- H. Aluminum Substrates: Remove surface oxidation.
- I. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.
 - 1. Existing painted gypsum board substrates must be thoroughly cleaned to remove all dirt, oils and mold or mildew. Lightly sand surfaces after cleaning. Primer is to still be applied as part of the scheduled paint system.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- D. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
 - 1. Mechanical Work:
 - a. Uninsulated metal piping.
 - b. Uninsulated plastic piping.

- c. Pipe hangers and supports.
 - d. Tanks that do not have factory-applied final finishes.
 - e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 - f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
2. Electrical Work:
- a. Electrical equipment that is indicated to have a factory-primed finish for field painting.
 - b. Electrical conduit that is surface mounted on painted walls.

3.4 FIELD QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:
- 1. Owner may engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will perform tests for compliance with product requirements.
 - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

A. CMU Substrates:

1. Latex System (Standard for CMU walls):
 - a. Prime Coat: One coat Prep Rite Block Filler B25W25, 4 mils WFT/1.6 mils DFT.
 - b. Topcoats: Two coats Pro Mar 200 Latex Zero VOC eggshell, 4 mils WFT/1.6 mils DFT per coat.

B. Steel Substrates:

1. Prime Finish General Note: Manufacturer of products will typically have standard primer applied. Primer to be compatible to final coatings listed or match the listed primers.
 - a. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.
2. Latex Over Acrylic Primer System: (Miscellaneous metal, metal doors and frames (including coated/galvannealed base metal), access doors and frames, metal light frames in wood doors and other):
 - a. Prime Coat: One coat Pro-Cryl Universal Primer B66-310 Series 6.5 mils WFT/2.5 mils DFT.
 - b. Topcoat: Two coats Pro Industrial Acrylic B66-650 Semi-Gloss, 2.5-4.0 mils DFT.

C. Galvanized and Galvannealed-Metal Substrates:

1. Water Based Epoxy Coating System Two Component Epoxy (Galvanized steel items indicated to be epoxy painted):
 - a. Prime Coat: One coat Pro-Cryl Universal Primer B66-310 Series 6.5 mils WFT/2.5 mils DFT.
 - b. Topcoat: Two coats Pro Industrial Water Based Catalyzed Epoxy B73-360 Series Eggshell, 6.5 mils WFT/2.5 mils DFT.

D. Aluminum Substrate (Not anodized or otherwise coated.):

1. Water Based, Light Industrial Coating System:
 - a. Prime Coat: One coat Pro-Cryl Universal Primer B66-310 Series, 6.5 mils WFT / 2.5 mils DFT.
 - b. Topcoat: Two coats Pro Industrial Water Based Catalyzed Epoxy B73-360 Series Eggshell, 6.5 mils WFT/2.5 mils DFT.

E. Gypsum Board Substrates:

1. Latex System One (Standard for walls):
 - a. Prime Coat: One coat ProMar 200 Zero VOC Latex Primer, 4 mils WFT/1.3 mils DFT.
 - b. Topcoats: Two coats ProMar 200 Zero VOC Latex Eggshell. 4 mils WFT/1.6 mils DFT per coat.
2. Latex System Two (Standard for soffits and ceilings):
 - a. Prime Coat: One coat ProMar 200 Zero VOC latex Primer, 4 mils WFT/1.3 mils DFT.
 - b. Topcoats: Two coats Pro Mar 200 Zero VOC Latex Flat, 4 mils WFT/1.6 mils DFT per coat.
3. Latex System Three (Standard for walls/soffits/ceilings at wet areas and toilet rooms not indicated to be Epoxy):
 - a. Prime Coat: One coat ProMar 200 Zero VOC Latex Primer, 4 mils WFT/1.3 mils DFT.
 - b. Topcoats: Two coats ProMar 200 Zero VOC Latex Semi-Gloss. 4 mils WFT/1.8 mils DFT per coat.

END OF SECTION

SECTION 22 05 00

PLUMBING GENERAL PROVISIONS - DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

- A. **Section includes:** Provision of plumbing services associated with structure demolition. Work includes, but is not limited to:
 - 1. Capping of existing natural gas, water, storm, and sanitary piping.
 - 2. Coordinating Work of other contractors, Engineer, and Owner in regards to shut-downs, scheduling, and general work coordination; and
 - 3. After Owner has successfully coordinated the disconnection of service with appropriate utility company, close valves and underground branches at utility main (appropriate designations shall be provided at utility connections).
- B. Review inspection authorities' requirements and directives in regard to methods of work necessary for final approval.

1.02 REFERENCES

- A. Applicable building construction authorities, codes, standards and guidelines for plumbing work include, but are not limited to:
 - 1. State of Ohio Building Code, including Plumbing, Fuel Gas, Mechanical, handicap accessibility and energy conservation portions thereof.
 - 2. NFPA Pamphlet No. 54, NATIONAL FUEL GAS CODE
 - 3. NFPA Pamphlet No. 70, NATIONAL ELECTRIC CODE
 - 4. All other applicable references/regulations of entities listed in Sections 01 41 01 and 01 42 14.

1.03 GENERAL WORK REQUIREMENTS

- A. Scheduling of work shall be coordinated and approved by Engineer. Provide input to Owner in regards to timing and duration of all portions of Work. Coordinate schedule of the Work with all concerned parties until a schedule has been completed which is agreeable to all parties.
- B. Arrangements for storage of tools and materials and interruptions of services shall be coordinated with Owner.
- C. Connections to, or revisions in, existing piping or facilities shall be performed at such time as agreed to by Owner.
- D. Keep Site in a neat and orderly condition.
- E. At completion of Work, promptly clean up and remove all debris and excess materials associated with execution of Work from Site.

F. **Utilities:**

1. Investigate and locate all utilities prior to construction.
2. Identity and location of existing utilities known to be with construction area have been shown on Drawing(s) as accurately as provided by available documentation and field investigation. Engineer assumes no responsibility as to accuracy of utilities shown on Drawing(s).
3. Support, protect, and restore existing on-site utilities and appurtenances required to execute Work.
4. Ensure that notice is given to underground utilities protection service and to owners of underground utilities shown on Drawing(s) who are not members of a registered underground protection service in accordance with Code and local construction ordinances. Above mentioned notice shall be given at least 48 hours (excluding Saturdays, Sundays, and legal holidays) and response confirmed prior to commencing work.
5. Immediately alert occupants of nearby premises as to any emergency or impairment to service created or discovered in regard to underground utilities.
6. Procedure for disconnecting existing utilities shall be planned at least two weeks in advance of work and shall be executed in a manner to provide reasonably continuous service throughout construction period. **Connections and capping shall be made only at times approved by Owner.** For interruption of service in major utility systems, submit to Engineer and Owner a step-by-step sequence of operations planned to accomplish Work. Outline must show tentative dates and times of day for shut-off and restoration of services.

- G. **Supervision:** Contractor shall have in charge of Work, on the job during construction, a competent superintendent experienced in Work of this Contract.

H. **Unacceptable Work and Observation Reports:**

1. Work shall be unacceptable when found to be defective or contrary to Drawings, Specifications, Codes, or accepted standards of good workmanship.
2. Promptly correct work found unacceptable by Owner whether observed before or after substantial completion and whether or not fabricated, installed, or completed. Contractor shall bear costs of correcting such unacceptable work.
3. During course of construction, Engineer will prepare and issue "Observation Reports" including a list of items found to be in need of correction. Action items listed shall be corrected by Contractor. A space is provided on the form for the Contractor to note the completion of each item. **All prior "Observation Report" items must be completed, lists signed and returned to Engineer prior to making final inspection.** After final list is issued, the same procedure apply.

- I. **Final Inspection:** When Contractor determines Work is completed and working properly per Contract Documents, Contractor shall request a "final" inspection by Engineer in accordance with General Conditions. If more than one re-inspection is required after this final inspection, Contractor shall bear all additional costs including compensation for Engineer's additional services made necessary thereby. A final inspection will not be made until outstanding "Observation Report" action items completed, confirmed, signed, and returned to Engineer.

- J. **Permits and Fees:** Contractor shall apply for and pay any review, inspection, permit, license, testing and/or other service fees required by all review/inspection/approval authorities in connection with Work.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Where items/elements are indicated herein to be listed/approved, intent of this specification is that said item/element shall be listed by applicable material/construction standards and subject to final approval (including methods of installation) by all review/inspection/approval authorities.
- B. Unless indicated otherwise, plumbing contract materials, construction, performance, testing, and methods of installation to be as listed/approved by all applicable material/construction/installation standards for same, and be in accordance with requirements of all review/inspection/approval authorities. This includes, but is not limited to, standards and authorities referenced in this specification.
- C. Unless indicated otherwise, plumbing piping shall be in accordance with following standards in regard to materials, construction, dimensions/tolerances, type of service/transmission medium (water, air, gas, etc.) and methods of installation (as applicable), and shall be so listed. Final approval for use is subject to the requirements of review and inspection authorities:
1. Steel pipe, steel, malleable and cast iron fittings and joining methods; per applicable ASTM/ANSI/ASME standards. In addition, where utilized for potable water service, all elements shall be per applicable NSF and ASTM A53 (for carbon steel) standards.
 2. Ductile iron pipe, fittings and joining methods; per applicable ASTM/ANSI/ASME/AWWA/NSF standards.
 3. Cast iron pipe, fittings and joining methods; per applicable ASTM/ANSI/ASME/CISPI standards.
 4. Copper/copper alloy/brass pipe/tube, fittings and joining methods; per applicable ASTM/ANSI/ASME standards. In addition, where utilized for potable water service, all elements shall be per applicable NSF standards.
- D. Contract items/elements shall have the manufacturer's mark or name and the quality of the product or identification of same cast, embossed, stamped or indelibly marked on each item/element in accordance with the standards under which they are accepted and approved per applicable code(s).

PART 3 - EXECUTION

3.01 GENERAL

- A. Where standards, codes or guidelines are referenced herein and throughout documentation, including Drawings and Specifications, the latest version/edition shall be applied, unless Building Code references another version/edition, which shall take precedence.
- B. Refer to project documentation furnished with complete construction package in advance of work for overall coordination and verification of requirements of Work interfacing with and/or impacting plumbing work.

- C. Include any minor details, items, and/or elements essential to necessary approvals and successful operation in addition to items specified herein and shown on plans.
- D. Where existing items/elements are indicated to be reused as a part of new work, Contractor is responsible for action required to assure that such items/elements will function properly in the completed revised setting, and be in compliance with requirements of review, inspection and approval authorities. This includes removal, cleaning, and/or reconditioning of items/elements, if required.

END OF SECTION

SECTION 26 00 10

ELECTRICAL GENERAL PROVISIONS - DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:** Provision of electrical service associated with structure demolition work including, but not limited to:
 - 1. Disconnection of electrical services;
 - 2. Coordinating Work of other contractors, Engineer, and Owner in regards to shut-downs, scheduling, and general work coordination; and
 - 3. After Owner has successfully coordinated the disconnection of service with appropriate utility company, close valves and underground branches at utility main (appropriate designations shall be provided at utility connections).
- B. Review inspection authorities' requirements and directives in regard to methods of work necessary for final approval.

1.02 GENERAL WORK REQUIREMENTS

- A. Furnish materials, labor, tools, transportation, incidentals, and appurtenances to complete in every detail and leave in working order all items of work called for herein and shown on accompanying Drawings.
- B. It is intent that ensuing work shall be complete in every respect and that any material or work not specifically mentioned or shown on Drawings, but necessary to fully complete Work, shall be furnished.
- C. **Supervision:** Contractor shall have in charge of Work, on the job during construction, a competent superintendent experienced in the work of this Contract.

1.03 CONTRACT DRAWINGS

- A. Wiring layout is schematic and exact locations shall be determined by structural and other conditions. This shall not be construed to mean that design of system may be changed; it refers only to exact locations of conduit and equipment to fit into building as constructed and with coordination of conduit and other equipment with piping and equipment included under other divisions of Specifications.
- B. Other than minor adjustments, changes or deviations from what is shown on Drawings shall be submitted for approval before proceeding with Work.

PART 2 - PRODUCTS

2.01 MATERIALS

Materials required for Work of this Contract shall be provided.

PART 3 - EXECUTION

3.01 GENERAL

- A. Electrical work shall meet or exceed standards of installation and workmanship set forth in latest edition of National Electrical Contractors Association publication entitled NECA Standard of Installation, except as otherwise modified in these specifications or shown on Drawings.
- B. Owner and Engineer reserves right to direct removal and replacement of any item which, in their opinion, does not present an orderly, neat, or workmanlike appearance, provided that such item can be properly installed in an orderly way by methods usual in such work, or which does not comply with Drawings or these specifications. Contractor, at no additional expense to Owner, shall perform such removals or replacements when directed so in writing.
- C. Premises shall be kept in a neat and orderly condition, and at completion of Work shall properly clean up and cart away debris and excess materials.

3.02 TEMPORARY SERVICE

- A. Demolition activities of Contractor shall be closely coordinated with Engineer and Owner in regards to shut-downs, scheduling, and general work coordination. Refer to Divisions 00 and 01 for coordination of work requirements and requirements regarding shut down notifications.

3.03 EXISTING WORK AND DEMOLITION

- A. Locate existing utilities prior to beginning Work. Provide adequate means of protection during work operations. Maintain and protect these utilities to ensure phasing, demolition, and abatement can be performed without delays due to power outages or utility interruptions.
- B. Should uncharted or incorrectly charted piping or other utilities be encountered during work operations, notify Engineer immediately for procedure directions. Cooperate with utility companies in maintaining active sewers and facilities in operation.
- C. Existing work that has been harmed, damaged, or injured as a result of Contractor's operations shall be repaired, restored, or replaced at Contractor's expense.
- D. Revise existing wiring as indicated or required. Existing work that remains shall be left in first class condition, properly cleaned, and reconnected.

3.04 INTERRUPTION OF SERVICE

- A. Organize work such that alterations to the existing electrical distribution system shall not leave any occupied areas outside of the project area without electrical service during normal business work hours. Where electrical distribution system has to be de-energized, submit in writing a detailed method of interruption indicating elapsed time required for a switchover, time of outage, and date of interruption. Written schedules shall be submitted for approval ten work days prior to any interruption of service and shall be addressed at weekly construction meetings.
- B. Interruptions of service shall be made when load is at a minimum. Include necessary cost for overtime labor where service interruptions are required to be outside of normal daytime work hours.

- C. At no time shall Contractor or Contractor employees normally working on Project leave facility during a time when any normally live circuits or feeders are disconnected.
- D. Provide materials, connections, and equipment for temporary control or power wiring to maintain continuity of service during construction.

END OF SECTION

SECTION 26 00 51

BASIC MATERIALS AND METHODS

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 SCOPE

- A. The work shall include the furnishing of systems, equipment, and materials specified in this Division and as called for on the Drawings, to include: supervision, operations, methods, and labor for the fabrication, installation, start-up, and tests for the complete electrical installation.
- B. Drawings for the work are diagrammatic, intended to convey the scope of the work and to indicate the general arrangement and locations of the work. Because of the scale of the Drawings, certain basic items such as conduit fittings, access panels, sleeves, pull and junction boxes may not be shown. Where such items are required by Code or by other Sections, or where they are required for proper installation of the work, such items shall be included.
- C. Equipment Specification may not deal individually with minute items such as components, parts, controls and devices which may be required to produce the equipment performance specified or as required to meet the equipment warranties. Where such items are required, they shall be included by the supplier of the equipment, whether or not specifically called for.

1.3 ELECTRICAL REFERENCE SYMBOLS

- A. Symbols used on the floor plans are defined in the Electrical Symbols Schedule on the Drawings. Not necessarily will all symbols scheduled be required for the project.

1.4 PERMITS, INSPECTIONS, AND CODES

- A. The Contractor shall secure and pay for all permits and inspections required by the governing authorities for the prosecution of the electrical work. All permits and certificates of inspection and approval signed by the controlling building department shall become the property of the Owner.
- B. All wiring shall be in compliance with the current edition of the National Electric Code, applicable State and City regulations, and OSHA. In cases of conflict between Code and Specifications, the more restrictive requirements shall govern.

1.5 VISIT TO THE SITE

- A. The Electrical Contractor shall be required to visit the site of the work and familiarize himself with all such conditions affecting the work. The submission of his bid proposal shall presuppose his knowledge of all such conditions.

1.6 WORKMANSHIP

- A. Employ only experienced craftsmen under direct supervision of a full time competent foreman.

- B. Keep fully informed as to progress of work, so that work of this Division may be built into place in sufficient time to insure against delay to other trades, and to prevent misalignments or damage to electrical work.
- C. All work shall be completed in a neat and workmanlike manner as described and illustrated in the ANSI standards publication "NECA 1 Standard Practices for Good Workmanship in Electrical Contracting".

1.7 COORDINATION, CONDUCT, AND SCHEDULING OF WORK

- A. Electrical drawings are diagrammatic, indicating general arrangement, approximate sizes, general locations of equipment and outlets. Verify dimensions in field; adjust to manufacturer's shop drawings. Do not scale drawings.
- B. Architectural and structural drawings supersede electrical drawings. Determine that work of this Division can be accommodated within spaces provided. Notify Construction Manager and/or Architect of any interferences before starting installation.
- C. Determine sizes, locations for chases, openings necessary for installation of electrical work; cooperate with other trades in setting of sleeves, inserts, and hangers.
- D. Coordinate this work with all trades, serving utilities, and equipment suppliers. Arrange operation, submittal approvals, and equipment delivery, so as not to delay installation or completion of any parts of interrelated work so that construction may proceed on schedule.
- E. Cooperate with Mechanical trades in preparing interference drawings for points where there is possible conflict between trades. Exact locations of pipes, ducts, conduit based on field measurements with final arrangement to be determined by intra-trade agreements subject to Construction Manager's and/or Architect's review.
- F. Architect reserves the right to make reasonable changes in indicated locations without extra cost to the Owner.
- G. Drawings other than electrical drawings, and other sections of this Specification, may show or specify electrically operated equipment, wiring diagrams, etc. The Contractor shall examine all such drawings and specification sections and become familiar with the characteristics and required connections for all equipment.
- H. Conduits, wiring, and equipment shall be arranged substantially as indicated. Any change resulting in a savings in labor or material shall be made only in accordance with a contract change order. Deviations shall be made only where necessary to avoid interferences and only after drawings showing the proposed deviations have been submitted to and approved by the Architect.

1.8 MATERIALS

- A. All equipment and devices shall be new and shall conform to NEMA and Underwriters' Laboratories Standards. Where Specifications describe, or plans show, materials or equipment of higher quality than required by code and local ruling, the Drawings and Specifications shall govern the quality of the material or equipment.
- B. Materials and equipment used as extensions to existing special systems shall be of matching electrical characteristics for satisfactory operation of the complete system and shall be of the same manufacture and design unless otherwise approved.
- C. The Contractor shall submit proof, if requested by the Architect, that the materials, appliances, equipment or devices that he furnishes and installs under this contract, meet the requirements of the Underwriters' Laboratories, Inc. and its publications will be referred to hereinafter by the abbreviation UL, with or without additional identifying symbols.

- D. The National Electrical Code (NEC) of the National Fire Protection Association, and Publications and Standards of the organizations listed below are referenced herein by the abbreviations noted in parentheses, with or without additional identifying symbols. Unless otherwise specified, all work shall be manufactured, tested and installed in accordance with such reference standards.
1. American Society for Testing and Materials (ASTM)
 2. Underwriters' Laboratories, Inc. (UL)
 3. Insulated Power Cable Engineers Association (IPCEA)
 4. National Electrical Manufacturers Association (NEMA)
 5. Institute of Electrical and Electronic Engineers (IEEE)
 6. American National Standards Institute, Inc. (ANSI)
 7. National Fire Protection Association (NFPA)

1.9 GUARANTEE

- A. The Electrical Contractor shall guarantee for a period of one year that all work and equipment will remain free from all defects in workmanship and materials, and that it will comply with all the specific requirements of the Specifications and other Contract Documents governing the work.
- B. All work found to be defective will be replaced with new work meeting all the requirements of the Contract. The Electrical Contractor will bear all costs of supplying such new work, and installing and finishing same, and will assume all costs for replacing other work damaged by the removal and replacement of any of the work. The Electrical Contractor will bear all costs for freight, drayage and demurrage, and all labor in connection therewith.

1.10 SUBMITTALS

- A. This Contractor shall prepare or obtain from the manufacturer certified shop or erection drawings of the items listed below. After Contractor's review and approval of the proposed submittal, electronic copies of each shall be stamped and submitted to the Architect for approval before proceeding with installation or construction.
1. All lighting fixtures shall be submitted at one time. These drawings shall be complete in every respect, showing pertinent details of size, capacities, ballasts, accessories, type and thickness of materials, weight, maintenance, features, etc.
 2. Submittal drawings for all electrical distribution equipment identified with an asterisk " * " in paragraph 1.10B below shall consist of factory generated shop drawings only (submittals developed by local sales agencies or local distributors are not acceptable and will be returned without review). Factory submittals shall minimally include the following information;
 - a. Dimensioned plan view and dimensioned elevations to define all sizes, shipping splits, rough-in areas, lifting eyes, mounting rails, required access, door swings, location of major components, etc.
 - b. Complete description of all power bus including physical size, bus configuration, bus elevations, bus dimensions, bus material, bus bracing, bus ampacities, etc.
 - c. Description of all materials (type and thickness), finishes, devices and accessories providing sufficient information (including a "bill-of-material" where applicable) to permit evaluation and determine compliance with Construction Documents.
 - d. Control schematics (where applicable).

- e. Wiring diagrams.
 - f. Nameplate details and nameplate listing.
 - g. Listing of all applicable listings and construction standards.
 - h. Additional information as noted in the individual specification section.
- B. Approval drawings shall be submitted for the following items. Acceptable manufacturers shall be as described in the individual specification sections except where specifically noted below:
- 1. 26 00 56 - Firestopping
 - 2. 26 01 40 - Wiring Devices and Plates
 - 3. 26 01 65 - Branch Circuit Panelboards
 - a. ABB "ReliaGear RQ/RE/RD" Series
 - b. Cutler-Hammer "Pow-R-Line"
 - c. Siemens "P2" Series
 - d. Square D "NQ/NF"
 - 4. 26 01 71 - Surge Suppression
 - a. ABB/GE "Tranquell Series"
 - b. Advanced Protection Tech. "XT Series"
 - c. Current Technology "TG Series"
 - d. Eaton Cutler Hammer/Innovative Technology "PTX Series"
 - e. Siemens "TPS3 Series"
 - f. Square D Surgelogic "XGA Series"
 - g. Surge Suppression Inc. "Advantage" Series
 - h. United Power "PDX Series"
 - 5. 26 04 61 - Dry Type Distribution Transformers
 - a. ABB/GE – 2016 DOE
 - b. Acme Electric – 2016 DOE
 - c. Cutler-Hammer – 2016 DOE
 - d. Federal Pacific – 2016 DOE
 - e. PowerSmiths – E-Saver 33L
 - f. Siemens – 2016 DOE
 - g. Square D – 2016 DOE
 - 6. 26 05 01 - Lighting - General Description
 - 7. 26 06 01 - Lightning Protection System
 - 8. 26 09 16 – Lighting Control System
 - 9. 26 09 20 - Outdoor Lighting Control Panel Assembly
 - 10. 26 09 32 - Automatic Lighting Controls
- C. Electronic submittals shall conform to the following requirements:
- 1. Electronic submittals shall be in Portable Document Format (.pdf)

- a. Electronic submittals shall include a transmittal.
 - b. All portions of the electronic submittal shall be bound in a single .pdf file.
 - c. All content of the submittal shall be visible/readable and shall clearly indicate each item to be reviewed. Indicate specific options or accessories on shop drawings by pointing to, checking off, underlining, or other means.
 - d. File shall be named to match submittal contents.
 - e. Submittals shall include a specific notice of any deviation from the Contract Documents.
- 2. Electronic submittals shall include a Contractor review stamp that indicates review and approval by the Contractor prior to submission.
 - 3. Electronic submittals shall be transmitted via an email.
 - a. One submittal per email.
 - b. Email shall clearly contain project name and contents of submittal.
 - 4. Failure to conform to the requirements above may result in rejection.
 - 5. The Reviewer shall return the submittals in a format and method appropriate for the Project and the response.
- D. AutoCAD floor plans are available to Vendors and Contractors to assist in generation of shop drawings.
 - E. Prior to the signing of the contract the successful bidder shall submit to the Architect a list of manufacturers of the major items of equipment he proposes to furnish and the names of any subcontractors he proposes to employ.

1.11 ENGINEER'S REVIEW

- A. Shop drawings shall be reviewed for general compliance. The Reviewer will make reasonable efforts to detect and correct errors, omissions and inaccuracies but shall not be responsible for failure to detect errors, omissions, or inaccuracies. Failure to detect errors, omissions, and inaccuracies shall not relieve the Contractor of responsibility for the proper and complete installation in accordance with the intent of the Contract Documents.
- B. The Engineer shall mark the shop drawings in one of the ways outlined below. See each description for interpretation of Engineers marks and Contractor responsibilities associated with each.
 - 1. NO EXCEPTIONS TAKEN: The submittal complies with the requirements of the specifications.
 - 2. REVISE AS NOTED: The submittal generally complies with the requirements of the specifications but some non-critical items which need to be corrected/coordinated are noted. The corrections shall be changed on the shop drawings submitted for inclusion in the Operations and Maintenance Manual. Re-submittal is not required unless noted otherwise.
 - 3. REVISE AND RESUBMIT: The submittal generally complies with the requirements of the specifications but some critical items which need to be corrected/coordinated are noted. The submittal must be revised and resubmitted with all comments addressed.
 - 4. REJECTED: The submittal does not comply with the requirements of the specifications. The submittal must be revised and resubmitted.
- C. Review of submittal items shall not eliminate the Engineers right to reject those items if defects are discovered prior to final acceptance of the completed work.

1.12 SUBSTITUTION

- A. Bidders desiring to make a substitution for the specified brand or method shall list such proposed substitution. In each case state the difference in price where substitution is offered. If there is no difference in price, so state.
- B. It shall be understood that the proposal submitted shall be based on the different branches of work and materials specified, and that the Owner is entitled to the use of the materials so specified. Substitution sheet shall be signed and dated by the Electrical Contractor and shall be formatted as follows:

BRAND OR MAKE SPECIFIED | PROPOSED SUBSTITUTION | ADD | DEDUCT

1.13 APPROVED WIRING SYSTEMS

- A. All raceways, conductors, and wiring systems furnished and installed under this project shall be restricted to that specifically described on the electrical construction drawings and/or the following Electrical Specification Sections.
 - 1. 26 00 53 General Wiring
 - 2. 26 01 11 Conduit Systems
 - 3. 26 01 20 Wire and Cable
- B. Unless specifically noted otherwise on the Electrical Bid Documents, the Electrical Contractor shall not install Type AC armored cable, Type FC flat cable, Type FCC flat conductor cable, Types NM / NMC / NMS nonmetallic sheathed cable, Types SE / USE service cable or Type UF underground feed cable. Refer to Specification Section 26 01 20 for the limited use of MC Cable.

1.14 CONCRETE WORK

- A. Concrete bases and pads for electrical equipment identified on the Drawings or as required shall be the responsibility of this Section.
- B. Pads shall be 3" high with chamfered top edges unless otherwise noted on the Drawings. Pad sizes and locations shall be determined by the Electrical Contractor (do not scale from the Drawings).
- C. This Contractor shall furnish all equipment anchor bolts and shall be responsible for their proper installation and accurate location.

1.15 NAMEPLATES AND LABELS

- A. The Electrical Contractor shall furnish and install a system of nameplates designed to identify each piece of equipment, control unit thereon, and major distribution points. The following color scheme shall be used as a guide:
 - 1. For switchboards, panelboards, control centers, all panels and remote control and indicating devices served by "normal" power, use black plastic, laminated, with white engraved letters. For equipment served by "emergency" power, use red plastic, laminated, with white engraved letters.
 - a. Switchboard, distribution panelboard, branch circuit panelboard, and motor control center nameplates shall identify panel designation, voltage, and designation of upstream source:
 - 1). Line 1: "Panel 1-2A"
 - 2). Line 2: "208/120V, 3Ø, 4-wire"
 - 3). Line 3: "Fed from switchboard SDP-2A"

2. For fire alarm system cabinet and panels, use red laminated plastic with white engraved letters.
 3. For telephone distribution cabinets and panels, use black plastic with white engraved letters.
 4. Size of nameplates shall be made to readily differentiate between, and identify, equipment and usage. Nameplate identifying items that are transferred to emergency power shall carry a nameplate saying "EMERGENCY".
 5. Exposed feeder conduits shall be identified as to load fed and voltage (Normal or Emergency) with 1" high black stenciled letters and numerals; conduit shall be marked every 50 feet and at the supply end of the feeder. This shall include existing "spare" conduits.
- B. Nameplates for switchboards and panelboards shall be as shown on the drawings and as required in accordance with NEC 408.4(B).
- C. Fasten nameplates to all enclosures by use of stainless steel sheet metal screws.
- D. A label reading "contains emergency circuits" shall be installed on all boxes and enclosures that contain emergency powered circuits to comply with NEC 700.9(A).
1. Labels shall be installed on front covers of all pullboxes, junction boxes, and control enclosures.
 2. Labels shall be installed on interior trim of all branch circuit panelboards.
 3. Labels shall be installed on front trim of each transfer switch.
- E. The Electrical Contractor shall furnish and install Arc Flash Warning labels in a clearly visible location on the front trim of all switchboards, panelboards (inside the hinged panel cover), industrial control panels, meter socket enclosures, and motor control centers to comply with NEC 110.16. Labels shall be Brady Identification Solutions (1-800-537-8791) cat. no. 94913, 3.5" x 5", or equivalent.

1.16 PANELBOARD DIRECTORIES

- A. New panelboards shall be provided with typed directories indicating loads served from each branch circuit. Existing panelboard directories shall be updated to reflect all new branch circuit wiring installed and existing branch circuit wiring removed.
- B. Directories shall designate the type of load and room/area served.
1. The load description shall indicate receptacle, lighting, or fixed pieces of equipment. Portable equipment shall not be used to identify a branch circuit (i.e. coffee pot, fax machine, computer, etc.).
 2. Room descriptions shall utilize the Owner's room numbers, not the architectural plan room numbers. Where no room number is assigned by the Owner, the description shall include the location and room usage (i.e. South Storage, Lounge, etc.).
 3. Room numbers and descriptions shall be approved in advance by the Owner.
- C. All unused branch circuit breakers shall be placed in the "off" position and the corresponding line on the directory shall be labeled "spare" with an erasable lead pencil.

1.17 CLEANING AND PAINTING

- A. Touch up and repair any damaged factory finishes on equipment and materials furnished. Other painting will be done under the Painting Division of the Specifications.
- B. Remove any rust spots and prime with rust inhibitive paint any metal surfaces of electrical devices not provided with rust inhibitive coatings. Then apply one coat of paint in color as directed by Architect.

- C. Swab interiors of conduits clean and dry before pulling wire. Clean interiors of boxes and cabinets before installing trims and covers.

1.18 TESTS

- A. Systems shall be tested by the Electrical Contractor and placed in proper working order prior to demonstrating systems to Owner.
- B. After work is completed a load balance test shall be made by the Electrical Contractor to demonstrate that with full lighting and mechanical load the balance between phases is within 5%. Unbalance beyond this limit shall be corrected. Special care shall be taken during load balance adjustments to assure that reverse rotation of motors does not occur.
- C. System ground shall be tested to demonstrate that the ground resistance does not exceed the requirements of NEC.
- D. Perform such tests as required by authorities having jurisdiction over the site.
- E. Perform tests as described in all subsequent specification sections.

1.19 DEMONSTRATIONS

- A. Prior to acceptance of the work, the Contractor shall demonstrate to the Owner or his designated representative all features and functions of all systems and shall instruct the Owner in the proper operation of the systems. Each system shall be demonstrated once.
- B. The demonstrations shall consist of not less than the following:
 - 1. Point out the actual location of each component of a system and demonstrate its function and its relationship to other components within the system.
 - 2. Demonstrate the electrical systems by actual "start-stop" operation showing how to work controls, how to reset protective devices, how to replace fuses, and what to do in an emergency.
 - 3. Demonstrate communication, signal, alarm, and detection systems by actual operation of the systems and show how to reset signal, alarm, and detection devices.
- C. Systems to be demonstrated shall include but not be limited to the following:
 - 1. Service and Power Distribution Systems
 - 2. Lighting and Lighting Controls Systems
 - 3. Emergency Lighting Systems
 - 4. Motor and Equipment Control
 - 5. Standby Power System
- D. Contractor shall furnish the necessary trained personnel to perform the demonstrations and instruction, and shall arrange to have the manufacturer's representatives present to assist with the demonstrations.
- E. Contractor shall coordinate dates and times for performing all demonstrations with the Owner.

1.20 OPERATION AND MAINTENANCE MANUALS

- A. Electrical Contractor shall furnish to the Owner operation/maintenance manuals as described in the Division 1 Specifications.

- B. Manuals shall meet or exceed all Division 1 Specification requirements and shall minimally include three (3) individually bound and indexed (thumb tabbed) manuals. Each manual shall provide operating instructions, maintenance manuals, spare parts listing, copies of warranties, wiring diagrams, inspection procedures and shop drawings on all equipment and systems.
- C. An electronic copy of the all manuals shall also be provided on CD or DVD. Each manual shall consist of a separate bound PDF file arranged in the same order as the associated hardcopy.
- D. Unless otherwise directed by the Division 1 Specification each manual shall be bound in a heavy-duty, 3 inch, three-ring vinyl covered binder with pocket folders for drawings and folded sheet information. Each binder shall be identified on both the front and the spine.

1.21 AS-BUILT DRAWINGS

- A. As work progresses during the construction period, the Electrical Contractor shall record (on a dedicated set of bid drawings) any deviations from the design drawings. The completed record set of as-built drawings shall be delivered to the Architect prior to the Electrical Contractor's request for final payment.
- B. As-built documentation shall meet or exceed all Division 1 Specification requirements.

1.22 PROJECT CLOSE-OUT

- A. The installing Contractor shall contact the Engineers' office upon completion of the installation to request final inspection. At that time the following documents shall be assembled and provided for review at the job site:
 - 1. ☐ Photocopies of all branch panel schedules.
 - 2. ☐ Original (or carbonless copy) of signed hazardous waste disposal receipt from approved disposal facility for the following (where applicable):
 - a. ☐ PCB contaminated transformers
 - b. ☐ Fluorescent and HID lamps
 - c. ☐ Fluorescent and HID ballasts
 - 3. ☐ Photocopies of all signed electrical inspection permits.
 - 4. ☐ O & M Manuals (as described above).
 - 5. ☐ Photocopies of certified test results, as required by all specification sections.
 - 6. ☐ "As-Built" print set.
 - 7. ☐ "As-Built" flexible manufactured wiring system drawings where installed (Specification 26 04 73).
 - 8. ☐ Photocopy of the "spare fuse inventory" provided.
 - 9. ☐ Photocopy of Printout from Fire Alarm System listing device addresses and custom labels.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION - (NOT USED)

END OF SECTION

SECTION 26 00 52

TESTS

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 SCOPE

- A. It is the purpose of these specifications to assure that all tested electrical equipment, both contractor and owner supplied, is operational and within industry and manufacturers tolerances and is installed in accordance with design specifications.
- B. The Electrical Contractor shall be responsible for the execution, coordination and supervision of all testing work required by these specifications and the authorities having jurisdiction.
- C. Testing shall be performed by an independent testing agency as a Sub-Contractor to the Electrical Contractor.
 - 1. The Electrical Contractor shall coordinate and schedule all work to be performed by the testing Sub-Contractor.
 - 2. The Electrical Contractor shall supply to the testing organization complete sets of approved shop drawings, coordination study, settings of all adjustable devices, and other information necessary for an accurate inspection and evaluation of the system prior to the performance of any tests.
- D. Cable or equipment testing failures that are not immediately correctible shall be included in the final report. These instances would include defective breakers, damaged cables and similar. Corrective action taken shall be outlined in the report and final successful testing results shall be provided.

1.3 CODES AND STANDARDS

- A. International Electrical Testing Association - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems, latest revision.
- B. All inspections and tests shall be performed in accordance with applicable codes and standards including NEC, ANSI, IEEE, NFPA, NEMA, and OSHA.
- C. Equipment calibration program shall conform with the National Institute of Standards and Technology (N.I.S.T.).
- D. All tests shall be in accordance with the latest edition of the International Electrical Testing Association's (NETA) Acceptance Testing Specification for Electrical Power Distribution Equipment and Systems.

1.4 QUALIFICATIONS

- A. The contractor shall engage the services of a qualified independent testing organization to provide final inspection, testing, calibration, and adjusting on the electrical distribution system as defined in this specification.
- B. The independent testing organization shall have been engaged in full practice for a minimum of five years. The organization shall be corporately and financially independent of the supplier, producer, or installer of the equipment to be tested.

- C. Electrical testing shall be performed by Electrical Testing Services (440-327-0078), Great Lakes Testing (440-951-5861), High Voltage Maintenance Corporation (Donwil Company 877-373-6524), Independent Testing and Maintenance (330-753-1422), or another approved International Electrical Testing Association (NETA) certified testing agency.

1.5 SUBMITTALS

- A. The Electrical Contractor and testing Sub-Contractor shall submit for approval an acceptance test procedure for each item of electrical distribution equipment to be tested on this project. Test procedures shall include the proposed system function test. No testing shall be performed until the test procedures have been approved by the Electrical Engineer.

PART 2 - TESTING PROCEDURE

2.1 VISUAL INSPECTION

- A. An on-site visual inspection of the installed equipment shall be performed by the Testing Sub-Contractor to verify that the distribution equipment installed and to be tested is the equipment denoted on the approved shop drawings. The inspection shall check the equipment designations, device characteristics, special installation requirements, applicable codes, and standards.
- B. After completion of the visual inspection, a letter shall be filed to the Architect stating any discrepancies that were found.

2.2 TESTING GUIDELINES

- A. Dry-type Transformers, 600 Volts and below: Perform all tests, including all optional tests, listed in section 7.2.1.1 of NETA ATS.
- B. Switches:
 - 1. Low Voltage Air Switches, 60 ampere and larger: Perform all tests, including all optional tests, listed in section 7.5.1.1 of NETA ATS.
- C. Circuit Breakers
 - 1. Low Voltage, Insulated Case/Molded Case Breakers, 100 amp trip and larger: Perform all tests, including all optional tests, listed in section 7.6.1.1 of NETA ATS.
 - 2. Low Voltage, Power Operated Breakers: Perform all tests, including all optional tests, listed in section 7.6.1.2 of NETA ATS.
- D. Protective Relays: Perform all tests, including all optional tests, listed in section 7.9 of NETA ATS.
- E. Instrument Transformers: Perform all tests, including all optional tests, listed in section 7.10 of NETA ATS.
- F. Metering: Perform all tests, including all optional tests, listed in section 7.11 of NETA ATS.
- G. Emergency Power Generators: Perform all tests, including all optional tests, listed in section 7.22.1.1 of NETA ATS. Remainder of tests shall be performed by the equipment Manufacturer's Representative.
- H. Automatic Transfer Systems: Perform all tests, including all optional tests, listed in section 7.22.3.1 and 7.22.3.2-1,2,3 of NETA ATS. Remainder of tests shall be performed by the equipment Manufacturer's Representative.
- I. System Function Tests: Perform all tests, including all optional tests, listed in section 8 of NETA ATS.

- J. Cables:
 - 1. Low Voltage Feeders #2 and Larger, 600 volts and Below: Perform all tests, including all optional tests, listed in section 7.3.2 of NETA ATS.
 - 2. Medium/High Voltage Cables: Perform all tests, including all optional tests, listed in section 7.3.3 of NETA ATS.
- K. Grounding Systems: Perform all tests, including all optional tests, listed in section 7.13 of NETA ATS.

PART 3 - DOCUMENTATION

3.1 REPORT

- A. Three bound copies of the certified test reports shall be submitted to the Architect at the completion of the project.
- B. The final report shall be fully indexed and signed. It shall include the following information:
 - 1. Summary of the project
 - 2. Description of equipment tested
 - 3. Visual inspection report
 - 4. Description of tests
 - 5. Test results
 - 6. Conclusions and recommendations
 - 7. Appendix including appropriate test forms
 - 8. Identification of test equipment used

END OF SECTION

SECTION 26 00 53

GENERAL WIRING

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 SCOPE

- A. Provide materials, equipment, labor, and supervision necessary to install feeder, branch, control, and system circuits as required by the Drawings and this Section, to include:
 - 1. Conductors
 - 2. Conduit Fittings and Boxes
 - 3. Overcurrent Protection
 - 4. Panelboards
 - 5. Conduit Hangers and Supports
 - 6. Wiring Devices
 - 7. Motor and Equipment Connections

1.3 STANDARDS AND CODES

- A. Methods of fabrication and installation shall comply with the provisions of applicable articles in the NEC.
- B. Materials shall be UL and NEC approved for the application intended.

PART 2 - PRODUCTS

2.1 RELATED EQUIPMENT AND MATERIAL

- A. The equipment and material related to feeder and branch circuit systems as called for on the Drawings and specified in the electrical specifications.
- B. The materials used in the installation of general wiring shall be products of manufacturers regularly engaged in the manufacturing of the specified material. Where a manufacturer is named for a particular material, the material of other manufacturers will be accepted provided the material meets requirements of the Specification.

2.2 APPROVED WIRING SYSTEMS

- A. All raceways, conductors, and wiring systems furnished and installed under this project shall be restricted to that specifically described on the electrical construction drawings and/or in the electrical specifications.
- B. Unless specifically noted otherwise on the Electrical Bid Documents, the Electrical Contractor shall not install Type AC armored cable, Type FC flat cable, Type FCC flat conductor cable, Types NM / NMC / NMS nonmetallic sheathed cable, Types SE / USE service cable or Type UF underground feed cable. Refer to Specification Section 26 01 20 for the limited use of MC Cable.

PART 3 - INSTALLATION

3.1 GENERAL

- A. All wiring shall be furnished and installed complete from point of service connection to all receptacles, lighting fixtures, clocks, fans, power outlets and outlets for future extensions, etc., as indicated on the drawings. Ample slack wire shall be provided for motor loops, service connections, etc. Unless otherwise specified, all branch circuit conductors shall be # 12 AWG or larger. In outlet boxes for future installation of devices, ends of wires shall be taped and tagged for identification at both ends and outlets supplied with blank covers.
- B. All conductors not larger than #10 located in branch circuit panelboards, signal cabinets, signal control boards, switchboards and motor control centers shall be neatly and securely bundled. All conductors larger than #10 located in switchboards, motor control centers and pull boxes shall be neatly and securely cabled in individual circuits. Bundling and cabling shall be done with either (1) marlin twine or 3 ply lacing or (2) nylon straps made of self-extinguishing nylon having temperature range of 65°F to 350°F. Each strap shall be constructed with a locking hub or head on one end and a taper on the other. Arcproofing, where required on feeders shall be applied after cabling.
- C. Raceways subjected to different temperatures and where condensation may be a problem shall be filled with an approved material to prevent circulation of warm air to a colder section of the raceway. This shall include, but not be limited to, raceways passing from interior to exterior of buildings and raceways entering switch and control enclosures located outdoors.
- D. Branch circuit wiring within fixture wireways of multiple unit sections or surface, recessed or pendant type fluorescent lighting fixtures shall be minimum #12 AWG stranded XHHW or THHN.

3.2 FEEDER CIRCUITS

- A. A riser diagram and/or a general layout of feeder circuits are indicated on the Drawings. Contractor shall install the feeders generally as indicated, but shall determine the exact location and routing of feeders to best fit the field conditions.
- B. In general, conductor sizes for feeder circuits are noted on the Drawings. Where conductor sizes for feeder circuits are not shown, the Contractor shall immediately notify the Engineer, who in-turn, will provide the missing information and further directives.
- C. Feeder conductors shall be routed continuous from origin to destination, without splicing, unless specifically noted otherwise on plans.
- D. Refer to Section 260120 for feeder conductor insulation, color coding, connectors, and support requirements.

3.3 BRANCH AND SYSTEM CIRCUITS

- A. A general layout of branch circuit wiring is indicated on the Drawings. Generally, receptacles and appliances shall be on separate circuits from lighting.
- B. Branch panel circuits are numbered to match NEMA pole numbering system; poles 1 and 2 - Phase A, poles 3 and 4 - Phase B, poles 5 and 6 - Phase C, etc.
- C. Where homerun circuit numbers are shown on drawings, such numbers shall be followed in connecting circuits to panelboards. Each branch circuit homerun containing two or more circuits with a common neutral shall be connected to the circuit breakers or switches in such a manner that no two of the circuits will be fed from the same phase.
 - 1. In general, 120V and 277V single phase circuits shall be provided with dedicated neutrals and connected to single pole breakers.

2. Where multi-wire circuits are installed for modular type furniture, multi-circuit plug mold and similar equipment with a common neutral, phase conductors shall be connected to a multi-pole breaker.
- D. Each feeder and branch circuit associated with a two-pole or three-pole protective device shall be provided with a separate green insulated equipment grounding conductor. The required equipment grounding conductor shall be sized as shown on the drawings and shall not be smaller than shown in NEC Table 250.122 and shall be installed in a common conduit with the related phase and/or neutral conductors. In the case of parallel feeders, each raceway shall have a full size green insulated equipment ground conductor.
- E. Where panelboard cabinets are recessed, conduits with sufficient capacity to carry the required number and size of future conductors for all spare branch circuit protective devices and spaces in the panelboard shall be stubbed out above accessible ceilings. In no case shall there be less than one 1" and three 3/4" conduits stubbed out.
 1. Wireways shall not be installed above branch circuit panelboards. (Raceways shall terminate directly into panelboard tub).
- F. Branch circuit conductor sizes shall minimally be #12 AWG. Where the length of a homerun, from panel to first outlet, exceeds 75 feet for a 120 volt circuit or 175 feet for a 277 volt circuit, the minimum conductor size shall be #10 AWG.
- G. In general, conductor sizes for larger branch circuits, such as motor and equipment branch circuits, are noted on Drawings. Where conductor sizes for such circuits are not noted, Contractor shall provide branch circuit conductors sized as follows:
 1. Conductors for individual motor branch circuits shall have ampere capacity of not less than 125% of the running current of the motors (Article 430.22, NEC).
 2. Conductors for multiple motor branch circuits shall have ampere capacity of not less than 125% of the running current of the largest motor plus 100% of the running current for each additional motor connected to the circuit (Article 430.24, NEC).
 3. Conductors for individual or multiple equipment branch circuits shall have an ampere capacity of not less than 125% of the total connected ampere load served by the branch circuit.
- H. Where specific conductor sizes required by the Drawings are larger than the NEC requires, the larger sizes shall be installed.
- I. Cables shall not be bent, either permanently or temporarily during installation, to radii less than 10 times the outer diameters, except where shorter radii are approved for conditions making the specified radius impractical.
- J. No. 14 AWG wire shall be permitted only for systems control and alarm circuits.
- K. All wiring for the individual specified systems (fire alarm, telephone/data, intercom, paging, etc.) shall be as scheduled on the drawings and/or as described within the appropriate spec Sections.
- L. Refer to Section 260120 for conductor insulation, color coding, connectors, and support requirements.

END OF SECTION

SECTION 26 00 54

CUTTING AND PATCHING

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 SCOPE

- A. Furnish materials, tools, labor, and supervision necessary to cut and patch existing construction as required.

1.3 DESCRIPTION

- A. This Section describes the cutting and patching of existing construction required by the installation of new electrical work and for the removal of existing electrical devices and wiring.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide proper materials to match existing construction.

PART 3 - EXECUTION

3.1 GENERAL

- A. This Contractor shall provide all holes and channels in existing construction required for concealed installation of electrical wiring and equipment.
- B. Holes and channels shall be cut as small as practical and in a manner satisfactory to the Architect.
- C. This Contractor shall patch and "finish sand" all holes and channels cut for the installation of electrical wiring and electrical equipment and shall patch all damage caused by the installation and/or removal of electrical wiring and equipment.
- D. Finishing (paint, wall covering, etc.) shall not be included under this Section.
- E. Refer to Section 260056 for firestopping requirements.

END OF SECTION

SECTION 26 00 56

FIRESTOPPING

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 SCOPE

- A. Furnish materials, tools, labor, and supervision necessary to furnish and install fire stopping materials.

1.3 DESCRIPTION

- A. Fire and smoke barriers shall be maintained at all locations where this Section contractor's work requires penetration.
- B. Where walls are indicated as a fire rated assembly, install materials to meet the designated UL assembly.
- C. The firestopping final installation shall meet requirements of the NEC, specifically paragraph 300.21, and other applicable building codes and regulations.
- D. Refer to Specification Section 26 01 11 for installation of boxes in fire-rated walls.
- E. Refer to Specification Section 26 01 11 for installation of boxes in sound control walls.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All products used under this Section shall be UL listed for the purpose.
- B. Penetrations for conduits, cable, cable trays, bus ducts and sleeves shall be sealed with the appropriate intumescent caulk, putty, strip, block, sponge, or sheet type fire barrier product; Hilti "FS-One", Nelson "Flameseal", Specified Technologies Inc. "Spec Seal", International Protective Coatings "Flamesafe", CSD Sealing Systems, or approved equal as manufactured by 3M.
- C. Firestopping materials shall be installed in accordance with all U.L. System requirements for the type of penetration and firestopping system used. The following U.L. System descriptions are those of Hilti Inc. firestopping systems.

PENETRATION	F RATING	U.L. SYSTEM
Metal pipe through gypsum board	1 or 2 hours	Hilti # W-L-1054 or approved equal
Metal pipe through masonry/concrete floor or wall	3 hours	Hilti # C-AJ-1155, #C-AJ-1226 or approved equal

PENETRATION	F RATING	U.L. SYSTEM
Metal pipe through poured concrete floor slabs	3 hours	Hilti # F-A-1017 or approved equal
Metal pipe through wood floor/ceiling assembly	1 or 2 hours	Hilti # F-C-1059
Plastic pipe through masonry/concrete floor or wall	3 hours	Hilti # C-AJ-2109 or approved equal
Plastic pipe through gypsum wall assembly	1 or 2 hours	Hilti # W-L-2251
Plastic pipe through wood floor/ceiling assembly	1 or 2 hours	Hilti # F-C-2127
Cable through gypsum board	1 or 2 hours	Hilti # W-L-3065 or approved equal
Cable through masonry/concrete floor or wall	3 hours	Hilti # C-AJ-3095 or approved equal
Cable through poured concrete floor slabs	3 hours	Hilti # F-A-3007 or approved equal
Cable/cable bundle through wood floor/ceiling assembly	1 or 2 hours	Hilti # F-C-3012
Cable tray through gypsum board	1 or 2 hours	Hilti # W-L-4011, # W-L-4019 or approved equal
Cable tray through masonry/concrete floor or wall	3 hours	Hilti # C-AJ-4035 or approved equal
Cable tray through gypsum wall assembly	1 or 2 hours	Hilti # W-L-4011
Multiple cable trays through masonry/concrete floor or wall	3 hours	Hilti # C-AJ-4017 or approved equal

PART 3 - EXECUTION

- A. This Section Contractor shall install the firestopping materials as described per the manufacturer's instructions.
- B. The Contractor shall show proof of compliance by providing the appropriate UL firestopping system number to the inspection authority having jurisdiction.

END OF SECTION

SECTION 26 00 60

EXCAVATING, TRENCHING, BACKFILLING AND RESTORATION

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 SCOPE

- A. Furnish materials, tools, labor, and supervision necessary to provide all excavating, trenching and backfilling required for the proper installation of electrical equipment and wiring.
- B. Exact routing of trenching shall be determined by the Electrical Contractor and approved, in advance, by the Construction Manager and the Architect.

PART 2 - EXECUTION

2.1 EXISTING UNDERGROUND FACILITIES

- A. Drawings indicate the approximate desired position of equipment and routing of ducts, pipe and conduits. If field conditions are encountered which make arrangements indicated impossible or impractical, submit request for deviation in writing to the engineer, with drawings where required to clarify the request. Do not proceed until the request has been accepted in writing.
- B. Investigating, locating, marking and protecting existing underground facilities, public and private, shall be the responsibility of the Electrical Contractor.
- C. The Electrical Contractor shall notify the Ohio Utilities Protection Service (OUPS) at 800-362-2764, and owners of utility facilities who are not members of OUPS, at least 48 hours prior to construction.
- D. Any damage to underground facilities caused by the Electrical Contractor shall be repaired at no cost to the Owner.
- E. Clearances of underground facilities shall be as follows:
 - 1. Maintain minimum clearances of 12" vertical and 36" horizontal between proposed underground facilities and new and/or existing water lines.
 - 2. Maintain minimum clearances of 18" vertical and 18" horizontal between proposed underground facilities and new and/or existing sanitary sewer lines.
 - 3. Maintain minimum clearances of 12" vertical and 12" horizontal between proposed and existing underground facilities not listed above.

2.2 OPEN TRENCHING

- A. The Electrical Contractor shall perform all excavating and trenching required for light pole bases, underground wiring, conduit, and duct banks.
 - 1. Trenches shall be opened in straight lines and bottomed out at least 4" below conduits or ducts. Minimum depth as indicated shall be maintained between top of largest conduit or duct and finish grade.

2. Heavy steel plating shall be installed across all trenches where they traverse roadways, drives, and lot aisles to maintain existing traffic patterns throughout the construction period.
3. Care shall be taken in excavating that walls and footings and adjacent load bearing soils are not disturbed in any way. Where a line must pass under a footing, the crossing shall be made by the smallest possible trench to accommodate the duct or conduit.
4. Excavations shall be kept free from water by pumping if necessary. No greater length of trench shall be left open, in advance of conduit laying or duct installation, than that which is authorized or directed by the Construction Manager and/or the Architect.
5. Existing excavated concrete and asphalt shall be removed from the job site by the contractor.
6. Sub-base material, where suitable, shall be permitted to be used for backfilling. Unsuitable or surplus material shall be removed from the jobsite by the contractor.
7. Contractor shall cut any interfering trees, remove all stumps, rocks, etc. in the line of the excavation. Approval of the Architect must be obtained before any tree is removed.
8. Any shrubbery in line of excavation shall be removed with a ball of dirt and replaced at completion of excavation.
9. Roots shall be removed to a level of eighteen (18) inches below finished grades and deeper as required for duct runs, manholes, and light pole bases. No roots shall be allowed to remain under the work.

2.3 BACKFILLING AND RESTORATION

- A. The Electrical Contractor shall perform all backfilling associated with the above described excavation work.
 1. Backfill all trenches and excavations using suitable excavated materials as defined in ODOT 203 unless specifically noted otherwise on the Drawings.
 2. Backfilling shall commence immediately after work has been inspected and shall progress as rapidly as the testing and acceptance of the finished sections of the work will permit.
 3. Backfill about the structures shall be placed, when practical, as the work of construction progresses. Backfilling on or against concrete work shall commence only when directed.
 4. Prior to backfilling the trench, conduits shall either be backfilled and compacted, or encased using one of the following methods, as required per the Drawings.
 - a. Place fine aggregate consisting of natural sand or #8 granular material (3/8" diameter or less), as defined in ODOT 703, around raceways and compact material firmly around conduits to a depth of not less than four (4) inches over the top of the duct.

- b. In lieu of fine aggregate, the contractor may provide nonmetallic ties to prevent floating of conduits and encasement using low strength mortar backfill, as defined in ODOT 613, consisting of a flowable concrete mix. The concrete mix shall have a compressive strength between 50 and 100 psi at 28 days, which will allow future excavation.
 - c. Where duct banks are indicated to be concrete encased, provide nonmetallic ties to prevent floating of conduits, use care in placing concrete to not damage or dislocate raceways, and liberally and continuously hand spade to insure there are not voids between and under conduits. Concrete shall be Class C, as defined in ODOT 499, with an average compressive strength of 4,000 psi at 28 days. Mechanical vibrators are not acceptable.
 - 5. Trench backfilling and backfill around structures shall be compacted thoroughly in layers and shall be brought up to within six (6) inches of finished grades.
 - a. Backfill under roadways, drives, and parking areas shall be bank run gravel or approved granular material (ie, sand) and shall be installed in 6" layers, and tamped after each layer.
 - b. Backfill under building walls, and/or footers shall be concrete of the same strength as walls of footers.
 - c. Backfill in grassy areas shall be clean and free from vegetative matter, sticks, rocks and refuse.
- B. All restoration work shall be performed by the Electrical Contractor in full compliance with all City regulations (where applicable), and Architect's directives.
 - 1. Concrete areas shall be replaced to match.
 - 2. Concrete walks shall be removed in full sections and replaced to match.
 - a. Sidewalks shall be 5" thick with 6" by 6" by 10/10 gauge welded wire reinforcement, cross slope, and textured finish.
 - b. Control joints shall be 8'-0" on center and expansion joints shall be as recommended per American Concrete Institute Standards.
 - 3. Asphalt areas shall be replaced with 5" minimum ODOT 441 asphalt concrete surface.
 - a. Construction shall be 2" minimum Type 1 asphalt concrete wearing surface with 3" minimum Type 2 asphalt concrete intermediate surface and 6" minimum ODOT 301 crushed aggregate base.
 - b. Finished asphalt surface to be graded such as to avoid "ponding" of surface rain water.
 - 4. Grassy areas shall be finished with 6" best grade topsoil that is free of all rocks and debris, compacted in layers and carried to a crown of approximately 6" above finished grade. Rake to remove all stones, heavily seed (fairlawn mix), and install 3" thick cover of straw and bio-degradable green netting that is anchored on all sides on 36" centers.
- C. Shrubby removed during excavation shall be replanted using backfill mix as defined in ODOT 661. Where shrubby is indicated to be maintained, but does not survive construction or fails to establish after replanting, it shall be replaced.

END OF SECTION

SECTION 26 00 74

ELECTRICAL DEMOLITION AND SALVAGE

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 SCOPE

- A. In areas that are to be remodeled, provide labor, materials, equipment and supervision necessary to schedule and complete all work associated with the demolition and salvage of electrical equipment and wiring.
- B. The Electrical Contractor shall provide protection for all adjacent areas before, during and following demolition operations.
- C. Where remodeling of existing work is required, these specifications make no attempt to define exact extent of work involved, except to establish minimum standards for workmanship and materials. In general, make extensions to existing work with materials matching similar work remaining.

PART 2 - EXECUTION

2.1 DEMOLITION WORK - SERVICES

- A. Active Services: When encountered, support active electrical services as necessary. If active services require relocation (other than those indicated on the drawings), obtain written instructions before proceeding. Do not disturb active services scheduled to remain.
- B. Inactive Services: When encountered, remove conduit and wire full length. Notify servicing utility when encountered outside of structure.
- C. Interruption of Service: When work progress makes temporary shutdown unavoidable, shutdown shall be at night or at such time as approved by Owner so as to cause minimum disruption to established operating routine. Arrange to work continuously, including overtime as necessary to re-establish service within shortest possible down time. In those instances where the length of time required for the service interruption is not acceptable to the Owner, furnish and install temporary wiring as required to reduce the length of time of service interruption to an acceptable level.
- D. In areas where new construction ties into existing work or in remodeled areas, dismantle the existing electrical facilities as necessary. Relocate any existing services interfering with construction.

2.2 DEMOLITION WORK - GENERAL

- A. Remove all existing electrical devices and wiring in remodeled areas that interfere with new construction and are not necessary to maintain service to equipment and devices that are to remain.
- B. Relocate, and/or extend as required, wiring that interferes with new construction and is essential to maintain service to equipment and devices that are to remain.
- C. Remove and/or relocate those devices specifically indicated on the drawings and as required to complete demolition work.

- D. In those cases where devices are removed, the associated wiring that will no longer be active shall be removed.
- E. All wiring and feeders to be removed shall be removed full length back to the source. Identify all abandoned feeder breakers as spare.
- F. All holes or damage caused by the removal of existing work shall be properly patched. Holes shall be neatly patched with suitable materials to match existing surfaces. Conduits that penetrate the ground floor slab shall be cut flush with slab, filed to remove burrs, and grouted to match floor.
- G. Furnish and install blank coverplates over all abandoned outlet boxes.

2.3 SAFE DISPOSAL OF BALLASTS AND LAMPS

- A. Electrical Contractor shall safely dispose of all fluorescent and HID ballasts and lamps in full compliance with all Federal and State of Ohio EPA regulations.
- B. Electrical Contractor shall; under the base bid proposal; package, dispose, and/or recycle all lamps and ballasts removed under the demolition portion of this contract.
 - 1. Disposal shall be completed at an EPA approved hazardous waste facility.
 - 2. Recycling shall be completed by an EPA approved recycle facility.
- C. Electrical Contractor shall provide both Owner and Architect with copies of all lamp and ballast disposal/recycle documentation in accordance with US EPA and State EPA regulations.

2.4 SALVAGE

- A. All electrical material and devices that are removed shall be stored on the site for salvage by the Owner. All items not selected for salvage shall become the property of the Electrical Contractor and shall be removed from the site by the Electrical Contractor.

PART 3 - EXECUTION - (NOT USED)

END OF SECTION

SECTION 26 01 11

CONDUIT SYSTEMS

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 SCOPE

- A. Furnish materials, tools, labor, and supervision necessary to fabricate and install complete conduit systems.
- B. Conduit systems shall be provided for all wiring, except where the Drawings or other specification sections indicate that wiring is permitted to be installed without conduit.

1.3 STANDARDS AND CODES

- A. Methods of fabrication and installation shall comply with the provisions of applicable Section NEC, Article 300.
- B. Materials shall be UL and NEC approved for the application intended.

1.4 DESCRIPTION

- A. This Section describes the basic materials and methods of installation for circular cross section conduit systems. Other types of conduit or raceways when required shall be as specified in other Sections, or as called for on the Drawings.

1.5 QUALIFICATIONS

- A. The materials used in the fabrication of the conduit system shall be products of a manufacturer regularly engaged in the manufacturing of the specified material. Where a manufacturer is named for a particular material, the material of other manufacturers shall be acceptable provided the material meets requirements of the specification.

PART 2 - PRODUCTS

2.1 CONDUIT

- A. Coated Rigid Conduit: Full weight, threaded, rigid steel, 40 mil PVC coated on outside, 2 mil urethane coated on inside conduit. Approved sources for this raceway are Robroy "Plastibond-Red" (Westwood Electrical Sales, 440-835-9960), Ocal, Inc "Ocal-Blue" (Greisser Sales, 216-771-6120), or Calpipe Industries "Calbond" (Fields Electrical Sales, 513-228-1010). All associated raceway fittings, sweeps, etc., shall be coated. Field cut raceways shall be touched up with matching finish. Use for all conduit, regardless of size, where installed in earth fill, or where specifically required by the drawings.
- B. Rigid Conduit - Steel: Full weight, threaded, rigid steel conduit, galvanized inside and out by hot dip or electro galvanizing process with electrostatically applied baked coating. Use for all conduit, regardless of size, where installed in poured concrete walls, columns, floors or other concrete slabs or where specifically required by the drawings.

- C. Rigid Conduit - Aluminum: Full weight, threaded, rigid aluminum conduit may be used for all conduit, regardless of size, where installed exposed outdoors on roofs or in damp/wet locations or where specifically required by the drawings. Expansion fittings and supports shall be utilized to absorb and prevent deflections due to thermal expansion.
- D. Intermediate Metal Conduit (IMC): May be used as approved by the NEC for 2" and larger where rigid conduit is specified. IMC shall not be used for conduit buried in earth fill.
- E. Electrical Metallic Tubing: Thin wall, electrically welded cold rolled steel conduit, galvanized inside and out by electro galvanized process. Baked clear elastic enamel coating. Use indoors for conduit sizes through 4", where installed concealed in walls and above suspended ceilings and where exposed.
- F. Flexible Metal Conduit: Formed of one continuous length of spirally wound electro galvanized steel strip. Use for final connections to equipment such as unit heaters, fans, air handling units, pumps, dry type transformers, and for wiring within casework and millwork. Aluminum flexible conduit may be used for connections from junction boxes to lighting fixtures.
- G. Liquid-tight Flexible Metal Conduit: Formed of one continuous length of spirally wound steel strip, with water and oil tight neoprene jacket. Use for final connections to equipment listed in paragraph F above when located in wet or damp areas. Liquid-tight conduit shall not be used in environmental air plenums, except for branch circuits installed under a raised floor per the alternative wiring methods of NEC article 645.
- H. PVC Conduit: Schedule 40 heavy wall rigid, rated for 90°C cable, composed of polyvinyl chloride and shall conform to NEMA Standards. Conduit, fittings, and pipe-joining materials shall be produced by the same manufacturer. At Contractor's option and where permitted by NEC and local jurisdiction, PVC conduit may be used where buried outside building, or encased in concrete, or in/below floor slabs. PVC conduit shall not be used on environmental air plenums. Electrical Contractor shall be responsible for upsizing raceway if necessary as required by NEC.
- I. Fiberglass Conduit: Reinforced Thermosetting Resin Conduit (RTRC) manufactured using epoxy based resin, with no fillers, using a single circuit filament winding process on a non-tapered mandrel. The fiberglass shall be halogen free with additives for lowering smoke density and providing ultra violet protection. The internal conduit and elbow walls shall be smooth with all fibers embedded in the epoxy. Use where specifically required by the drawings.
- J. Fibrous nonmetallic tubing (loom) and non-metallic sheathed cable shall not be used.
- K. Refer to Specification Section 26 01 20 for the limited use of MC Cable.

2.2 CONDUIT FITTINGS

- A. Rigid Conduit Fittings: Threaded, galvanized malleable iron or heavy steel, water and concrete tight.
- B. Metallic Tubing Fittings: Set screw type galvanized steel, concrete tight. Die cast type indentor type fittings will not be allowed.
- C. Flexible Metal Conduit Fittings: Squeeze or screw type galvanized malleable iron or steel with nylon insulated throats, or steel with set screws.
- D. Liquid-tight Flexible Metal Conduit: Galvanized malleable iron or steel, with watertight gaskets, "O" ring and retainer, and nylon insulated throats.
- E. Condulet Fittings: Exposed conduit fittings shall be condulet type for sharp turns, tees, etc. Condulet covers shall be gasketed where exposed to moisture.
- F. PVC Conduit: Elbows associated with feeders shall be long-sweep PVC Schedule 80, galvanized rigid, or fiberglass.

- G. Fiberglass Conduit: Elbows associated with feeders shall be long-sweep with deep socket PVC couplings to facilitate transitions to other raceway systems. Straight couplings shall be made using integral conduit bell ends.
- H. Threaded conduit terminations for weatherproof applications shall be made by use of Myers Hubs.

2.3 OUTLET BOXES

- A. Material, size and installation for outlet boxes shall comply with NEC Article 314.
- B. Boxes shall be Racal, Steel City, Appleton or equivalent, catalog numbers listed below are based on Racal, unless otherwise indicated. In general the type of boxes shall be as follows:
 - 1. In stud walls: For single outlet use 4" square by 2-1/8" deep box No. 232 or 233. For ganged outlets use 4-1/2" high by 1-13/16" deep multiple gang boxes No. 951 through No. 958. Boxes to be provided with raised adapters of depth as required for thickness of wall materials.
 - 2. In masonry and poured concrete walls: For single outlets requiring two conduit connections in top and/or bottom of box use 4" square by 2-1/8" deep box No. 232 or 233 with raised square cut adapter. For ganged outlets use 3-3/4" high by 2-1/2" deep multiple gang masonry boxes No. 691 through No. 694 and No. 960 through No. 964.
 - 3. Surface mounted wall outlets: For single outlet use 2-1/8" deep handy box No. 674, for two outlets use 4" square by 2-1/8" deep box No. 232 or 233. For more than two ganged outlets use 3-3/4" by 2-1/2" deep multiple gang masonry boxes No. 692 through No. 694 and No. 960 through No. 964. Boxes to be provided with 1/2" raised cover as required for device.
 - 4. In suspended ceilings: Use 3-1/2" deep octagon box No. 280 or No. 281 with fixture studs and steel mounting bars.
 - 5. In poured concrete ceiling slabs: Use octagon concrete rings with back plates.
 - 6. Where outlet boxes are free standing on conduit stubs in kitchens, laundries, shops and other areas indicated, use Crouse-Hinds Type FS or FD malleable iron cadmium finish boxes with appropriate gasketed cover plate to suit device.
 - 7. Outlets installed outdoors or in wet locations: Use Crouse-Hinds Type FS or FD box with NEMA 3R cover plates listed for "raintight while in use" for receptacles. Covers for switches shall be Crouse Hinds No. DS185. Diecast "bell" type boxes are not acceptable.
 - 8. Floor outlets in above grade concrete slabs: Use concrete tight stamped steel galvanized box with fully adjustable top, Hubbell No. B-2527 for greater than 3" fill, No. B-2529 for 2" to 3" fill. Floor outlets in concrete slabs on grade: Use watertight cast iron box with fully adjustable top, Hubbell No. B-2536 for greater than 3" fill, No. B-2537 for 2" to 3" fill. Furnish for each outlet a No. S-2525 cover. Service fittings shall be as described on the Drawings. Furnish for each outlet in carpeted floor a No. S-3082 carpet flange.

2.4 PULL AND JUNCTION BOXES

- A. Construction, size and installation of pull and junction boxes shall comply with NEC, Article 314.
- B. Pull and junction boxes shall be fabricated of heavy gauge galvanized steel with screw covers, brass screws and hardware with enamel finish.

- C. Pull and junction boxes for installation in poured concrete floors shall be flush type, cast iron, with watertight gasketed covers. Boxes for installation in floors with tile or carpet floor covering shall have recessed covers to accommodate the floor covering.
- D. Pull and junction boxes for above grade outdoor installations shall be rain-tight.
- E. Grade level junction boxes shall be manufactured by CDR Systems, Synertech, or Quazite with open flared bottom and cover. Logo on cover to read "ELECTRIC", etc. Enclosures and covers shall be concrete gray color and rated for no less than 5,000 pounds over a 10" x 10" area and be designed and tested to temperatures of -50 degrees F. Material compressive strength should be no less than 11,000 psi. Covers shall be secured with two pentahead stainless steel bolts. Bolts shall be retained in lid when unscrewed. Bolts shall be secured to replaceable threaded inserts with openings at base to allow debris to fall through and thereby avoiding clogged threaded inserts.

2.5 AUXILIARY GUTTERS

- A. Construction, sizes and installation of auxiliary gutters shall comply with NEC, Article 366.

2.6 HANGERS AND SUPPORTS

- A. Provide conduit hanger and support devices of approved type for required methods of support to include: structural steel members, suspension rods, conduit clamps, concrete inserts, expansion shields, beam clamps and welding pins. All devices shall have galvanized finish or other approved corrosion resistive finish. In general, hangers and supports shall be as follows:
 - 1. Where a multiple run of conduit is routed on surface of structure, use conduit clamps mounted on Unistrut or equal channel so as to maintain clearance between conduit and structure.
 - 2. Where single run of conduit is suspended from overhead; use split ring conduit clamp suspended by steel drop rod.
 - 3. Where multiple parallel runs of conduit are suspended from overhead; use split ring conduit clamps uniformly spaced and supported on trapeze hangers fabricated of Unistrut Channels, suspended by not less than 1/2" continuously threaded steel drop rods.
 - 4. Where conduit is buried in concrete floor slabs; anchor conduit to structural floor with conduit clamps, at 10'-0" (maximum) intervals.
 - 5. Any form of strap iron or wire hangers will not be accepted.
 - 6. Maximum hanger and support spacing shall be in accordance with NEC Sections 342.30 (IMC), 344.30 (GRC), and 358.30 (EMT). Regardless of listed spacing provide additional hangers or supports at not more than 2'-0" from each change of direction and at each side of any box or fitting.
- B. Hangers and supports shall be anchored to structure as follows:
 - 1. Hangers and supports anchored to poured concrete: Use malleable iron or steel concrete inserts attached to concrete forms.
 - 2. Hangers or supports anchored to precast concrete: Use self-drilling expansion shields. Expansion shields may also be used where concrete inserts have been missed or additional support is required in poured concrete.
 - 3. Hangers or supports anchored to structural steel: Use beam clamps and/or steel channels as required by structural system.
 - 4. Hangers or supports anchored to metal deck: Use spring clips or approved welding pins. Maximum permissible load on each hanger shall not exceed 50 pounds.

5. The use of explosive force hammer actuated, booster assist or similar anchoring device will not be permitted without prior approval of the Architect.

PART 3 - EXECUTION

3.1 CONDUIT INSTALLATION

- A. In general, horizontal runs of conduit shall be installed in ceiling plenum. Conduit for convenience outlets, wall mounted fixtures and other wall outlets shall be routed overhead and concealed in wall to the outlet. Conduit shall not be installed in concrete floor slabs except where conditions will not permit the conduit to be routed overhead.
- B. Generally, conduit shall be concealed, except in crawl spaces, tunnels, shafts, mechanical equipment rooms, and at connections to surface panels and free-standing equipment, and as otherwise noted on Drawings. No surface raceways shall be used on the floor.
- C. Exposed conduit shall be routed in lines parallel to building construction lines. Exposed conduit locations shall be approved by the Architect prior to installation.
- D. No conduit shall be installed less than 6" from piping installed by other trades. Conduits shall be located to avoid ductwork, piping and other obstructions.
- E. Certain conduits are permitted to be embedded in structural concrete work. Contractor shall cooperate with other Contractors of their respective trades to effect the following:
 1. Reinforcing steel shall be securely anchored in place before installing conduit.
 2. No steel reinforcing shall be displaced from plan dimensions without approval of Architect.
 3. Conduit shall not be placed over top of reinforcing or under bottom of reinforcing, where crossing beams.
 4. Conduit and fittings shall not displace concrete in columns in excess of 4% of total cross-section area of column without approval of Architect.
 5. Conduit shall not be placed closer than 3 diameters on center.
 6. Maximum size of embedded conduit or pipe shall not exceed 1/3 thickness of structural slab; 2/3 thickness of topping slab.
- F. Minimum size conduit shall be 1/2" trade size. Where specific size is not called for on Drawings or in the specification, Contractor shall select size required from Chapter 9 of NEC. Where specific sizes required by Drawings or Specifications are larger than Code requires, the larger size shall be installed.
- G. Install the conduit system mechanically and electrically continuous from outlet to outlet and to cabinets, junction or pull boxes. Conduit shall enter and be secured to cabinets and boxes in such a manner that all parts of the system will have electrical continuity. Feeder raceways shall terminate in cabinets and pull boxes with double locknuts and insulating bushings.
- H. Flexible metallic conduit and liquid-tight metallic conduit used for final connections to equipment shall be between 2-foot and 6-foot in length. Longer runs shall be permitted where conduit is fished into existing walls or inaccessible ceilings, installed in casework, or installed for branch circuits under a raised floor per the alternative wiring methods of NEC article 645.
- I. Metal conduit buried in earth fill shall be protected with an approved corrosion resistant material.
- J. Conduits installed on exteriors of buildings or other structures shall be arranged to drain (not trap water), and shall be rain-tight in wet locations.

- K. Where conduits are routed through areas of differing temperatures or air pressures (air handlers, exterior walls, etc.), the penetration around the conduit shall be adequately sealed. The interior of these conduits shall be sealed at the first box or fitting adjacent to the penetration to prevent air mitigation between the spaces. Conduit sealant shall be Polywater FST, or approved equal.
- L. Conduits shall be capped during construction to prevent the entrance of foreign materials and moisture.
- M. Where conduits cross building expansion joints, O-Z Gedney Company type "DX" conduit expansion fittings complete with bonding jumpers shall be used.
- N. Contractor shall cut and patch existing construction for conduit installation as required.

3.2 OUTLET BOX INSTALLATION

- A. Outlet boxes shall be installed for fixtures, switches, receptacles and other devices.
- B. Approximate location of outlets are shown on the plans, but each outlet location shall be verified by the Contractor before installing the outlet box.
- C. Openings for electrical boxes in fire-rated walls that do not exceed 16 square inches in area are permitted in fire-rated construction provided that the aggregate area of such openings does not exceed 100 square inches for any 100 square feet of wall area.
- D. Where service utility boxes greater than 16 square inches exist in fire-rated wall construction, if the opening is not otherwise detailed to maintain the fire-rated integrity of the wall, provide firestopping wrap to the back side of each utility box.
- E. Outlet boxes on opposite sides of fire-rated walls shall be separated by a horizontal distance of not less than 24 inches.
- F. For outlet boxes in smoke partitions provide acoustic sealant to prohibit all gaps through wall.
- G. For outlet boxes acoustically rated (sound control) walls provide acoustic sealant to prohibit gaps through wall. Install sound absorption material in box and seal the conduit nipples with duct seal.
- H. Outlet boxes installed flush in a common wall shall not be back-to-back or through-wall type, unless construction requires same. Where it is necessary to install boxes back-to-back, install sound absorption material between boxes and seal the conduit nipple between boxes with duct seal.
- I. Boxes located on opposite sides of a common wall that are connected by 12" conduit length or less, shall have the conduit openings plugged with duct seal at both ends.
- J. Outlet boxes shall be installed plumb and square with wall face and with front of box or cover located within 1/8" of face of finish wall. Boxes in masonry shall be set with bottom of the box tight to the masonry unit.

3.3 PULL AND JUNCTION BOX AND GUTTER INSTALLATION

- A. Install pull boxes, junction boxes and auxiliary wiring gutters where indicated on Drawings and where required to facilitate installation of the wiring.
- B. For concealed conduit, install boxes flush with ceiling or wall, with covers accessible and easily removable. Where flush boxes are installed in finished ceilings or walls, provide cover which shall exceed the box face dimensions by a sufficient amount to allow no gap between box and finished material.
- C. Boxes shall not be exposed in finished, occupied rooms, without prior approval of Architect.

3.4 HANGER AND SUPPORT INSTALLATION

- A. Hangers and supports shall be installed for all conduit and boxes.
- B. Where encountered, steel fireproofing shall be repaired by the electrical contractor where supports are installed on existing steel structures.
- C. Conduit and boxes shall not be attached to or supported from mechanical pipes, plumbing pipes or sheet metal ducts.
- D. Conduits routed in lay-in grid ceiling plenum shall not be supported from the ceiling hanger iron or ceiling tees.

END OF SECTION

SECTION 26 01 20

WIRE AND CABLE

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 SCOPE

- A. Furnish material, tools, labor, and supervision necessary to install wire and cable.

1.3 STANDARDS AND CODES

- A. Methods of installation shall comply with the provisions of applicable sections of NEC, Article 300.
- B. Materials shall be in accordance with NEC, Article 310 and shall be UL listed for application intended.

1.4 DESCRIPTION

- A. This section describes the basic materials and methods of installation for general wiring systems of 1000 volts and less. Wiring for a higher voltage rating, if required, shall be as specified in other sections or as called for on the drawings.
- B. Minimum size conductors shall be No. 12 AWG for power and lighting and No. 14 AWG for signal and control.
- C. Refer to Spec Section 260053 for specific instructions with respect to sizing and installation of feeder and branch circuit conductors.

1.5 QUALIFICATIONS

- A. The material used for the wiring systems shall be the products of a manufacturer regularly engaged in the manufacturing of the specified material. Where a manufacturer is named for a particular material, the material of other manufacturers will be acceptable provided the material meets requirements of the Specifications.

PART 2 - PRODUCTS

2.1 WIRE AND CABLE

- A. Wire and cable for power, lighting, control and signal circuits shall have copper conductors of not less than 98% conductivity and shall be insulated to 1000V. Conductors shall be stranded except where specifically noted otherwise.
- B. Wire and cable type for the various applications shall be as follows:
 - 1. Type THWN or XHHW (75°C): Use for branch circuits, panel and equipment feeders in wet and dry locations.
 - 2. Type THHN or XHHW (90°C): Use for branch circuits, panel and equipment feeders in dry locations only. Use where lighting branch circuit conductors are routed through fluorescent fixture channels.

3. Type "VFD Rated" cable: Feeders, size #8 AWG and larger, from variable frequency drives shall be multi-conductor shielded cables with the following performance requirements.
 - a. Phase conductors shall be tinned copper, extra flexible 34 AWG Class M stranding (size 10 AWG and smaller) or 30 AWG Class K stranding (size 8 AWG and larger), with XLPE insulation.
 - b. Ground conductors shall be tinned copper, 100% rated, and symmetrically spaced (three ground cables total).
 - c. Shielding shall consist of 100% aluminum foil shield with 85% tinned copper braided shield (size 2 AWG and smaller) or two (2) copper tape shields with 100% coverage (size 1 AWG and larger).
 - d. Overall cable jacket shall be type TPE, sunlight and oil resistant, and have a tray cable exposed rating, Type TC-ER.
4. Type UF: Use where permitted by other Sections or by the drawings for underground direct burial branch circuits.
5. Type AF or SF-2 silicone rubber with heat-resistant glass braid (rated minimum 150°C) shall be used for branch circuit conductors connecting to fixture conductors within the fixture housing or to a connection box attached to the fixture and subject to temperatures equal to the temperatures within the fixture housing.
6. Metal Clad Cable (NEC Type MC):
 - a. Metal Clad Cable (MC Cable) may only be used where permitted by the NEC, Local Codes and the following limitations.
 - 1). For branch circuit wiring fished into existing walls or inaccessible ceilings and in casework. (MC Cable shall not be installed above ceilings in lengths greater than 8 feet.)
 - 2). MC Cable shall not be installed exposed on walls.
 - 3). MC Cable is not permitted for feeder circuits.
 - 4). MC Cable is not permitted for emergency power circuits, except where fished into existing walls or inaccessible ceilings.
 - 5). Ungrounded conductors shall be identified per NEC 210.5.C.
 - b. MC Cable shall be UL listed for its use. Where MC Cable is installed in Healthcare Facilities (as defined by the NEC), the cable assembly shall be listed for use in patient care areas (HCF).
 - c. Conductors in the MC Cable assembly shall comply with above.

2.2 CONDUCTOR COLOR CODING AND IDENTIFICATION

- A. Wiring systems shall be color coded. Conductor insulation shall be factory colored in sizes up through No. 8 AWG. Conductors No. 6 AWG and larger shall have black insulation and shall be phase color coded with one half inch band of colored tape at all junctions and terminations. Colors shall be assigned to each conductor as described below and carried throughout all main and branch circuit distribution.

	<u>208/120 Volt</u>	<u>480/277 Volt</u>
Phase 'A'	Black	Brown
Phase 'B'	Red	Orange

Phase 'C'	Blue	Yellow
Neutral	White	Gray
Equipment Ground	Green	Green
Isolated Equipment Grounding	Green w/ Yellow Stripe	

- B. Contractor shall take extraordinary care to ensure that phase and bus orientation in each and every panel is identical.
- C. Control wiring shall be color coded such that red is used exclusively for all 120 volt conductors and white for all neutral conductors. All control wiring to be identified at both ends with permanent wire markers.

2.3 CONNECTORS

- A. Splices and junctions for conductors #8 AWG and smaller shall be 1000V rated with "live spring" and insulated rigid nylon wing style body, 3M "Performance Plus", Ideal "Buchanan B-Cap", or equal.
- B. In-line connectors for 1000V copper conductors #6 AWG thru #3 AWG shall be ILSCO type "CT" circumferential compression sleeves or equal by 3M, Burndy, or Thomas & Betts.
- C. In-line connectors for 1000V copper conductors #2 AWG and larger shall be extra long barrel dual-crimp ILSCO type "CTL" compression sleeves or equal by 3M, Burndy, or Thomas & Betts.
- D. Insulate in-line connectors with cold shrink silicone insulators 3M "8440" series.
- E. Taps for copper conductor 1000V or less, sizes No. #6 AWG and larger shall be ILSCO "AH" series or equal by 3M, Burndy, or Thomas & Betts.
- F. Insulate taps to thickness of conductor insulation with half-lapped layers of 3M "Scotch" brand No. 33 vinyl electrical tape. Connectors having irregular surfaces; fill voids and smooth contours with 3M "Scotchfil" electrical putty prior to taping.
- G. Where mechanical style connections are permitted, cable terminations to bus bars and switch pads shall be ILSCO "TA" two-hole mechanical or equal by 3M, Burndy, or Thomas & Betts.
- H. Where compression style connections are required, cable terminations to bus bars and switch pads shall be ILSCO "CLWD" two-hole long-barrel dual-crimp compression type with sight hole or equal by 3M, Burndy, or Thomas & Betts.
 - 1. Lugs installed in wet locations on poles or outdoors where exposed shall be furnished without sight hole, ILSCO "CLND" or equal by 3M, Burndy, or Thomas & Betts.
- I. Mechanical and compression termination bolt/stud size and mounting hole spacing shall match factory bus hole size. Stacking lugs and spacers shall be provided as required for parallel cable runs.
- J. Cable terminations at motors shall be bolted and removable with 1-hole copper compression lugs on the motor pigtail and feeder conductors, and motor terminal insulation kit 3M "5300" series, or equal. Motor terminal insulation kit shall include lug cover, mastic strip Scotch No. 2230, silicone grease, and Scotch No. 33 tape.

PART 3 - EXECUTION

3.1 PREPARATION

- A. For new construction, wiring shall not be installed in the conduit system until the building is enclosed and masonry work is completed.
- B. Conduit shall be swabbed free of moisture and debris prior to pulling in the conductors.

3.2 CONDUCTOR INSTALLATION

- A. Feeder conductors shall be routed continuous from origin to destination, without splicing, unless specifically noted otherwise on the drawings.
- B. Power feeder conductors shall be pulled with the use of an approved pulling compound or powder, and per the requirements of Section 260125.
- C. Conductor splices shall be made only in readily accessible junction boxes.
- D. Cable supports and boxes shall be installed in all vertical feeders required by Article 300.19 of the National Electrical Code. Cables shall be supported at the top of the vertical raceway plus an additional support for each interval of spacing as specified in table 300.19 (A) of the NEC. For cables without a metallic sheath, the cable support shall be of the split wedge type which clamps each individual conductor firmly and tightens due to weight of cables.
- E. "VFD Rated" multi-conductor shielded cables shall be terminated according to the manufacturers recommendations. Braided shields shall be routed unbroken where service disconnects are located between the VFD and motor. Phase and ground conductors shall be pulled through braided shields at each end and terminated together with the ground conductors.

3.3 CONDUCTOR TERMINATIONS

- A. Terminations materials shall be as required by the equipment manufacturer's installation guidelines.
- B. Bolt diameter shall be properly sized for the terminations, in the absence of manufacturer's installation requirements, the largest diameter shall be used.
- C. Bolts shall be tightened to the torque values specific to the material, threads per inch, and nominal diameter. Bolted connections shall not be lubricated.
- D. Unless stipulated otherwise, the minimum grade bolt material shall be SAE J429 Grade 5 medium carbon steel.
- E. Belleville spring type washers shall be utilized for termination of conductors 350MCM and larger. Split ring lock washers shall be utilized on smaller conductor terminations.
- F. Connections shall be initialed or otherwise labeled after final torquing.

END OF SECTION

SECTION 26 01 40

WIRING DEVICES AND PLATES

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 SCOPE

- A. Provide materials, equipment, labor, and supervision necessary to install wiring devices as required by the Drawings and this section.

1.3 STANDARDS AND CODES

- A. Except where otherwise required by this section, the following Standards and Codes shall govern:
 - 1. Receptacles; NEC Article 406
 - 2. Wall Switches; NEC Article 404
 - 3. UL Listed
 - 4. NEMA Standards

1.4 QUALIFICATIONS

- A. Products by Hubbell HBL series, Pass & Seymour - Industrial Spec Grade Series, Leviton - Lev-Spec Series and Eaton-Arrow Hart - Industrial Spec Grade Series are acceptable.
- B. Pin and sleeve connectors by Menekes or Hubbell are acceptable.

1.5 SUBMITTALS

- A. Prior to the purchase of wiring devices and plates, submit shop Drawings for approval per the requirements of Section 26 00 51.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All wiring devices shall minimally be "Industrial Specification Grade" except where higher grade is required by the Drawings.
- B. Wiring devices shall be ivory in color, unless specifically noted otherwise in the symbol schedule on the Drawings.

2.2 SWITCHES

- A. Wall switches shall be as described in the Symbol Schedule on the Drawings and be UL20 Listed.
- B. Switches shall contain a 1-piece plated steel bridge.
- C. Plug tail devices are listed underlined in table below for each device where available. Acceptable manufacturers and product lines are as follows:

Toggle Switches	Eaton - Arrow Hart	Hubbell	Leviton	Pass & Seymour
20A1P	AH1221	HBL1221 or <u>SNAP 1221</u>	1221 or <u>M1221</u>	PS20AC1 or <u>PT20AC1</u>
20A 3-way	AH1223	HBL1223 or <u>SNAP 1223</u>	1223 or <u>M1223</u>	PS20AC3 or <u>PT20AC3</u>
20A 4-way	AH1224	HBL1224 or <u>SNAP 1224</u>	1224 or <u>M1224</u>	PS20AC4 or <u>PT20AC4</u>
20A Momentary	1995	HBL1556	1257	1251

2.3 RECEPTACLES

- A. Receptacles shall be as described in the Symbol Schedule on the Drawings.
- B. Receptacles shall contain a 1-piece, die stamped (not riveted), brass mounting strap with high-impact, chemical resistant face.
- C. 20A Duplex type "Industrial Grade" receptacles shall be UL498 Listed. Refer to Symbol Schedule on Drawings for complete description.
- D. Ground fault circuit interrupting (GFCI) receptacles shall be a U.L. 943 and U.L. 498 Listed duplex feed-through type with power/failure indicating LED, and test and reset buttons. Refer to Symbol Schedule on Drawings for complete description.
- E. Surge protective device (SPD), type 3, receptacles shall be duplex type with damage-alert alarm and indicating light. Receptacles shall meet all appropriate UL1449 and UL498 requirements. Refer to Symbol Schedule on Drawings for complete description.
- F. "Hospital Grade" duplex receptacles shall be UL498 Listed and have nickel-plated brass mounting straps. Refer to Symbol Schedule on Drawings for complete description.
- G. "Tamper Resistant" duplex safety receptacles shall be UL 498 Listed, and shall utilize a mechanical shutter assembly which requires the presence of an object in both right and left hand contacts to energize the device. Refer to Symbol Schedule on Drawings for complete description.
- H. "Weather Resistant" duplex receptacles shall be UL 498 Listed, be UL wet location listed with the attachment plug inserted, contain GFCI, and contain a cover listed for extra heavy duty. Refer to Symbol Schedule on Drawings for complete description.
- I. Plug tail devices are listed underlined in table below for each device where available. Acceptable manufacturers and product series are as follows:

Device	Eaton - Arrow Hart	Hubbell	Leviton	Pass & Seymour
20A Duplex Receptacles	AH5362 or <u>AH5362M</u>	HBL5362 or <u>SNAP5362</u>	5362 or <u>M5362</u>	PS5362A or <u>PT5362A</u>

Device	Eaton - Arrow Hart	Hubbell	Leviton	Pass & Seymour
20 Amp Tamper Resistant Duplex Receptacle with Two 3.1A Minimum USB Port	TR7756	USB20X2 or <u>SNAP20</u> <u>USB</u>	T5832	TR5362 USB
20A GFCI Duplex Receptacles	VGF20 or <u>VGF20MOD</u>	GFRST20	7899 or <u>M7899</u>	2095 or <u>PT2095</u>
20A TVSS Duplex Receptacles	5362S or <u>5362SM</u>	HBL5362SA or <u>SNAP5362S</u>	7380	5362-SP
20A Weather Resistant Duplex Receptacles	WRBR20	5362WR	5362-WR	WR5362
20A GFCI Weather Resistant Duplex Receptacles	WRVGF20 or <u>WRVGF20MOD</u>	GFTWRST20 or <u>GFTWRST20SNAP</u>	7899-WR	2095TRWR
20A Hospital Grade Duplex Receptacles	AH8300 or <u>AH8300M</u>	HBL8300 or <u>SNAP8300</u>	8300 or <u>M8300</u>	8300 or <u>PT8300</u>
20A Hospital Grade Tamper Resistant Duplex Receptacle with Two 3.1A Minimum USB Ports	TR8355	USB8300 or <u>SNAP8300</u> <u>USB</u>	T5832HG	TR8301 USB
20A GFCI Hospital Grade Duplex Receptacles	VGFH20 or <u>VGFH20MOD</u>	GFR8300HL or <u>GFRST83SNAP</u>	7899-HG or <u>M7899-</u> <u>HG</u>	2095-HG or <u>PT2095HG</u>
20A Hospital Grade Tamper Resistant Duplex Receptacles	TR8300 or <u>TR8300M</u>	HBL8300SGA or <u>SNAP8300TRA</u>	8300-SG or <u>M8300-</u> <u>SG</u>	TR-63H or <u>PTTR63</u>

2.4 COVERPLATES

- A. Provide plates for all switches, receptacles, TV outlets, other outlets and blank plates for all unused outlets.
- B. Where two or more devices are set at one point, they shall be covered with a common plate.
- C. Plates for flush mounted devices shall be high-impact smooth nylon, similar to Hubbell "P" series, color to match wiring device.
- D. Plates for devices mounted in surface FS or FD boxes shall be heavy-gauge galvanized stamped steel, Crouse Hinds type DS or Appleton type FSK.

- E. Cover for receptacles in wet locations shall self locking vertical flip covers UL listed "suitable wet locations while in use". Clear polycarbonate extra duty type shall be Hubbell Taymac #MM420C for single gang box and #MM2420C for two gang box. Cast aluminum type shall be Thomas Betts #CKMGV for single gang box and #2CKG for two gang box. Hubbell, Intermatic, or Thomas Betts equivalents are acceptable. Refer to Symbol Schedule on drawings for complete description.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install wiring devices as indicated on the Drawings, and as described below.
- B. Switches and receptacles shall be installed and located as follows, unless noted otherwise on Drawings:
 - 1. Switches: 48" above finished floors.
 - 2. Receptacles: 18" above finished floors generally; 36" above unfinished floors or 6" above counters and work benches (3" above counter backsplash) in kitchens, shops, mechanical equipment rooms and similar areas unless indicated otherwise.
- C. In masonry walls, switches and receptacle heights shall be adjusted as required so outlets are at nearest mortar joint to specified height.
- D. Where light switches are located adjacent to doors, they shall be installed on "knob" side of door opening, unless indicated otherwise.
- E. Where walls have wainscot finish, switch height shall be adjusted as required so switch is either all in wainscot or all in wall above wainscot.
- F. Prior to roughing-in outlet boxes, Contractor shall verify from general construction drawings door swings, type of wall finishes and locations for counters and work benches.
- G. This section Contractor shall provide material as required to completely install work indicated on the Drawings which is located in mill and casework.

END OF SECTION

SECTION 26 04 50

GROUNDING

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 SCOPE

- A. Provide material, equipment, labor, and supervision as required for the complete installation of grounding conductors and fittings.

1.3 CODES AND STANDARDS

- A. Except where otherwise required, the following codes shall govern:
 - 1. NEC, Article 250
 - 2. NEC, Article 517 (for Health Care Facilities only)
 - 3. NFPA 101
 - 4. UL 467 – Grounding and Bonding Equipment

PART 2 - PRODUCTS

2.1 GENERAL

- A. Service ground conductors and grounding conductors installed below slab on grade shall be bare stranded copper.
- B. All other grounding conductors shall be copper with Type TW, THW or THWN green insulation.
- C. Ground rods shall be "Copperweld" as manufactured by the following and shall be of the sizes indicated on the drawings.
 - 1. Joslyn
 - 2. Erico, Inc
 - 3. Copperweld, Inc
 - 4. O-Z Gedney
 - 5. Thomas & Betts

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Metallic conduit system shall be electrically continuous throughout.
- B. All motors and metal frames of all electrical equipment shall be grounded.
- C. System neutral conductor shall be identified throughout the building.

- D. All cord connected electrical equipment frames shall be grounded to the conduit system through a grounding conductor in the cord.
- E. Each feeder shall be provided with a separate green insulated equipment grounding conductor. The required equipment grounding conductor shall be sized as shown on the drawings and shall not be smaller than shown in NEC Table 250.122 and shall be installed in a common conduit with the related phase and/or neutral conductors. In the case of parallel feeders, each raceway shall have a full size green insulated equipment ground conductor.
- F. A single green insulated equipment grounding conductor may be run with multiple phase conductor groups in a common raceway which serve wiring devices with shared neutrals and multipole breakers in compliance with NEC Article 210.4. The required equipment grounding conductor shall be sized as shown on the drawings and shall not be smaller than shown in NEC Table 250.122 and shall be installed in a common conduit with the related phase and/or neutral conductors.
- G. Single phase branch circuits required for 120 volt and 277 volt lighting, receptacles, and motors shall consist of phase, neutral and grounding conductors installed in a common metallic conduit.
 - 1. Flexible metallic conduit equipment connections utilized in conjunction with the above single-phase branch circuits shall be provided with suitable green insulated equipment grounding conductors connected to approved grounding terminals at each end of the flexible conduit.
 - 2. Single phase branch circuits installed in non-metallic conduits shall be provided with a separate green insulated grounding conductor as hereinbefore specified.
- H. Furnish and install driven ground rods and grounding conductors as indicated on the drawings.
- I. All concealed connections shall be welded with "Cadweld" (or equal by "Thermoweld") fittings. Exposed connections shall be bolted to equipment bus using compression type lugs.
- J. Furnish and install all required grounding conductors and fittings as delineated in National Electric Code Article 250.

END OF SECTION

SECTION 26 06 01

LIGHTNING PROTECTION SYSTEM

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 SCOPE

- A. Furnish all labor, material and items of service requirements for the completion of a functional and concealed system of grounds, conductors, air terminals, air terminal protector balls and other component parts, for protection against damage by lightning.

1.3 STANDARDS AND CODES

- A. The complete installation shall conform to the current requirements of the Underwriters' Laboratories, Inc. UL96A. Upon completion of the work obtain and deliver to the Owner the Underwriters' "Master Label" for attachment to the building at the location indicated.

1.4 DESCRIPTION

- A. This Section describes the basic materials and methods of installation for a complete lightning protection system.

1.5 QUALIFICATIONS

- A. The materials used in the fabrication of the lightning protection system shall be products of a manufacturer regularly engaged in the manufacturing of the specified material. Where a manufacturer is named for a particular material, the material of other manufacturers will be acceptable provided the material meets requirements of the Specification.
- B. The system shall be installed by a qualified Lightning Protection Contractor. The Witchee Lightning Rod Company of Rittman, OH (phone 330-336-6202), or the Western Reserve Lightning Rod Company of Cleveland, OH (phone 216-486-1000).
- C. Air terminals and cables at parapet locations shall be mounted on inside face of parapet wall. Fasteners shall not penetrate top cap of parapet.

PART 2 - PRODUCTS

2.1 AIR TERMINALS

- A. Air terminals shall be copper and shall conform to the requirements of Chapter 3 of NFPA 780. Air terminals and mounts shall be aluminum for installations where materials will be in direct contact with aluminum roofing or aluminum coping materials.
- B. Air terminals installed at non-parapet locations shall include neoprene protective ball accessory.

2.2 CABLES

- A. Main and secondary cables shall be copper and shall conform to material requirements outlined in Chapter 3 of NFPA 780. Aluminum cables shall be permitted and installed for installations where cables will be in direct contact with aluminum roofing or aluminum coping materials. Connections between aluminum and copper cables shall be made utilizing compression connectors listed for the purpose.

2.3 GROUND RODS

- A. Ground rods shall be not less than 1/2" diameter and 8 feet long. Rods shall be copper-clad steel, solid copper or stainless steel.

2.4 MANUFACTURER

- A. Equipment shall be as manufactured by the Independent Protection Company of Goshen Indiana, or the George E. Thompson Co. of Saint Paul, Minnesota.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. The entire building shall be protected. All protrusions above the roof, such as chimneys, roof fan housings, air handling units, steel supports, etc. shall also be protected.
- B. All conductors shall be installed concealed except for the roof area where exposed runs may be used only at locations that are pre-approved by the Architect.
 - 1. Closely coordinate with the General Trades Contractor and the Electrical Contractor the exact location and installation of all down conductors. Make specific arrangements to provide a fully concealed installation of same.
 - 2. Drive all ground rods to a depth of 6" (minimum) to top of rod below finished grade.
- C. Verify roofing material types and coordinate copper/aluminum materials to prevent corrosion due to contact between dissimilar metals.
- D. Shop drawings indicating the device accessories, their locations and means of support, routing of conductors and connections of conductors shall be prepared and submitted for approval by the supplier.

END OF SECTION

SECTION 31 00 11

EARTHWORK AND SITE RESTORATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Requirements for soil stockpiles; backfill and fill, moisture control, compaction of backfills and fills, grading, subbase and base courses, drainage course, and subsoil preparation.
2. General criteria for earthwork operations. If field conditions arise which are not adequately covered by criteria specified under this Section, instructions for that specific condition will be issued by Owner and Engineer.
3. Contractor is responsible for providing source of backfill as needed for completion of Work.

B. References and Testing:

1. ODOT Specifications, current editions, including and supplements.
2. Applicable ASTM Standards.
3. Engineer may perform testing to check compliance with these standards.

C. Relating Sections:

1. Section 01 45 23: Testing Laboratory and Inspection Services
2. Section 02 41 16: Structure Demolition

1.02 SUBMITTALS

- A. Refer to Section 01 33 01 for additional submittal requirements.

- B. **Project Record Documents:** Submit drawings (per Section 01 78 39) which accurately record location of remaining utilities, rerouted utilities, and new utilities by horizontal dimensions, elevations or inverts, and slope gradients.

1.03 PERSONNEL AND SITE PROTECTION

A. General:

1. Ensure compliance with requirements of this Section, OSHA regulations, and other safety requirements.
2. Authorize immediate action to correct substandard safety conditions.
3. Review and act to ensure compliance with safety procedures with Contractor's supervisors, subcontractors, and suppliers.

4. Instruct workers regarding safe work practices and work methods at time workers are given work assignments.
5. Furnish and enforce use of protective equipment and suitable tools for the work.
6. Continuously inspect work to verify that no unsafe practices or conditions exist.

B. Site Security:

1. Comply with OSHA and EPA regulations concerning signage and labeling.
2. Refer to Article 1.10 of Section 01 11 01 concerning access to work.

C. Site Protection:

1. Protect excavations and trenches to prevent entry of precipitation and surface water. Remove, transport and dispose of precipitation and surface water that collects in excavations and piping trenches in accordance with federal, state and local regulations. Contractor shall bear all costs for removal, transportation and disposal of precipitation and surface water that collects in excavations and trenches.
2. Protect excavated soil to prevent spread of contamination to non-contaminated materials. Remove, transport and dispose of materials that become contaminated due to contact with excavated contaminated soil or liquids released from excavated contaminated soil in accordance with federal, state, and local regulations. Contractor shall bear all costs for removal, transportation and disposal of materials that become contaminated due to contact with excavated contaminated soil or liquids released from excavated contaminated soil.
3. If an area of work site appears (to Engineer) to be contaminated by Contractor activities, Contractor shall bear all costs for determination of contamination and necessary decontamination as determined by Owner.

1.04 TESTING AND INSPECTION BY CONTRACTOR

- A. Proceed with subsequent earthwork only after qualifications tests for each fill material comply with requirements.
- B. Testing Agency certificate of inspection and compliance with specifications will include the following:
 1. Acceptability of on-site and borrow fill materials, prior to use;
 2. Acceptability of subgrade prior to fill placement; and
 3. Acceptability of fill placement.

1.05 TESTING INFORMATION BY CONTRACTOR

- A. Provide the following information for each fill material, including select on-site materials, prior to use at Site:
 1. Location of sources for required imported materials prior to delivery to Site;
 2. Analysis of fine and coarse aggregate ASTM C-136;
 3. Particle size analysis of soils ASTM D422;

4. Liquid Limit, Plastic Limit and Plasticity Index, ASTM D4314 - cohesive materials only; and
5. Proctor density or relative density information according to test method identified in compaction requirements schedule.

1.06 QUALIFICATION TESTING

Qualification tests (proctor compaction test) shall be performed on each different fill material (both on-site and imported). Fill material shall not be used until qualification tests have been completed and Testing Laboratory approves fill materials.

1.07 FIELD QUALITY CONTROL BY OWNER

Owner's Testing Agency: Engineer and Owner may engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing (in addition to that being performed by Contractor under Section 01 45 23).

PART 2 - PRODUCTS

2.01 MATERIALS

A. General:

1. Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
2. All materials are subject to inspection, testing, and approval by University.

B. **Satisfactory Soils:** ASTM D2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than three inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. **Unsatisfactory Soils:** ASTM D2487 soil classification groups GC, SC, ML, MH, CL, OL, OH, and PT, or a combination of these group symbols. Unsatisfactory soils also include satisfactory soils not maintained within two percent of optimum moisture content at time of completion.

D. **Topsoil:** ODOT 653 fertile, friable, fine sandy clay loam, uniform in composition, capable of sustaining vigorous plant growth and free of subsoil, stones, lumps, clods, of hard earth, plants, plant roots, sticks, noxious weeds, slag, cinders, demolition debris or other extraneous matter over two inches in largest dimension.

E. **Backfill and Fill:** Satisfactory soil materials free of clay, rock, and gravel larger than two inches, debris, frozen materials, vegetation, and other deleterious matter.

F. **Sub-base:** Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

G. **Base:** Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than eight percent passing a No. 200 sieve.

H. **Engineered Fill:** Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

- I. **Recycled Aggregate Fill:** Recycled aggregate with the following requirements: recycled aggregate can be crushed and graded to meet ODOT 304 (1-1/2" to fines); be free of all steel reinforcing; be free of contaminants; and recycled aggregate must have minimum of 24 inches of soil cover.
- J. **Bedding:** Naturally or artificially graded mixture of natural or crushed gravel, crushed stone and natural or crushed sand; ASTM D2940; except with 100 percent passing a 1-inch sieve and not more than eight percent passing a No. 200 sieve.
- K. **Drainage Fill:** Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.
- L. **Filter Material:** Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.
- M. **Impervious Fill:** Clayey gravel and sand mixture capable of compacting to a dense state.
- N. **Sand:** Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, or organic matter graded in accordance with ANSI/ASTM C136.
- O. **Landscaping materials**, including, but not limited to, topsoil and seed: ODOT 653, Topsoil; ODOT 659, Seeding and Mulching.
 - 1. **Fertilizer:** Starter fertilizer 20-27-5 (Nitrogen-Phosphorous-Potassium). Refer to Drawing Sheet C110 for additional requirements.
 - 2. **Seed Mixture:** Refer to Drawing Sheet No. C110.
 - 3. **Mulching Material:** Refer to Drawing Sheet No. C110.
 - 4. **Establishment Blanket:** Refer to Drawing Sheet No. C110.
- P. **Base Mix:** Base Mix is comprised of the specified Topsoil at depths indicated on soil details.

2.02 ACCESSORIES

- A. **Detectable Warning Tape:** Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum six inches wide and 4-mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
 - 1. Red: Electric.
 - 2. Yellow: Gas, oil, steam, and dangerous materials.
 - 3. Orange: Telephone and other communications.
 - 4. Blue: Water systems.
 - 5. Green: Sewer systems.

- B. **Drainage Fabric:** Nonwoven geotextile, specifically manufactured as a drainage geotextile; made from polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D4759 and referenced standard test methods:
1. Grab Tensile Strength: 110 lbf; ASTM D4632.
 2. Tear Strength: 40 lbf; ASTM D4533.
 3. Puncture Resistance: 50 lbf; ASTM D4833.
 4. Water Flow Rate: 4 gpm per sq. ft.; ASTM D4491.
 5. Apparent Opening Size: No. 30; ASTM D4751.

PART 3 - EXECUTION

3.01 GENERAL

- A. **Grading operations** shall be performed in such a manner as to direct and control storm water runoff so that no damage or erosion occurs. Saturation of cut and fill areas shall be prevented by directing storm water runoff and not allowing ponding to occur. Fills shall be crowned as required to maintain drainage at end of each work day. Existing drainage routes shall not be choked or obstructed until new ones are available. Temporary culverts, pumps, or other equipment shall be used to facilitate drainage of fills during construction, failure to drain storm water shall not be grounds for delay due to saturated site conditions. Remove and dispose of saturated materials in excess of allowable moisture content at compaction.
- B. **Dewatering:** Excavation, construction, and backfill of pipes or other facilities shall be constructed under dry conditions. Constantly maintain excavations in a dewatered, workable condition, and install, operate, maintain and remove dewatering systems as required. Sufficiency of conditions shall be evaluated by University and Engineer whose decision shall be binding upon Contractor. If University and Engineer determine that dewatering is inadequate, modify methods until such time that University and Engineer agree with adequacy of operating condition.
- C. **Site Grading:** Visit site and verify earthwork requirements and grades prior to commencing work. Commencement of work is construed as acceptance of grades and/or contours as correct.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Identify known below grade utilities. Stake and flag locations.
- C. Identify and flag above grade utilities.
- D. Maintain and protect existing utilities remaining which pass through Site.
- E. Notify utility company prior to removal of utilities; comply with utility requirements.
- F. Upon discovery of unknown utility or concealed conditions, discontinue affected work and notify Engineer.

3.03 STORAGE OF SOIL MATERIALS

Stockpile borrow materials and satisfactory excavated soil materials. Stockpile materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover stockpile to prevent windblown dust. Stockpile soil materials away from edge of excavations.

3.04 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Surveying locations of underground utilities for record documents;
 - 2. Inspecting and testing underground utilities;
 - 3. Remove concrete form work; and
 - 4. Removing trash and debris.

3.05 UTILITY TRENCH BACKFILL

- A. Place and compact bedding course on trench bottoms. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- B. Place and compact initial backfill of subbase material, free of particles larger than one inch, to a height of 12 inches over utility pipe or conduit. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along full length of utility piping or conduit to avoid damage or displacement of utility system.
- C. Coordinate backfilling with utilities testing.
- D. Fill voids with approved backfill materials while shoring and bracing, and as sheeting is removed.
- E. Place and compact final backfill of satisfactory soil material to final subgrade.
- F. Provide warning tape directly above utilities, 12 inches below finished grade and six inches below subgrade under pavements and slabs.

3.06 FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Provide engineered fill and compact in layers as required.

3.07 MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within two percent of optimum moisture content.
 - 1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by two percent and is too wet to compact to specified dry unit weight.

3.08 COMPACTION OF BACKFILLS AND FILLS

- A. Place backfill and fill materials in layers not more than eight inches in loose depth for material compacted by heavy compaction equipment, and not more than four inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along full length of each structure.
- C. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D698: compact top 12 to 18 inches of subgrade and each 8 inch layer of backfill or fill material to 98 percent Standard Proctor.

3.09 SITE GRADING

- A. Perform grading within contract limits, including adjacent transition areas, to new elevations, levels, profiles and contours indicated. Provide subgrade surfaces parallel to finished surface grades. Provide uniform levels and slopes between new elevations and existing grades.
- B. Grade to assure areas drain to prevent ponding of surface drainage. Provide subgrade surfaces free from irregular surface changes and as follows:
 - 1. Rough grading: plus or minus 0.10 feet subgrade tolerance. Degree of finish required will be that ordinarily obtained from either blade-grader or scraper operations.
 - 2. Subgrade surface shall be free of exposed boulders or stones exceeding four inches in greatest dimension in paved area, two inches in lawn areas.
 - 3. Fill areas of settlement to proper grade prior to subsequent construction.
 - 4. Lawn areas: Allow for four inches minimum depth of topsoil at lawn areas.
 - 5. Walkways: Allow for plus or minus one inch.
- C. It is not intended that earthwork be balanced on site. Haul excess excavated material and topsoil from Site and deposit at a designated location off site.

3.10 EXCAVATING: GENERAL

- A. Excavate for utilities to elevations and dimensions shown. Extend excavation a sufficient distance from utilities to permit placing and removal of formwork, installation of materials, services, and inspection. Hand trim foundation excavations to final grade just before concrete is placed. Remove loose, soft materials and all organic matter.
- B. Excavate for pavement, cross-sections, elevations, and grades indicated. Allow for paving base material.
- C. Excavation shall include the satisfactory removal and disposal of all materials encountered regardless of the nature of the materials, conditions of materials at the time they were excavated, or manner in which they are excavated.
- D. Additional excavation: Excavate unsatisfactory soil materials extending below required elevations to depth as directed. Such extra excavation will be paid for as a change in work. Obtain University's or Engineer's written authorization prior to performing extra excavation work.

- E. Unauthorized excavation: Backfill and fill all over excavation (that conducted beyond indicated subgrade elevations or dimensions without specific direction by Engineer) to proper grades. Fill over excavation at footings with concrete. Additional labor and material for unauthorized excavation shall be completed at Contractor's expense.
- F. Shore, sheet, or brace excavations as required to maintain them secure; remove shoring as backfilling progresses when banks are safe against caving.

3.11 FINISH GRADING

- A. Preparation: Correct, adjust, and repair rough graded areas. Cut off mounds and ridges. Fill depressions. Bring subgrades to indicated contours, even and properly compacted.
 - 1. Loosen substrate surfaces to minimum two inch depth before placing topsoil.
 - 2. Remove stones and debris over two inches in any dimension.
 - 3. Verify amount of topsoil required.
- B. Uniformly distribute and spread stock piled topsoil. Use topsoil in loose dry state. Do not use frozen or muddy topsoil. Place topsoil during dry weather.
- C. Fine grade topsoil eliminating rough and low areas to ensure positive drainage. Maintain levels, profiles and contours of subgrades. Finish grade shall not vary more than one inch from the plan grade.
- D. Remove stones, roots, weeds, and debris while spreading topsoil materials. Provide surfaces suitable for soil preparation provided under lawn and planting work.
- E. Acceptance: Upon completion of finish grading, obtain Engineer's acceptance of grade and surface.

3.12 SUBBASE AND BASE COURSES

- A. If applicable, provide separation fabric on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
- B. Place subbase course on separation fabric according to fabric manufacturer's written instructions and as follows:
 - 1. Place base course material over subbase;
 - 2. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 98 percent of maximum dry unit weight according to ASTM D1557;
 - 3. Shape subbase and base to required crown elevations and cross-slope grades;
 - 4. When thickness of compacted subbase or base course is six inches or less, place materials in a single layer; and
 - 5. When thickness of compacted subbase or base course exceeds six inches, place materials in equal layers, with no layer more than six inches thick or less than three inches thick when compacted.
- C. Soils polluted by gasoline, oil, plaster, construction debris, unacceptable soils or other substances which would render soils unsuitable for proper plant growth shall be removed from premises whether or not such pollution occurs or exists prior to or during Work. In the

event that such material is placed, this material shall be removed and replaced with approved material. Remedial operations associated with soil mixes shall be reviewed and approved by Engineer.

3.13 DRAINAGE COURSE

- A. Under slabs-on-grade, install drainage fabric on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends. Place drainage course on drainage fabric and as follows:
- B. Under slabs-on-grade, place drainage course on prepared subgrade and as follows:
 - 1. Compact drainage course to required cross sections and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D698;
 - 2. When compacted thickness of drainage course is six inches or less, place materials in a single layer; and
 - 3. When compacted thickness of drainage course exceeds six inches, place materials in equal layers, with no layer more than six inches thick or less than three inches thick when compacted.

3.14 PROTECTION

- A. **Protecting Graded Areas:** Protect newly graded areas from traffic, freezing, and erosion. Keep areas free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions. Scarify or remove and replace soil material to depth as directed by Owner or Engineer; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.15 MAINTENANCE

- A. Protect finish graded areas from traffic and erosion. Keep free of volunteer vegetation, trash, and debris. Repair and re-establish grades in settled, eroded, and damaged areas.
- B. Where completed areas are disturbed by construction operations or adverse weather, scarify surface, reshape, and compact to required density.

3.16 PLACING TOPSOIL

- A. Place topsoil in areas where seeding, sodding, planting is scheduled.
- B. Use topsoil in relatively dry state. Place during dry weather.
- C. Fine grade topsoil eliminating rough or low areas. Maintain profiles and contours of subgrade.
- D. Remove stone, roots, grass, weeds, debris, and foreign material while spreading.
- E. Manually spread topsoil around trees, plants, and curbs to prevent damage.

- F. Roll placed topsoil.
- G. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.17 LANDSCAPING

- A. Restore all areas disturbed by construction activities with seeding per ODOT 659. Seeding shall be completed within three days of final grading or soon thereafter as conditions are favorable. Grass seed shall be delivered to Site in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging, and location of packaging.

Seedbed shall be prepared by breaking up soil to a minimum of two inches. Rocks over two inches in diameter, clods and undesirable material shall be removed. Apply starter fertilizer (delivered to Site in waterproof bags showing weight, chemical analyses, and name of manufacturer) uniformly over area at a rate of 155 pounds per acre (3.5 pounds per 1,000 square feet). Grass seed shall be uniformly planted at a rate of 220 pounds per acre (5 pounds per 1,000 square feet); seeded area shall be passed over with a cultipacker or similar tool. Fertilizer and grass seed shall not be installed at the same time. Seeding shall not be conducted immediately following a rain, when ground is too dry or during windy periods. Mulch shall be applied over seeded area at a rate of two tons per acre (one bale per 1,000 square feet) and shall be kept in place with asphalt emulsion applied at a rate of 60 gallons per ton of mulching material.

- B. **Establishment Blanket (Mulch Anchoring):**

1. Cover seeded slopes where grade is 2:1 or greater with establishment blanket. Roll matting down over slopes without stretching or pulling.
 2. Lay matting smoothly on soil surface, burying top end of each section in narrow six inch trench. Leave 12 inch overlap from top roll over bottom roll. Leave four inch overlap over adjacent section.
 3. Staple outside edges and overlaps at 36 inch intervals.
 4. Lightly dress slopes with topsoil to ensure close contact between matting and soil.
 5. In ditches, unroll matting in direction of flow. Overlap ends of strips six inches with upstream section on top.
- C. Water seeded areas as necessary to promote good growth (minimum of one inch of water over seeded area twice a week) until all work at a given Site has been completed. Water shall be supplied by Contractor. Refer to Drawing Sheet No. C110 for additional specifications.
 - D. Secure work area and protect vegetated areas from any traffic disturbances, wildlife, or public use until vegetation is accepted (80% grass seed germination at discretion of Owner or Engineer).
 - E. Repair trees and shrubs damaged by construction activities in accordance with best horticultural practices.
 - F. Seeding placement will be inspected and approved by Owner or Engineer when turf displays uniform color, quality, coverage and is reasonably free from weeds, diseases or other visible imperfections. Any vegetated areas showing root growth failure, deterioration, or found to NOT have adequate growth of cover during first year, shall be re-seeded by Contractor once weather conditions permit at no additional cost to Owner.

3.18 WASTE MATERIALS

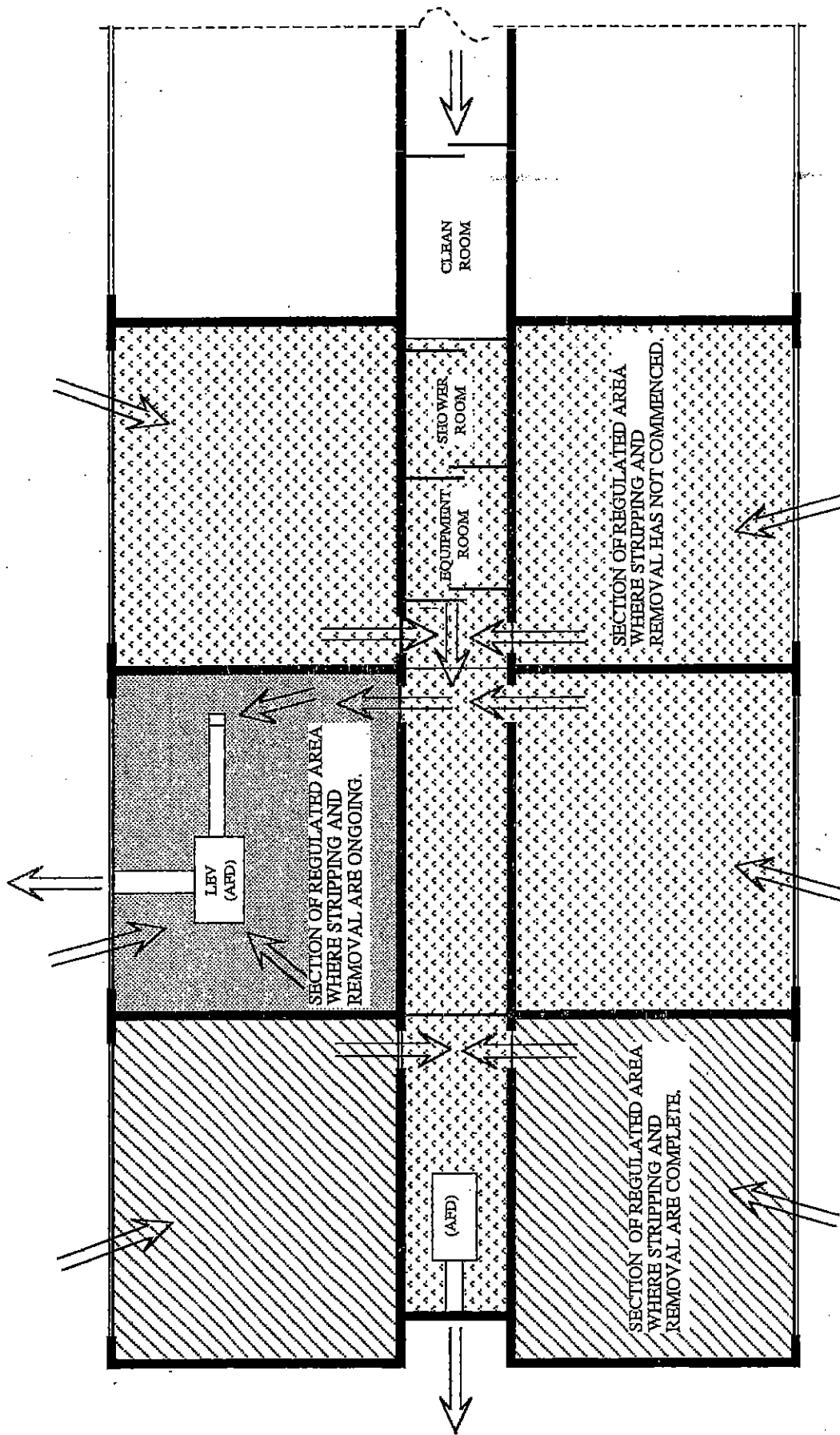
- A. Stockpile, haul from Site, and legally dispose of waste materials, including trash and debris.
- B. Remove excess excavated material, including topsoil and rock from Site.
- C. Remove trash and debris from the Site. University's dumpsters shall not be used under any circumstance.
- D. Maintain disposal routes clear, clean and free of debris.

END OF SECTION

ATTACHMENT A
PROJECT
INFORMATION

Plan List
TK26May11
T-Building Demolition

Sheet #	
	GENERAL
G100	TITLE SHEET
	ARCHITECTURAL DEMOLITION
AD100	FOUNDATION PLAN
AD101	FIRST FLOOR PLAN
AD102	SECOND FLOOR PLAN
AD103	THIRD FLOOR PLAN
AD104	1989 FOUNDATION PLAN RECORD DRAWING
AD105	1986 BUILDING ELEVATIONS AND SECTIONS A-4
AD106	1986 BUILDING ELEVATIONS AND SECTIONS A-5
AD107	1982 OVERHEAD WALKWAY PLAN A18 (ALTERNATE A)
AD108	1982 OVERHEAD WALKWAY PLAN S7 (ALTERNATE A)
	ARCHITECTURAL
A2.1	LEVEL 1 PLANS & SECTIONS
A2-1a	ALTERNATE A PLANS & DETAILS
A2-2	EXTERIOR DETAILS
	CIVIL
C101	EXISTING SITE CONDITIONS
C102	SITE UTILIZATION PLAN
C103	CIVIL GENERAL NOTES 1
C104	CIVIL GENERAL NOTES 2
C105	DEMOLITION & UTILITY DISCONNECTION PLAN
C106	GRADING PLAN
C107	SITE DETAILS
C108	SEDIMENT & EROSION CONTROL PLAN
C109	SEDIMENT & EROSION CONTROL NOTES
C110	SEDIMENT & EROSION CONTROL DETAILS
C111	OVERHEAD WALKWAY EXISTING CONDITIONS & DEMOLITION PLAN (ALTERNATE A)
C112	SITE RESTORATION PLAN (ALTERNATE A)
	MECHANICAL
M0.1	MECHANICAL GENERAL INFORMATION
M0.2	MECHANICAL SPECIFICATIONS
M2.1	E-BUILDING VESTIBULE MECHANICAL PLANS
	PLUMBING
P0.1	PLUMBING GENERAL INFORMATION
P1.1	T-BUILDING PLUMBING DEMOLITION
	ELECTRICAL
E0.1	ELECTRICAL GENERAL INFORMATION
E1.0	ELECTRICAL DEMOLITION SITE PLAN
E1.1	ELECTRICAL SITE PLAN
	STRUCTURAL
S100	GENERAL NOTES & SPECIFICATIONS
S200	EXISTING PLAN, NOTES, & DETAILS



LEGEND



TYPICAL WORK AREA

NTS

NOTE:

REFER TO ARTICLE 3.2.6 OF SECTION 02080 FOR STATIC AIR PRESSURE DIFFERENTIAL, AIR CHANGE RATE AND USE OF LOCAL EXHAUST VENTILATION (LEV) REQUIRED FOR THIS PROJECT.

ATTACHMENT D - SYNOPSIS OF APPLICABLE ASBESTOS REGULATIONS FOR DEMOLITION WORK

U.S. Environmental Protection Agency (EPA) mandates, through their National Emissions Standards for Hazardous Air Pollutants (NESHAP), that Regulated Asbestos-Containing Materials (ACM) be removed prior to start of demolition work. Ohio Environmental Protection Agency (Ohio EPA) administers asbestos NESHAP regulations in Ohio through their Asbestos Emission Control Program Rules. EPA and Ohio EPA regulations distinguish between three types of ACM:

- Friable ACM which is defined as material that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Examples of friable ACM include acoustical plaster, fireproofing, and many insulation products;
- Category I nonfriable ACM which includes asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products; and
- Category II nonfriable ACM which includes all other nonfriable ACM. Category II nonfriable ACM includes, but is not limited to: hard plaster systems, gypsum board systems, mastics, cement board, etc.

EPA and Ohio EPA regulations further distinguish between Regulated ACM, those ACM that need to be removed prior to demolition, and Non-Regulated ACM, those materials that do not need to be removed prior to demolition. Regulated ACM is defined as:

- Friable ACM or Category I nonfriable ACM that has become friable;
- Category I nonfriable ACM that is in poor condition;
- Category I nonfriable ACM that is subjected to sanding, grinding, cutting or abrading activities; and
- Category II nonfriable ACM that is subjected to forces during demolition operations that have a high probability of crumbling, pulverizing, or reducing the material to powder.

If Category I and II nonfriable ACMs do not have a high probability of becoming Regulated ACM, then they need not be removed prior to demolition work where standard demolition procedures and equipment are utilized (i.e., wrecking ball and cranes, bulldozer wrecking, explosions/implosions, heavy equipment loading and materials handling, etc.).

Note that EPA and Ohio EPA regulations require the removal of all ACM (or portion thereof as appropriate) in the following situations:

- Facility or any of its demolished components will be intentionally burned;
- Materials will be salvaged, subjected to waste consolidation, or disturbed during recycling efforts (e.g., floor tiles, carpet, and windows); or
- Materials will be sold prior to demolition (e.g., auctions).

Under NESHAP, if quantity of Regulated ACM associated with demolition work of any given project exceeds EPA's threshold amounts (260 linear feet, 160 square feet, or 35 cubic feet) then Regulated ACM must be removed prior to demolition and disposed at an EPA-approved landfill. Additionally, EPA must be notified at least two weeks in advance of commencement of abatement work (if necessary) and demolition work; presence and quantity of ACM that will be removed or remain in the facility during abatement or demolition operations must be recorded on this Notification. Demolition debris which includes non-regulated ACM must be disposed in a landfill permitted to accept ACM.

Regardless of quantity of ACM, U.S. Department of Labor's **Occupational Safety and Health Administration (OSHA)** Standards require implementation of appropriate engineering controls and work practices for demolition work. These controls and practices include, but are not limited to: specific methods for removal of each type of ACM; asbestos exposure monitoring; appropriate personal protective equipment; hygiene facilities; and proper containerization and disposal of asbestos waste.

Ohio Environmental Protection Agency (Ohio EPA) regulations also require that credentialed and licensed personnel be used for asbestos-related work (inspection design, abatement supervision, air monitoring, abatement work, etc.). If quantity of ACM to be removed as part of any given project exceeds Ohio EPA's threshold amounts under this regulation (50 linear feet or 50 square feet of friable ACM or nonfriable ACM that will become friable), then Ohio EPA must be notified of such work at least two weeks in advance of its commencement.

Under EPA, Ohio EPA, and OSHA Regulations, ACM is defined as materials containing greater than 1% asbestos (using appropriate laboratory analysis). Note that while materials containing less than or equal to 1% asbestos are not ACM, OSHA regulates disturbance of such materials as follows: use of a competent person; air monitoring of employee exposures; use of wet methods; prompt clean-up and proper containerization of waste; proper training and use of PPE when exposure monitoring shows that permissible exposure limit is exceeded; record keeping; etc. Additionally, although EPA does not regulate materials containing less than or equal to 1% asbestos, they recommend that these materials not be subject to methods which will sand, grind or abrade them.

Facility owners have certain responsibilities under OSHA and EPA regulations; these include, but are not limited to:

- Determine presence, location and quantity of ACM prior to disturbing these materials (e.g., maintenance and renovation or demolition activities);
- Notify the following persons of the presence, locations and quantity of ACM: prospective employers applying or bidding for work whose employees will work in or adjacent to areas containing ACM; employees of Owner who work in or adjacent to areas with ACM; and tenants who will occupy areas with ACM;
- Post signage at entrances to mechanical rooms/areas which provide identification and location of ACM as well as appropriate work practices to ensure that such ACM will not be disturbed, and if a school (K-12), label all ACM in routine maintenance areas;
- If a school (K-12), notify workers, building occupants, and legal guardians yearly about inspections, response actions, etc.;
- Provide proper training for employees who contact or disturb ACM; and
- Maintain records of inspections, notifications, training, medical surveillance, exposure measurements, and abatement work.

EPA, OSHA, and Ohio EPA Regulations require proper inspections (such as AHERA format) to identify ACM (or presumption that suspect materials are ACM) prior to demolition work. A copy of the Report of Findings of Inspection for Asbestos-Containing Materials should be kept on Site during abatement and demolition work.

Note that this document has been prepared for guidance purposes only. Although Gandee & Associates, Inc. strives to provide accurate, complete and useful information, this document is not intended to cover all regulatory issues, interpretations or requirements applicable to the subject. Neither Gandee & Associates, Inc. nor any person contributing to the preparation of this document make any warranties, guarantees, or representations (express or implied) with respect to usefulness or effectiveness of information disclosed in this document or assume any liability for the use of or for any damages arising from the use of information disclosed in this document. User should review applicable regulations prior to starting any work which will disturb asbestos-containing materials or those materials containing less than or equal to 1% asbestos.

ATTACHMENT B
PROJECT FORMS

Certificate of Substantial Completion
State of Ohio Standard Forms and Documents

Project Name _____
Project _____
Location _____

Project / Contract No. _____
Contractor / _____
CM / DB _____

Project, Contract, or portion of the Project or Contract designated for Partial Occupancy and Use shall include: *include a description of the portion of work that is substantially complete*

List Exceptions Below (attach additional pages if necessary)

Exception	Expected Completion Date	Amount Withheld

Date of Substantial Completion

The date of Substantial Completion of the Project or portion designated above is the date of issuance established by this Certificate, which is also the date of commencement of applicable warranties required by the Contract Documents, except warranties identified on a separate Certificate of Warranty Commencement.

Date of Issuance

Contractor's Acceptance (includes CM at Risk or Design-Builder as applicable) The Contractor will complete or correct the items on the attached list of Defective, incomplete, or unacceptable Work within 30 days from the date of Substantial Completion.

Signature

Date

Name

Certification of Contract Completion

State of Ohio Standard Forms and Documents

Project Name _____
Project Location _____

Project / Contract No. _____
Contractor / CM / DB _____

List Exceptions Below (attach additional pages if necessary)

Short Description	Required Completion Date	Amount Withhold
		\$
		\$
		\$
		\$
		\$

Contractor Certification

Contractor certifies that all Work, except as noted above, is 100 percent complete, is in conformance with the Contract Documents and that all other requirements for final payment and release of retainage have been completed. Contractor agrees that it shall complete all remaining work indicated above on or before the date or dates indicated, as a contract obligation.

Signature Date

Name

Owner's Acceptance

Signature Date

Name

CM Adviser's or Owner Agent's Certification (if applicable)

Certifies, based on actual observation and knowledge prior to signing, that all Work, except as noted, has been completed in substantial compliance with the contract documents.

Signature Date

Name

Contracting Authority's Acceptance

Contract Acceptance (check one)

☐ Partial ☐ Final (all work finished with no exceptions noted)

Signature Date

Name

Architect/Engineer Certification

Certifies, based on actual observation and knowledge prior to signing, that all Work, except as noted, has been completed in substantial compliance with the contract documents.

Signature Date

Name

Exceptions Notes:

Certification of Warranty Commencement

State of Ohio Standard Forms and Documents

Project Name _____ Contract Number _____
 Project Location _____ Contractor _____

[illegible]

*Date does not supersede or take precedence over Contract requirements.

[illegible]

Contractor Certification

Warranty(ies) certified to comply with the Contract Documents.

Name _____

Signature _____ Date _____

Architect/Engineer Approval

Equipment / material accepted for this Contract.

Name _____

Signature _____ Date _____

Construction Manager Approval

Equipment / material accepted for this Contract.

Name _____

Signature _____ Date _____

Owner Acknowledgement

Owner acknowledges receipt of warranty(ies), manual(s) and all other required submittals associated with the noted equipment or material.

Name _____

Signature _____ Date _____

Certified Payroll Report (Prevailing Wage)

☐ CHECK IF CORRECTED

State of Ohio Standard Forms for Public Facility Construction

EMPLOYER NAME AND ADDRESS			NAME OF GENERAL / PRIME CONTRACTOR				PROJECT NAME AND LOCATION (COUNTY)				CONTRACTING PUBLIC AUTHORITY / OWNER								
CHECK IF SUBCONTRACTOR ¹ ☐			WEEK ENDING _____				PAYROLL NUMBER _____ PAGE ² _____ of _____				PROJECT / CONTRACT NUMBER _____								
1. NAME, CURRENT ADDRESS, ³ AND LAST FOUR DIGITS OF SOCIAL SECURITY NUMBER		2. WORK ⁴ CLASSIFI- CATION	3. RACE AND SEX	4. HOURS WORKED - DAY AND DATE				5. TOTAL PROJ HRS	6. BASE WAGE RATE	7. PROJ GROSS WAGES	8. FRINGES: CASH ☐ APPROVED PLANS ☐ CASH AND APPROVED PLANS ☐				9. TTL HRS ALL JOBS	10. TOTAL GROSS ALL JOBS	11. TAXES WITH- HELD	12. OTHER DEDUC- TIONS	13. NET WAGES PAID
											H&W	PENS	VAC	APP	OTHER				
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My signature on this form signifies that (1) I pay, or supervise the payment of the employees shown above; (2) during the pay period reported on this form, all hours worked on this Project have been paid at the appropriate prevailing wage rate for the class of work done; (3) the fringe benefits have been paid as indicated above; (4) no rebates or deductions have been or will be made, directly or indirectly from the total wages earned, other than permissible deductions as defined in Ohio Revised Code Chapter 4115; and (5) apprentices are registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training. I understand that the willful falsification of any of the above statements may subject the Contractor or Subcontractor to civil action or possible criminal prosecution.

Type or Print Name and Title: _____ Signature: _____ Date: _____

Contractor Name	_____	Change Directive No.	_____
Contact	_____	Contract Number	_____
Address	_____	Project Name	_____
City, State ZIP	_____	Project Location	_____

Adjustment to Contract Sum (indicate if zero cost)
Add: \$ _____ Deduct: \$ _____

Cost Basis (check all that apply)

☐ Time & Material Not to Exceed	☐ Fixed Price
☐ Allowance (described below)	☐ Unit Price

Justification (attach additional pages as necessary):

Special Notice: This Change Directive identifies satisfaction of all compensation and time adjustments related to this change in the Work.

Owner Acceptance

Name _____

Signature _____ Date _____

Project Manager Recommendation

Name _____

Signature _____ Date _____

Contracting Authority Approval

Name _____

Signature	Date
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Required Information and Instructions

State of Ohio Standard Forms and Documents

REQUIRED: Fill in required information below in the shaded fields

Project Name:		Contract No.:		-		-	
			Project No.		Phase/GMP		Contra
C O Description:		Modification No.:		-	0	-	C
			Sequence No.		Phase/GMP		Contra
Contractor:		Project Delivery:					
Days Added to the Schedule:		Agreement Document Date:					

Change Order Cover Sheet

Is a Change Order Form Cover Sheet Needed?

☐ Check if Yes

Note: Projects administered in the OAKS CI system do NOT need the cover sheet. The form to the right will print when activated.

Legend

Blue	Normal entry information (unlocked fields). May be entered by AE or Contractor
Red	Required Information
Green	Information entered by the Contracting Authority or Owner (Change Order Cover Sheet Only)

Introduction

Purpose: this form collects all required information for contract modifications.

Definition: A Change Order is recommended by the Architect/Engineer (A/E) or Criteria A/E and the CM Adviser (if any) or Owner Agent (if an accepted by the Owner), and approved by the Contractor and Contracting Authority. A Change Order formally modifies the Contract. Change Directives and Change Orders must include the cost and time adjustment of the change. The AE typically starts the process but the Contractor may submit a Request for Change Order. Change Orders must have supporting documentation supplied by the Contractor.

Instructions

On this Sheet...

- Complete all areas shaded in **Blue** with the appropriate information on this Form.
- "Project Name" and "Location" - enter the name of the Project as it appears on your Contract.
- "Description" - provide a short description of the reason for the change.
- "Contract Number" - enter the Contract Number as it appears on the Contract. For example, for Contract SFC-250123-01-02:
SFC-250123 represents the 10-digit OAKS Project Number;
01 represents the project phase number (use 01 for projects with only one phase); and
02 represents the specific contractor contract (use 01 for projects with only one contract).
- "Modification Number" - enter the Change Order sequence number as identified on the Proposal Request or Change Directive. Leave blank for a Request for Change Order as the A/E will need to provide. The phase and contract will transfer from Contract Number.
- "Contractor / CMR / DB Name" - enter the name of your company or joint venture as appropriate.
- "Project Delivery Method" - select the appropriate project delivery method per the signed contract.
- "Days Added to the Schedule" - enter the number of days that extend the contract if applicable. The default is 0.
- "Agreement Document Date" - Select the applicable Agreement Date on the Contractor's signed contract.

On the Proposal Worksheet tabs that follow ...

General Note: the terms "Labor" and "Material" have dual meanings. There is the detailed meaning within the proposal sheets that follow with regard to very specific items, but there is a broader use of the terms that relate to the Schedule of Values. The Change Order Summary sheet assists with identification of what is considered a labor item and what is considered a material item as they relate to identification on the Schedule of Values.

- Complete all areas shaded in **Blue** in the appropriate Detail Form. Data will then flow to the Summary Forms.
- Subcontractor Name where required: enter the name of the company or joint venture as appropriate. **Required.**

- Enter the amount of the adjustments to the components of the Contract Sum. Detail provided below.
- Provide backup separately for material items listed below.

A. Services (Not subject to Prevailing Wage per ORC Chapter 4115):

- 1 Select the type of service, input the number of hours and the rate. Totals will calculate.
 - .1 "On-Site Management " including supervision and administrative personnel is to be utilized if there is overtime, additional days added or if an additional supervisor is added only.
 - .2 "Administrative Personnel " is to be utilized if there are additional days added only.
 - .3 "Additional Non-Prevailing Wage Service " is for other services that are not Prevailing Wage. For example: engineering labor for shop drawings.

B. Labor (Subject to Prevailing Wage): **Subcontractors: If additional Labor or Material fields are needed, use the "Addl L&M" tab**

- 1 "Description/Labor Classification " enter a brief description.
- 2 "Time " - enter the number of hours worked.
- 3 "Straight Time " - enter the hourly rate.
- 4 "Fringe Benefits" - enter the hourly rate for Fringes (health and welfare, vacation, training, pension...). This field does not apply for contracts that are not governed by state or federal Prevailing Wage law.
- 5 "Allowable Payroll Expenses" - enter the hourly rate for Payroll Expenses (payroll taxes, benefits required by law). This item does not include overhead items such as insurance or line of credit.
- 6 "Premium Portion of Approved Overtime" - enter the overtime premium Rate. Note that there is no allowance for Contract fee on the Premium portion only for approved overtime. Straight time, Fringes and Allowable Expenses are eligible for Contractor Fee assessment.

C. Material: **Subcontractors: If additional Labor or Material fields are needed, use the "Addl L&M" tab**

- 1 Provide an identification number for the location of the item in the attached backup.
- 2 Category selection. If "Equipment Rentals " - this refers to rented heavy or specialized equipment. Provide receipt.
- 3 Category selection. If "Owned Equipment " - this refers to use of heavy or specialized equipment owned by the Contractor. Provide Contractor's hourly or daily rates and provide comparable pricing.
- 4 Category selection. If "Trucking " - this refers to any trucking charge to provide material or equipment to the project site. Provide receipt.
- 5 Category selection. If "Material " - this refers to the material incorporated into the project. Attach itemized quotes or invoice Backup to include unit price, number of units and total.
- 6 Provide a short description of the item(s)
- 7 Provide the cost of the item(s) for material in the backup. Material backup will show unit cost, number of units and total cost.
- 8 "Sales Tax " - only those materials that ultimately become a part of the completed structure or improvement that constitute the Project shall be exempt from Taxes. Note that there is no allowance for Contractor's fee on the Sales Tax portion only for Equipment Rentals, Owned Equipment, Trucking, Material or Other General conditions.
- 9 On the Prime Worksheet: "Allowances " - Enter item, description, original and actual amounts to reconcile each allowance
- 10 On the Prime Worksheet: "Unit Prices " - Enter item, description, estimated and actual quantities, unit price, and unit of measure to reconcile each unit price. (Allowances & Unit Prices appear on the second page of the Prime Detail tab)

D. General Conditions Costs:

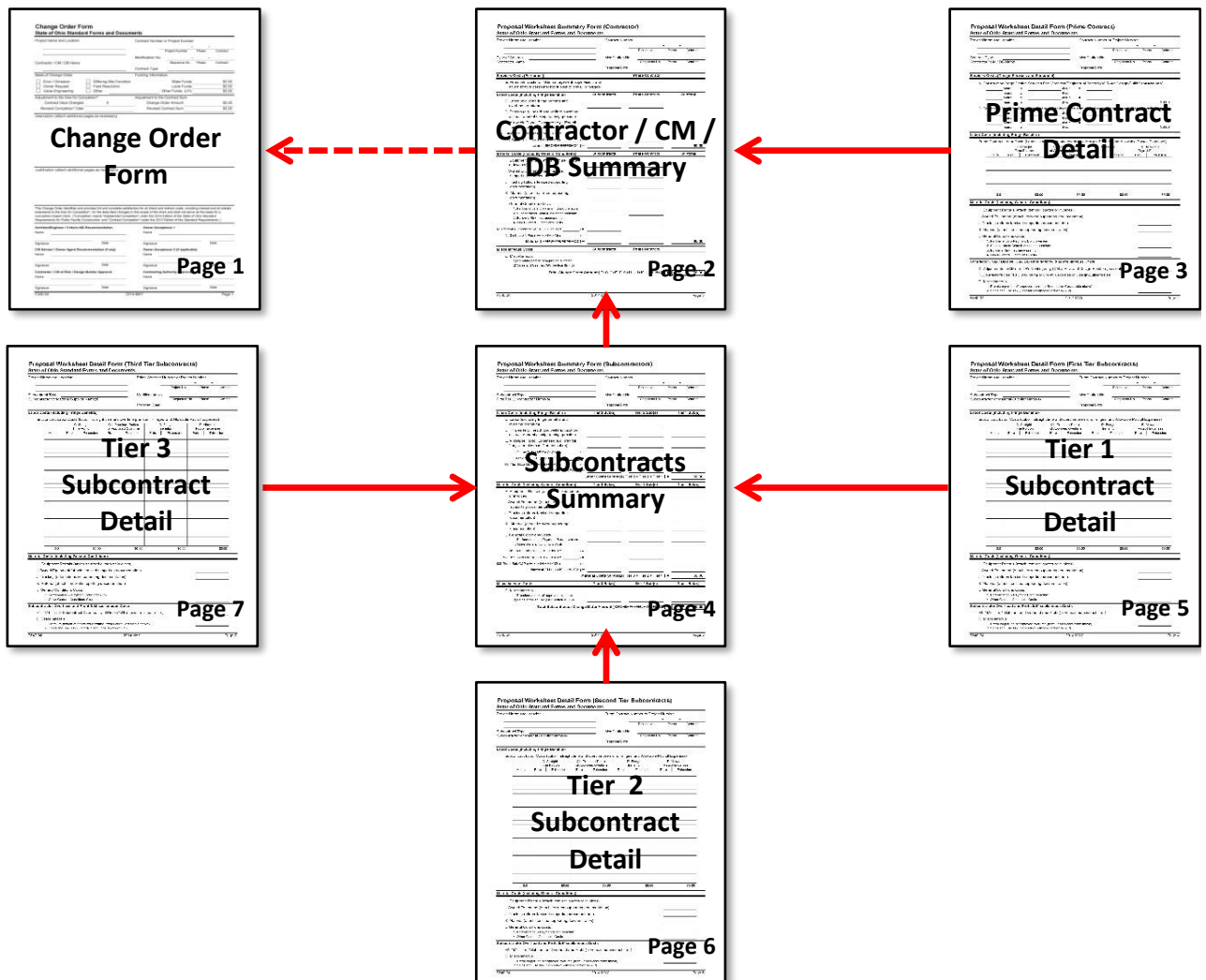
- 1 "Performance and Payment Bond " - enter the premium amount to extend the Penal Sum of the Performance and Payment Bond(s) to the amount of the Contract Sum as amended by this and other approved Change Orders.
- 2 "Subcontractor Default Insurance Premium " - as applied only to the subcontractors identified in this change order.
- 3 "Builder's Risk Insurance " - enter the premium amount to extend coverage for the Builder's Risk insurance (if applicable) to the Contract Sum as amended by this and other Change Orders. Not applicable to Subcontracts.
- 4 "Other General Conditions " - enter the amount of applicable General Conditions Costs. These costs are generally due to an adjustment of the Contract Time for Completion.
Note: General Conditions may not be both calculated and itemized.
 - .1 Calculate when adding days. In no event shall this amount exceed an amount equal to the sum of the General Conditions line items in the original Schedule of Values approved by the Contracting Authority, divided by the total number of days of the original Contract Time for Completion.
 - .2 Itemize when there is a specific cost that is necessitated by the conditions of the change order and as described in the material section of the Prime Costs Detail See C.1 this sheet. An example would be an additional dumpster.

E. Profit, Overhead and Fees:

- 1 "Subcontractor Overhead and Profit " on Subcontractor-performed labor, an allowance up to 15 percent of the sum of the Subcontractor's costs is permitted.

- 2 "Self Performance Contractor Markup" - if using the OCT-2025 contract or later, the CMR and DB may include a markup equal to 10% of the sum of the costs described in sections B.1-B.4 and C.1-C.4, C.6 and C.7.
- 3 "Construction Stage Design Services Fee" applies to the Professional Design Services provided by the Architect or Engineer Record (AOR) and its Consultants in a Design-Build Contract only. Enter the negotiated rate for AOR in the DB contract.
- 4 "Contractor/CMR / DB Fee" - is automatically calculated against the applicable costs above. The Fee does not calculate against the Premium Portion of overtime and Sales/Use Tax. The Contractor's Fee may be up to 10 percent. The CM's Fee or DB's Fee is the percentage proposed by the CM or DB in their contract.

Workflow



Contractor Payment Request (4% Retainage)

State of Ohio Standard Forms and Documents

Contractor Name and Address

Contr. Phone

Contr. Fax

Contr. Tax ID

Contr. E-mail

Project Information

Contract No.

Local No.

Project Name & Location

Type of Contract

A/E Name and Address

CM Agent Name and Address

A - Summary

Request No.

Sheet 1 of 1

For the period

from

to

Contractor Certification

Contractor certifies the Original Application values in this Payment Request have not changed from the values first approved, all information in this Payment Request is true and accurate, all payments received to date have been used by the Contractor to discharge, in full, the obligations incurred and provided during the periods for which payment was made, and the Contractor has, to the best of its knowledge, completed the Work to date in accordance within the terms and conditions of the contract, including payment of the applicable Prevailing Wage rates.

Authorized signature

Date

Work Progress Certification

Each firm signing below certifies that, based upon its on-site observations, the payment requested to date is a fair and reasonable request for the Work provided to date.

Architect/Engineer (A/E)

Date

Construction Manager (CM Agent)

Date

Ohio Facilities Construction Commission Approval

Authorized signature

Date

Partial Payment Details

Completed to date

Original Contract Amount

Change Order Amount

Stored Materials

N/A

Subtotal - Earned (A)

Percent Complete

Withheld Amounts

Lien(s)

Retainage Amount

Liquidated Damages

Other

Subtotal - Withheld (B)

Previous Payments (C)

Total Requested this

Application (A - B - C)

Labor \$

Materials \$

Total \$

Owner Approvals

Authorized signature

Date

Authorized signature

Date

Contractor Payment Request (4% Retainage)

State of Ohio Standard Forms and Documents

Contractor Name _____
Project Name _____
Project Location _____

Contract No. _____
Local No. _____

B - Schedule of Values Summary

Request No. _____
Sheet 2 of 1

a.	b.	c.	d.	Original Application			Current Period				
				e.	f.	g.	h.	i.	j.	k.	l.
Item	EDGE	Section	Description	Original Labor \$	Original Material \$	Original Total \$	Completed to Date \$	% this Period	% to Date	Labor to Date \$	Material to Date \$
1		00 61 00	Bond								
2		00 62 16	Insurance								
3		00 72 00	General Conditions								
4		01 31 13	Project Coordination								
5		01 71 13	Mobilization								
6		01 77 00	Close-out Items								
7		01 21 00.01	Allowance: Sched. Consultant								
8		01 21 00.02	Allowance: Project Identification								
9											
10											
11											
12											
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18											
19											
20											
21											
22											
23											
Total this Sheet											

Contractor Payment Request (4% Retainage)

State of Ohio Standard Forms and Documents

Contractor Name _____
Project Name _____
Project Location _____

Contract No. _____
Local No. _____

**B - Schedule of Values
Summary**
Request No. _____
Sheet 3 of 1

a.	b.	c.	d.	Original Application			Current Period				
				e.	f.	g.	h.	i.	j.	k.	l.
Item	EDGE	Section	Description	Original Labor \$	Original Material \$	Original Total \$	Completed to Date \$	% this Period	% to Date	Labor to Date \$	Material to Date \$
24											
25											
26											
27											
28											
29											
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31											
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41											
42											
43											
44											
45											
46											
Total this Sheet											

Drug Free Safety Program Certification

State of Ohio Standard Forms and Documents

Project Name and Location: _____

Contractor Name: _____

The above referenced Contractor hereby certifies that it is enrolled and in good standing in the Ohio Bureau of Workers' Compensation (BWC) Drug-Free Safety Program (DFSP) or an equivalent BWC approved DFSP in accordance with the requirements of Revised Code Section 153.03-153.031, including the placement of its employees in a pool with a random drug testing rate of at least 5%.

Contractor Signature Date

Name/Title (Print or Type)

To	Project File	c: PM Supervisor	Project No.	_____
Date	_____	☐ M ☐ Tu ☐ W ☐ Th ☐ F ☐ Sa ☐ Su	Local No.	_____
Time at Site	_____	☐ am ☐ pm Until _____ ☐ am ☐ pm	Project Name	_____
Temperature at Time of Visit	_____			_____
Weather at Time of Visit	_____			Project Location _____
Contract Start / End Dates	_____ / _____			Report No. _____

[illegible][illegible]

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Notification of Demolition and Renovation/Abatement

Section 1: General Information

Division of Air Pollution Control

Work on projects cannot begin until 10 working days after a COMPLETE original notification form, **including payment**, is submitted to Ohio EPA. Instructions and a worksheet for fee calculation are available at epa.ohio.gov/asbestos. This form can be completed, and payment made, at ebiz.epa.ohio.gov. Questions? asbestos@epa.ohio.gov or (614) 466-0061.

Ohio EPA Use Only	Notification #:	Postmarked: / /	Received: / /	☐ Hand-Delivered
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1) Notification Information (Check all that apply)

☐ Original	☐ Revision # (count):	☐ Installation	☐ Emergency	☐ Annual	☐ Cancellation	County:
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2) Owner, Asbestos Abatement Contractor, Billing and Fire Department Information

Revised? ☐

Owner			
Name:			Is this a company? ☐ Yes ☐ No
Address:		Contact Person:	
City:	State:	Zip: -	
Email:	Phone: () -	Fax: () -	
Asbestos Abatement Contractor (if applicable)			
Name:		License #: AC	Expiration Date: / /
Address:		Contact Person:	
City:	State:	Zip: -	
Email:	Phone: () -	Fax: () -	
Billing Contact			
Is this contact associated with the ☐ Owner, ☐ Asbestos Abatement Contractor, or ☐ Demolition Contractor (if not installation)?			
Address:		Contact Person:	
City:	State:	Zip: -	
Email:	Phone: () -	Fax: () -	
Fire Department (if applicable)			
Name:			
Address:		Contact Person:	
City:	State:	Zip: -	
Email:	Phone: () -	Fax: () -	

3) Ohio Asbestos Hazard Evaluation Specialist and Evaluation Procedure

Revised? ☐

Evaluation Specialist:	Certification #: ES	Expiration Date: / /
Procedure, including analytical methods, employed to detect the presence of and to estimate the quantity of regulated asbestos-containing material (RACM) and Category I and Category II non-friable asbestos-containing material: ☐ PLM ☐ Point Count ☐ TEM ☐ Other Method (Explain Below):		

4) Procedures to be followed should unexpected RACM be discovered (check all that apply)

Revised? ☐

☐ Stop work and keep wet	☐ Evacuate area	☐ Demarcate area	☐ Contact licensed abatement contractor
☐ Contact district office/local air authority			
☐ Other (Explain):			

5) Planned Demolition (check all that apply)

Revised? ☐

Describe demolition work to be performed and method(s) to be employed, including demolition techniques to be used:	
☐ Implosion ☐ Fire Training ☐ Wet Methods ☐ Manual Demolition ☐ Mechanical Demolition ☐ Other (Explain):	
Description of affected facility components (include attachment if necessary):	

Mail completed form and payment to:
Ohio EPA, DAPC – Asbestos
50 W. Town St., 7th Floor or P.O. Box 1049
Columbus, OH 43216-1049

Notification of Demolition and Renovation/Abatement

Section 1: General Information

Continued

6) Asbestos Description and Engineering Controls (if asbestos is being abated)

Revised? ☐

For the material listed in each project, describe the type(s) of ACM to be abated, engineering controls and work practices to be used to minimize emissions and ensure proper waste handling:

Type of ACM to be abated:	☐ Surfacing	☐ Mechanical	☐ Other		
Engineering Controls:	☐ Wet Methods	☐ Glove Bag	☐ NPE	☐ AFD	☐ Other:
Work Practices:	☐ Intact Removal	☐ Manual	☐ Mechanical	☐ Other:	

7) Asbestos Waste Transporter (if applicable)

Revised? ☐

Transporter #1 Name:			
Address:		Contact Person:	
City:	State:	Zip: -	
Email:	Phone: () -	Fax: () -	
Transporter #2 Name (if applicable):			
Address:		Contact Person:	
City:	State:	Zip: -	
Email:	Phone: () -	Fax: () -	

8) Asbestos Waste Disposal Site (if applicable)

Revised? ☐

Name:		
Address:		Contact Person:
City:	State:	Zip: -
Email:	Phone: () -	Fax: () -

9) Emergency Demolition (complete if you checked "Emergency" above and "Demolition" for any project)

Revised? ☐

A copy of the issued order, including the following information, **must be attached** to this notification.

Government Official Issuing Order:	Title:
Agency:	Authority of Order (Citation of Code):
Date of Order: / /	Demolition Date: / /

10) Emergency Renovation/Abatement (complete if you checked "Emergency" above and "Renovation/Abatement" for any project)

Revised? ☐

Date of Emergency: / /	Time of Emergency: : ☐ a.m. ☐ p.m.
Description of Sudden, Unexpected Event:	
Explanation of how the event caused unsafe conditions or equipment damage:	

11) Attestation

Revised? ☐

In accordance with Ohio Administrative Code rule 3745-20-03(A)(4)(p), I certify that at least one person trained as required by paragraph (B) of rule 3745-20-04 of the Administrative Code will supervise the stripping and removal described by this notification. I acknowledge that the submission of false or misleading statements is prohibited by law and I certify that facts contained in this notification are true, accurate, and complete.

Signature:	Date: / /
Name:	Title:
Organization:	



Notification of Demolition and Renovation/Abatement

Section 2: Project Address Specific Information

Division of Air Pollution Control

Please complete Section 2 for the address included with this notification. If the project is an "Installation" per OAC 3745-20, complete a separate Section 2 page for each address associated with this notification.

Ohio EPA Use Only Project ID #:

A. Facility Description

Revised? ☐

Building Name (if applicable):		Site Location (specific):	
Address:		County:	
City:	State: OH	Zip: -	
Building Size (square feet):	No. of Floors:	Age:	
Present Use:	Prior Use:		

B. Type of Operation (check all that apply)

Revised? ☐

☐ Demolition ☐ Renovation/Abatement - Type: ☐ Removal ☐ Repair ☐ Encapsulation ☐ Enclosure

C. Asbestos Present (check one)

Revised? ☐

☐ Yes ☐ No ☐ No, previously abated Year Abated:

D. Approximate Amount of Asbestos-Containing Materials (complete table below and Section 1 #6 if asbestos is present)

Revised? ☐

	Material to be Removed			Material NOT to be Removed	
	RACM	Non-friable Asbestos-Containing Material		Non-friable Asbestos-Containing Material	
		Category I	Category II	Category I	Category II
Pipes (linear feet)					
Surface area on other facility components (ft ²)					
Volume if length or area cannot be measured (ft ³)					

E. Asbestos Abatement Schedule and Abatement Specialist (original notification is required 10 working days prior to the start of work)

Revised? ☐

Setup Date: / /		Abatement Date: / /		Complete Date: / /			
(Shift 1) Time start/end on site	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Abatement Specialist Name:			Certification #: AS			Expiration Date: / /	
(Shift 1) Time start/end on site	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Abatement Specialist Name:			Certification #: AS			Expiration Date: / /	

F. Demolition Contractor (if applicable)

Revised? ☐

Name:		
Address:		Contact Person:
City:	State:	Zip: -
Email:	Phone: () -	Fax: () -

G. Demolition Schedule (original notification is required 10 working days prior to the start of work)

Revised? ☐

Start Date: / /	Complete Date: / /
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H. Project Hold

Revised? ☐

Hold Begin Date: / /	Work Resume Date: / /
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Payment Release Affidavit (Prevailing Wage)

State of Ohio Standard Forms and Documents

Project Name _____ Contract Number _____
Project City _____ Contractor _____
Project County _____

Contractor to submit with final payment request and with request to release retainage.

Certification

By signing this document, the Contractor certifies that it and all of its Subcontractors and Material Suppliers have fully complied with Chapter 4115 of the Ohio Revised Code ("ORC"), "Wages and Hours on Public Works," for the Contract noted above, and that all Subcontractors and Material Suppliers have been paid in full for all Work performed or materials furnished for the Contract except (check all that apply):

- ☐ amounts that will be paid from payment(s) now due to the Contractor.
- ☐ amounts for liens, which the Contractor previously disputed and resolved with the State by providing a Bond pursuant to ORC Section 1311.311 and served the lien claimant with a Notice to Commence Suit.
- ☐ no exceptions

Affiant:

Company Name _____

Signature _____

Print or Type
Name _____

Title _____

Notary

The Affiant acknowledged and signed this instrument before me, a Notary Public in and for the County of _____, State of Ohio.

[Seal]

Sworn and subscribed before me this _____ day of _____, 20____.

Notary Public



Department
of Commerce

Division of Industrial Compliance

John R. Kasich, Governor

Jacqueline T. Williams, Director

Removing an Elevator or Escalator from service

Form must be submitted within 5 days of the completion of the removal to:

Email: elevators@com.ohio.gov Fax: 614-644-2428

- The state of Ohio has adopted the American Society of Mechanical Engineers Standard (ASME) A17.1 as the code by which Ohio will regulate lifting devices. Should you desire to permanently remove a lifting device from service, ASME 17.1 procedures follow:
- ASME A17.1 -8.11.1.4 Installation Placed Out of Service.**
Periodic inspections and tests shall not be required when an installation is placed "out of service":
 - (a) as defined by the authority having jurisdiction; or
 - (b) when an installation whose power feed lines have been disconnected from the mainline disconnect switch; and
 - (1) an electric elevator, dumbwaiter, or material lift whose suspension ropes have been removed, whose car and counterweight rest at the bottom of the hoistway, and whose hoistway doors have been permanently barricaded or sealed in the closed position on the hoistway side;
 - (2) a hydraulic elevator, dumbwaiter, or material lift whose car rests at the bottom of the hoistway; when provided with suspension ropes and counterweight, the suspension ropes have been removed and the counterweight rests at the bottom of the hoistway; whose pressure piping has been disassembled and a section removed from the premises and whose hoistway doors are permanently barricaded or sealed in the closed position on the hoistway side; or
 - (3) an escalator or moving walk whose entrances have been permanently barricaded

Please complete the following and submit per instructions above. A scheduled inspection is required once the following items have been completed. Field staff will confirm the unit is out of service. No additional invoicing for inspections will accrue while the elevator is out of service.

Owner ID #:		State ID #:	
Location:		Address:	
City:	ZIP:	Phone:	County:
Company performing the work:		Person performing work: print	
Address:		City:	Signature:
Phone:	Email:	Date:	

Type of Unit (check <u>one</u>)	
☐ Passenger	☐ Sidewalk Freight
☐ Freight	☐ Stage Lift
☐ LULA	☐ Escalator
☐ Dumbwaiter	☐ Platform Lift
☐ Special Service	☐ Chair Lift
☐ Other: _____	

Type of Driving Means (check <u>one</u>)	
☐ Traction	☐ Chain & Sprocket
☐ Winding Drum	☐ Screw
☐ Direct Hydraulic	☐ Other: _____
☐ Roped Hydraulic	
☐ Rack & Pinion	
☐ Belt	

Yes	No	NA	Complete all applicable questions below:
☐	☐	☐	Fuses and power feed lines removed from the mainline disconnect to the controller.
☐	☐	☐	The car and counterweight lowered to the pit area.
☐	☐	☐	The suspension ropes detached, and the counterweight lowered to the pit. (Traction type).
☐	☐	☐	A section of pipe removed from the property (Hydraulic type).
☐	☐	☐	All hoistway doors are permanently barricaded or sealed in the closed position on the hoistway side, either by bolting/welding the doors closed or walling off the doors from the lobby side by the use of 3/4-inch plywood on 16-inch oc studs.

Request for Interpretation

State of Ohio Standard Forms and Documents

Project Name	_____	Contract No.	_____
	_____	Local No.	_____
Project Location	_____	RFI No.	_____
Contractor	_____	Drawing Sheet No.	_____
A/E	_____	Specification Section	_____
		Date Answer Requested	_____

Description of Interpretation or Clarification Needed

Date Received _____

Name	_____	Phone Number	_____
Signature	_____	Date Released	_____

A/E Response

Date Received _____

Name	_____	Phone Number	_____
Signature	_____	Date Released	- -

Contractor Receipt

Upon review of the A/E's response we anticipate the potential contract adjustments indicated to the right:

Date In - - Date Out - -

Name _____

Signature _____ Date - -

- ☐ No change in cost or time
- ☐ Decrease in cost of approx. \$ _____
- ☐ Increase in cost of approx. \$ _____
- ☐ Decrease in time of _____ days
- ☐ Increase in time of _____ days

Subcontractor & Material Supplier Declaration

State of Ohio Standard Forms and Documents

The intent of this form is to confirm the companies submitted have been reviewed, appear to be Responsible, and are proposing to provide the services/material goods listed in compliance with the Contract Documents. If the Project is administered using OAKS CI, use the OAKS CI "Subcontractor Supplier Declaration" business process in lieu of this paper form.

Instructions

1. Contracting Authority Initial Responsibilities:

- A. Complete Contractor Information section at top of the form.
- B. Complete Project Information section at top of the form.
- C. Issue to the Contractor via e-mail as an attachment.

2. Contractor Responsibilities:

- A. Use the form provided by the Contracting Authority as a master for the project. Creation of additional pages electronically or by photocopying is permitted.
- B. Complete all required information for each Subcontractor and Material Supplier. (Attach additional sheets as necessary.) Lower tier Subcontractors who may provide on site labor must be identified as Subcontractors.
- C. Check company type as a Subcontractor or Material Supplier.
- D. Enter company name, address, phone number, fax number, federal tax I.D. number and e-mail address.
- E. Indicate the primary company officer (e.g., President, Owner) and contact person.
- F. Enter the date and amount of subcontracts and purchase orders.
- G. Enter a brief description of the type of work to be performed by the Subcontractor. Enter a brief description of the services/material brands being supplied by the company. Attach additional sheets as necessary with clear descriptions.
- H. Complete "DFSP Enrolled" section. Contractors, Subcontractors and Material Suppliers providing labor on a state construction project site must be enrolled in the BWC Drug-Free Safety Program (DFSP) or BWC-approved DFSP prior to performing work on the site. Submit supporting documentation demonstrating approval status for a BWC-approved DFSP.
- I. Enter the DFSP policy number.
- J. Complete "EDGE Status" section. See the EDGE Web site for any questions at www.EDGE.ohio.gov:
 - Certified = EDGE-certified by Equal Opportunity Division (EOD).
 - Pending = EDGE application submitted to EOD and waiting for response.
 - Mentor = Special category of participation within the EDGE program.
 - Protégé = Special category of participation within the EDGE program.
- K. Certify form by signing in the space provided and e-mail or fax to the A/E, Contracting Authority, and Construction Manager (CM) if applicable, for review.

3. A/E Review:

- A. Review form in collaboration with CM if applicable, and the Contracting Authority.
- B. When consensus is reached, sign in the space provided and e-mail or fax the form to the Contracting Authority or CM if applicable.

4. CM Review, if applicable:

- A. Review form in collaboration with the A/E and the Contracting Authority.
- B. When consensus is reached, receive the form from the A/E, sign in the space provided, and e-mail or fax the form to the Contracting Authority.
- C. The CM must sign the same form the A/E has signed.

5. Contracting Authority Approval:

- A. Verify DFSP enrollment, including supporting documentation, if applicable.
- B. Verify current EDGE-certified status using the EOD Web site.
- C. Complete "For Cont. Auth. Use Only" section in the order indicated below
 - 1. Determine status of companies listed on each sheet received.
 - a. When one or more companies require "Extended Review": mark company status for each, and then go to C2.
 - b. When one or more companies are rejected: mark company status for each, and then go to C3.
 - c. When all companies are approved: mark company status for each, and then go to C4.
 - 2. Forward a copy of the annotated form to the Contractor as its notice of the Extended Review; then, proceed to perform and complete the Extended Review. When completed, mark form as appropriate, and process per C1b or C1c.
 - 3. Prepare written documentation of basis for rejection and insert it into the project file, and if appropriate, insert a copy into the "responsibility review file" for the particular company; and then go to C4.
 - 4. Forward a copy of the annotated form to the A/E, Contractor, and CM if applicable. Insert the original form into the "Project file."

Subcontractor & Material Supplier Declaration

State of Ohio Standard Forms and Documents

Contractor Information

Company Name _____
 Address _____
 City, State, Zip _____
 Type of Contract _____

Project Information

Contract No. _____
 Project Name _____
 Project Location _____

Sheet¹ _____ of _____

	☐ Subcontractor ☐ Material Supplier (check one)	☐ Subcontractor ☐ Material Supplier (check one)	☐ Subcontractor ☐ Material Supplier (check one)
Company Name			
Street Address			
City/State/Zip			
Telephone No.			
Fax No.			
Federal Tax I.D. No.			
E-mail Address			
Primary Officer			
Contact Person			
Subcontract/P.O. Date			
Subcontract/P.O. Amount \$			
Services/Material Brands ¹			
Skilled Trade License No.			
DFSP Enrolled	☐ Yes ☐ No (when supplying labor on site)	☐ Yes ☐ No (when supplying labor on site)	☐ Yes ☐ No (when supplying labor on site)
DFSP Policy No.			
EDGE Status ²	☐ Certified ☐ Pending ☐ Mentor ☐ Protégé	☐ Certified ☐ Pending ☐ Mentor ☐ Protégé	☐ Certified ☐ Pending ☐ Mentor ☐ Protégé
For Cont. Auth. Use Only	☐ Approved ☐ Extended Review ☐ Rejected	☐ Approved ☐ Extended Review ☐ Rejected	☐ Approved ☐ Extended Review ☐ Rejected

Contractor Certification

Contractor certifies that the information above is true and complete.

A/E Review

A/E has reviewed the information above and finds it in compliance with the Contract Documents as shown or as noted.

Construction Manager Review

CM has reviewed the information above and finds it in compliance with the Contract Documents as shown or as noted.

Contracting Authority Approval

Subcontractors and Material Suppliers are accepted, as shown or as noted, for use on this project subject to revocation for cause.

Signature _____

Date _____

Signature _____

Date _____

Signature _____

Date _____

Signature _____

Date _____

Subcontractor & Material Supplier Declaration

State of Ohio Standard Forms and Documents

Contractor Information

Company Name _____
 Address _____
 City, State, Zip _____
 Type of Contract _____

Project Information

Contract No. _____
Project Name _____
 Project Location _____

Sheet¹ _____ of _____

	☐ Subcontractor ☐ Material Supplier (check one)	☐ Subcontractor ☐ Material Supplier (check one)	☐ Subcontractor ☐ Material Supplier (check one)
Company Name			
Street Address			
City/State/Zip			
Telephone No.			
Fax No.			
Federal Tax I.D. No.			
E-mail Address			
Primary Officer			
Contact Person			
Subcontract/P.O. Date			
Subcontract/P.O. Amount \$			
Services/Material Brands ¹			
Skilled Trade License No.			
DFSP Enrolled	☐ Yes ☐ No (when supplying labor on site)	☐ Yes ☐ No (when supplying labor on site)	☐ Yes ☐ No (when supplying labor on site)
DFSP Policy No.			
EDGE Status ²	☐ Certified ☐ Pending ☐ Mentor ☐ Protégé	☐ Certified ☐ Pending ☐ Mentor ☐ Protégé	☐ Certified ☐ Pending ☐ Mentor ☐ Protégé
For Cont. Auth. Use Only	☐ Approved ☐ Extended Review ☐ Rejected	☐ Approved ☐ Extended Review ☐ Rejected	☐ Approved ☐ Extended Review ☐ Rejected

Contractor Certification

Contractor certifies that the information above is true and complete.

A/E Review

A/E has reviewed the information above and finds it in compliance with the Contract Documents as shown or as noted.

Construction Manager Review

CM has reviewed the information above and finds it in compliance with the Contract Documents as shown or as noted.

Contracting Authority Approval

Subcontractors and Material Suppliers are accepted, as shown or as noted, for use on this project subject to revocation for cause.

Signature _____

Date _____

Signature _____

Date _____

Signature _____

Date _____

Signature _____

Date _____

**WAIVER OF LIABILITY FORM
for
ASBESTOS HAZARD ABATEMENT VISITORS**

PROJECT: _____ PROJECT NO.: GA _____

WARNING!

This project involves stripping, removal and disposal of asbestos. The work area may be contaminated and entry into work area may result in exposure to airborne asbestos fiber. In addition, there are other hazards typically found on construction sites.

Numerous studies indicate that there is no known safe level of exposure to airborne asbestos. Asbestos is considered a health hazard, and is widely believed to cause or contribute to several diseases, including asbestosis and several types of fatal cancers.

Respiratory protection equipment supplied is believed to provide reasonable protection, and does provide best protection readily available; it substantially exceeds all current federal requirements. However, it does not provide absolute protection.

WAIVER OF LIABILITY

I understand and agree that Owner, Construction Manager, Architect, Contractor, and Engineer including each entity's officers and employees shall not be held liable for any damages, including incidental and/or consequential damages, regardless of legal theory asserted, including negligence or strict liability, arising out of my entry into the work area, and including, but not limited to, damage resulting from exposure to airborne asbestos.

(NOTE: form continues on reverse; BOTH sides must be completed)

I certify that I have read and understand information contained on this form, that I understand that my entry into the work area may result in exposure to airborne asbestos, that such exposure may carry some risk of injury, that I do not have any physical condition that can interfere with performance of supplied respiratory protection or which would prohibit or restrict use of such equipment, and that all my statements and answers on both sides of this form are true.

Signed: _____

Date: _____

WAIVER OF LIABILITY FORM
(cont'd)

PROJECT: _____

BUILDING OWNER: _____

CONTRACTOR: _____

G&A RPR: _____

VISITOR:

NAME: _____

ADDRESS _____

TELEPHONE: ____ (____) _____

SSN: _____ BIRTH DATE: _____

AFFILIATION: _____

PURPOSE OF VISIT: _____

DATE(S) OF VISIT: _____

RESPIRATORY PROTECTION SUPPLIED: _____

**REGULATED ASBESTOS MATERIAL
WASTE SHIPMENT RECORD**

Page 1 of 2

GENERATOR SECTION																	
I. Facility Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Owner's Name: _____ Telephone: () _____ Fax: () _____																	
II. Operator's Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____ Telephone: () _____ Fax: () _____																	
III. Waste Disposal Site (WDS) Name: _____ <div style="display: flex; justify-content: space-between;"> "on-site" disposal ☐ Yes ☐ No </div> Physical Location: Address: _____ City: _____ State: _____ Zip Code: _____ Telephone: () _____ Fax: () _____ Mailing Address: City: _____ State: _____ Zip Code: _____ Telephone: () _____ Fax: () _____																	
IV. Responsible Agency (Local, District, State, or EPA Office where notification was sent) Name: _____ Address: _____ City: _____ State: _____ Zip Code: _____																	
V. Description of Materials	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center; padding: 5px;">VI. Containers</th> <th style="width: 25%; padding: 5px; vertical-align: top;"> VII. Total Quantity (cubic yards) </th> </tr> <tr> <th style="width: 50%; text-align: center; padding: 5px;">Number</th> <th style="width: 50%; text-align: center; padding: 5px;">Type</th> <th></th> </tr> </thead> <tbody> <tr><td style="height: 20px;"></td><td></td><td></td></tr> <tr><td style="height: 20px;"></td><td></td><td></td></tr> <tr><td style="height: 20px;"></td><td></td><td></td></tr> </tbody> </table>		VI. Containers		VII. Total Quantity (cubic yards)	Number	Type										
VI. Containers		VII. Total Quantity (cubic yards)															
Number	Type																
VIII. Special Handling Instructions and Additional Information 																	
IX. Generator's Certification: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.																	
<div style="display: flex; justify-content: space-between;"> Signature _____ Date _____ Type or Print Name and Title _____ </div>																	

**REGULATED ASBESTOS MATERIAL
WASTE SHIPMENT RECORD**

Page 2 of 2

TRANSPORTER SECTION

X. Transporter 1 (Acknowledgement of receipt of materials)

Name: _____
Address: _____
City: _____ State: _____ Zip Code: _____
Telephone: () _____ Fax: () _____

Signature Date Type or Print Name and Title

Rejected Materials (if any)	Destination

XI. Transporter 2 (Acknowledgement of receipt of materials)

Name: _____
Address: _____
City: _____ State: _____ Zip Code: _____
Telephone: () _____ Fax: () _____

Signature Date Type or Print Name and Title

Rejected Materials (if any)	Destination

DISPOSAL SITE SECTION

XII. Discrepancy indication space

XIII. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 12

Signature Date Type or Print Name and Title

Form Revised (11/12/97)

UNIFORM HAZARDOUS WASTE MANIFEST <small>(continuation sheet)</small>		21. Generator's US EPA ID No.		Manifest Document No.		22. Page		Information in the shaded areas is not required by Federal law					
23. Generator's Name						L. State Manifest Document Number							
						M. State Generator's ID							
24. Transporter ____ Company Name				25. US EPA ID Number		N. State Transporter's ID							
						O. Transporter's Phone							
26. Transporter ____ Company Name				27. US EPA ID Number		P. State Transporter's ID							
						Q. Transporter's Phone							
G E N E R A T O R	28. US DOT Description <small>(Including Proper Shipping Name, Hazard Class, and ID Number)</small>					29. Containers		30. Total		31. Unit		R. Waste No.	
						No. Type		Quantity		Wt/Vol			
	a.												
	b.												
	c.												
	d.												
	e.												
	f.												
	g.												
	h.												
i.													
S. Additional Descriptions for Materials Listed Above						K. Handling Codes for Wastes Listed Above							
31. Special Handling Instructions and Additional Information													
T R A N S P O R T E R	33. Transporter ____ Acknowledgement of Receipt of Materials								Date				
	Printed/Typed Name				Signature				Month Day Year				
	34. Transporter ____ Acknowledgement of Receipt of Materials								Date				
Printed/Typed Name				Signature				Month Day Year					
F A C I L I T Y	35. Discrepancy Indication Space												

**ASBESTOS HAZARD ABATEMENT WORK
WORKER QUALIFICATION FORM**

PROJECT: _____ **PROJECT NO.:** GA_____

CONTRACTOR:

Name: _____

EMPLOYEE:

Name: _____

REMARKS: _____

CERTIFICATION (Copies of Ohio Environmental Protection Agency (OEPA) Card and certificate for applicable initial and most recent refresher asbestos training course must be attached to this Form):

☐ Asbestos Hazard Abatement Specialist

OEPA Card Number: _____
OEPA Card Expiration: _____

☐ Asbestos Worker

OEPA Card Number: _____
OEPA Card Expiration: _____

☐ **Initial** Contractor/Supervisor Asbestos Abatement Practices Certificate

Certificate Number: _____
Date of Expiration: _____

☐ **Initial** Four Day Abatement Worker Training Abatement Practices Certificate

Certificate Number: _____
Date of Expiration: _____

☐ **Most Recent Refresher** Contractor/Supervisor Asbestos Abatement Practices Certificate

Certificate Number: _____
Date of Expiration: _____

☐ **Most Recent Refresher** Abatement Worker Training Certificate

Certificate Number: _____
Date of Expiration: _____

RESPIRATORY PROTECTION SUBMITTALS (Copies of physician's written opinion that employee is medically fit to wear both half-mask air-purifying respirator (APR) and full-facepiece powered air-purifying respirator (PAPR) and documentation indicating that employee has been fit-tested for both APR and PAPR within last twelve months must be attached to this Form):

☐ Physician written opinion allowing use of respirators; physical expiration date: _____

☐ Fit-Test Information:

☐ full facepiece PAPR; fit-test expiration date: _____
☐ half-mask APR; fit-test expiration date: _____

(Form continues on reverse)

This project involves stripping, removal and disposal of asbestos. Asbestos is considered a health hazard. I (the Employee) am familiar with all applicable OSHA, Ohio EPA, and U.S. EPA Regulations concerning stripping, removal and disposal of asbestos-containing materials. I have received adequate instruction in worker protection against airborne asbestos. I certify that I have received an examination by a physician as required by 29 CFR 1910.134 (OSHA Respiratory Protection) and 29 CFR 1926.1101 (OSHA Asbestos Standard for Construction Industry), that I received examination within past year, and that examining physician has put no limitations on use of respirators and not detected any medical condition that would cause an increased risk of material health impairment from exposure to asbestos. Further, I give permission to my employer to provide examining physician's written opinion on results of examination to Owner, Contracting Authority, Construction Manager, Architect, and Engineer. Additionally, I give permission to my employer to provide a copy of fit test records provided as required by 29 CFR 1910.134 (OSHA Respiratory Protection) to Owner, Contracting Authority, Construction Manager, Architect, and Engineer.

I agree to hold harmless Owner, Construction Manager, Architect, Engineer, and representatives of Owner, Contracting Authority, Construction Manager, Architect, and Engineer for injury received as a result of exposure to airborne asbestos. This is not a release or offer of indemnification in respect to claims arising from Workers Compensation Laws.

I acknowledge that Engineer and Engineer's representatives cannot provide supervision of Work. Further, I acknowledge that Engineer and Engineer's representatives cannot advise on, issue directions regarding, or assume control over any aspect of means, methods, techniques, sequences, procedures, or safety precautions in connection with Work.

I acknowledge that statements on this form are true, and certify that my statements and answers are true.

Signed: _____ Date: _____
Employee Signature

Birth Date: _____

I (Agent of Contractor) certify that employee represented on this form has received an examination by a physician as required by 29 CFR 1910.134 (OSHA Respiratory Protection) and CFR 1926.1101 (OSHA Asbestos Standard for Construction Industry), has received this examination within past year, and that examining physician has put no limitations on use of respirators and not detected any medical condition that would cause an increased risk of material health impairment from exposure to asbestos. Further, I agree to provide examining physician's written opinion on results of examination to Owner, Contracting Authority, Construction Manager, Architect, and Engineer. Additionally, I certify that this employee has received proper respirator fit tests as required by 29 CFR 1910.134 (OSHA Respiratory Protection) and agree to provide a copy of fit test records to Owner, Contracting Authority, Construction Manager, Architect, and Engineer. I also certify that Employee can either read English or had this document read to Employee in a language that Employee understands prior to this document being executed.

Signed: _____ Date: _____
Contractor Agent Signature