MONTGOMERY COUNTY
ENVIRONMENTAL SERVICES

MONTGOMERY COUNTY, OHIO

CONTRACT DOCUMENTS

FOR

SOLID WASTE OLD ADMIN BUILDING RENOVATION
PROJECT NO. 130075-64

BID DATE: November 18, 2026

SPGB ARCHITECTS
4333-A TULLER ROAD
DUBLIN, OHIO 43017

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES
MONTGOMERY COUNTY, OHIO

BID SUBMITTAL DOCUMENT
FOR
SOLID WASTE OLD ADMIN BUILDING RENOVATION

PROJECT NO. 130075-64

October, 2026

JUDY DODGE.....COUNTY COMMISSIONER

MARY A. McDONALD .....COUNTY COMMISSIONER

CAROLYN RICE .....COUNTY COMMISSIONER

MICHAEL B. COLBERT ..... COUNTY ADMINISTRATOR

MATT HILLIARD. .....DIRECTOR

DESIGN ENGINEER

SPGB Architects, LLC

BID DATE: _October 30, 2026

JANUARY 2019

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

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NOTICE TO BIDDERS

Bids are due electronically through Montgomery County's OpenGov Procurement portal before 1:30 p.m. on Wednesday, November 18, 2026, for Project No. 130075-64, Solid Waste Old Admin Building Renovation, for the Montgomery County Environmental Services Department. Said bids will be opened as soon thereafter as the opening can begin. All project documents are available on Montgomery County's OpenGov Procurement portal located at: https://procurement.opengov.com/portal/montgomerycountyoh

This project includes the demolition and renovation of the existing first, second, third, and fourth floors of the original Solid Waste Administration Building located at the Solid Waste Transfer Station in Moraine, Ohio. The project will convert underutilized areas into shelled spaces while upgrading structural, electrical, mechanical, elevator, and fire protection systems. These improvements will ensure the facility meets current building code requirements and supports the long-term operational needs of the Solid Waste District.

Plans and Specifications may be purchased at the bidder's cost at the location below to cover production and handling charges for each set, NONE OF WHICH WILL BE REFUNDED:

ARC, 424 East Third Street, Dayton, Ohio 45402
Ph: (937) 277-7930
www.e-arc.com/oh/dayton

A **Mandatory** Prebid Meeting will be held at 1:00 p.m. on Tuesday, November 3, 2026, in the Administration Building at the Montgomery County Solid Waste Transfer & Recycling Facility, 2550 Sandridge Drive, Moraine, Ohio 45439.

ENGINEER'S ESTIMATE – $ 2,074,930.00

All Bids shall include the Bid Submittal Documents as defined in the Instructions to Bidders in Specification Section 00100.

The County Commissioners reserve the rights defined in the Instructions to Bidders, including, but not limited to the right to reject any or all Bids and to waive any irregularities of Bids, should same be to the advantage of the County.

BY ORDER OF THE BOARD OF COUNTY COMMISSIONERS OF MONTGOMERY COUNTY, OHIO.

_____
Kyle Kolopanis, Purchasing Director

1 Certified Ad to Dayton Daily News
On **10/23/2026**

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ARTICLE 1 – BIDDER'S PLEDGE AND AGREEMENT

1.01 Each Bidder acknowledges that this is a public project involving public funds and that the Owner expects and requires that each Successful Bidder adhere to the highest ethical and performance standards. Each Bidder by submitting a Bid pledges and agrees that (a) it will act at all times with absolute integrity and truthfulness in its dealings with the Owner, Engineer and the Design Professional, (b) it will use its best efforts to cooperate with the Owner, Engineer and the Design Professional and all other Contractors on the Project and at all times will act with professionalism and dignity in its dealings with the Owner, Engineer, Design Professional, and other Contractors, (c) it will assign only competent supervisors and workers to the Project, each of whom is fully qualified to perform the tasks that are assigned to him/her, and (d) it has read, understands and will comply with the terms of the Contract Documents.

ARTICLE 2 – EXAMINATION OF CONTRACT DOCUMENTS AND SITE CONDITIONS AND RELIANCE UPON TECHNICAL DATA

2.01 Each Bidder shall have a competent person carefully and diligently review each part of the Contract Documents, including the Divisions of the Specifications and parts of the Drawings that are not directly applicable to the Work on which the Bidder is submitting its Bid. By submitting its Bid, each Bidder represents and agrees, based upon its careful and diligent review of the Contract Documents, that it is not aware of any conflicts, inconsistencies, errors, or omissions in the Contract Documents for which it has not notified the Engineer in writing at least seven (7) days prior to the Bid opening. If there are any such conflicts, inconsistencies, errors, or omissions in the Contract Documents, the Bidder (i) will provide the labor, equipment, or materials of the better quality or greater quantity of Work and/or (ii) will comply with the more stringent requirements. The Bidder will not be entitled to any additional compensation for any conflicts, inconsistencies, errors, or omissions that would have been discovered by such careful and diligent review, unless it has given prior written notice to the Engineer.

2.02 Each Bidder shall have a competent person carefully and diligently inspect and examine the entire site and the surrounding area, including all parts of the site applicable to the Work for which it is submitting its Bid, including location, condition, and layout of the site and the location of utilities, and carefully correlate the results of the inspection with the requirements of the Contract Documents. The Bidder's Bid shall include all costs attributable to site and surrounding area conditions that would have been discovered by such careful and diligent inspection and examination of the site and the surrounding area, and the Bidder shall not be entitled to any Change Order, additional compensation, or additional time on account of such conditions.

2.03 The Bidder may rely upon the general accuracy of any technical data identified in the Owner-Contractor Agreement (e.g., any soils exploration reports, soil boring logs, site survey, or abatement reports) in preparing its Bid, but such technical data are not part of the Contract Documents. Except for the limited reliance described in the preceding sentence, Bidder may not, if awarded a contract for the Work, rely upon or make any Claim against the Owner or Design Professional, or any of their agents or employees, with respect to any of the following:

A. the completeness of such reports and drawings for Bidder's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by the Successful Bidder and safety precautions and programs incident thereto; or

B. any interpretation by the Successful Bidder of or conclusion drawn from any technical data or any such other data, interpretations, opinions, or information. For example, all interpolations and extrapolations of data performed by the Bidder to estimate locations or quantities of subsurface strata are independent factual assumptions, which Owner does not warrant.

2.04 Each Bidder will be deemed to have actual knowledge of all information provided or discussed at the pre-bid meeting.

ARTICLE 3 – OWNER, ENGINEER AND DESIGN PROFESSIONAL

The Owner, Engineer and the Design Professional are defined in the General Conditions.

ARTICLE 4 – PROJECT

The Project and Work for the Project consists of all labor, materials, equipment, and services necessary for the construction of the Project identified in the Contact Documents, including S-01011.

4.01 On request and by appointment, Owner may conduct a site visit during Owner's normal business hours for any Bidder requesting such a visit. All visits shall be scheduled through the Owner.

4.02 Subject to a prior, written request from a Bidder and prior authorization from the Owner, Owner may provide Bidders access to the Project site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable laws and regulations relative to excavation and utility locations.

4.03 Any pre-bid meetings for the Project will be identified in the Notice to Bidders in Specification Section 00020 or in any Addenda issued by Owner. Bidders may visit the Project site following any pre-bid conference scheduled by Owner.

ARTICLE 5 – WORK

5.01 The Project consists of the following Contract(s) for the Work:

Bid Package # and Description

Project No. 130075-64: Solid Waste Old Admin Building renovation

5.02 If only one Bid package is listed, one Contract will be issued by the Owner for constructing the Project, the General Contract, which will cover all scopes of Work necessary to construct the Project.

5.03 The Contractor awarded the General Contract (General Contractor) will be responsible for the performance and coordination of any and all subcontractors and suppliers either directly or indirectly contracted with the General Contractor.

ARTICLE 6 – ESTIMATE OF COST

The total estimated construction cost for the Base Bid Work for all Bid packages on the Project for which Bids are being solicited at this time is provided in the Notice to Bidders in Specification Section 00020, unless modified by Addenda.

ARTICLE 7 – CONTRACT DOCUMENTS

7.01 The Contract Documents consist of the Contract Documents listed in Article 1 of the Owner-Contractor Agreement in Specification Section 00510.

7.02 The Contract Documents will be available to be purchased at the location(s) identified in the Notice to Bidders in Specification Section 00020 and/or in the location(s) identified in any Addenda issued by Owner for the Project. Owner reserves the right to charge a non-refundable amount for the actual cost of the Contract Documents.

7.03 Bidders shall use complete sets of Contract Documents in preparing Bids. Neither the Owner, Engineer and/or the Design Professional assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents.

7.04 The Owner, Engineer and/or the Design Professional, in making the Contract Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

7.05 To the extent that any reports of investigations and tests of subsurface and other conditions at the site or those reports that otherwise may affect cost, progress, performance or furnishing of the Work which have been utilized by Design Professional in preparation of the Drawings and Specifications, they are identified as “Non-Contract Documents” in the Owner-Contractor Agreement in Specification Section 00510. Copies of such reports will either be included as a separately bound document with each set of the Bidding Documents or will be provided upon request by Bidder. These reports are not intended to constitute any explicit or implicit representation as to the nature of the subsurface and latent physical conditions which may be encountered at the site or to constitute explicit or implicit representations as to any other matter contained in any report. Such reports are not guaranteed as to completeness and are not part of the Contract Documents. Before submitting its Bid, Bidder will, at its own expense, make such investigations and tests as the Bidder may deem necessary to determine its Bid for performing and furnishing the Work in accordance with the Contract Documents.

ARTICLE 8 – PREPARATION OF BIDS

8.01 All Bids must be submitted on the "Bid Form” furnished with the Contract Documents in Specification Section 00400.

8.02 All blank spaces shall be filled in, in words and figures, and in figures only where no space is provided for words and signed by the Bidder. The wording on the Bid Form shall be used without change, alteration, or addition. Any change in the wording or omission of specified accompanying documents may cause the Bid to be rejected. If there is an inconsistency or conflict in the Bid amount, the lowest amount shall control, whether expressed in numbers or words. Ditto marks shall not be used.

8.03 Bidders shall note receipt of Addenda on the Bid Form. If the Bidder fails to acknowledge receipt of each Addendum, the Bid shall be deemed non-responsive, unless the Bid amount clearly and unambiguously reflects receipt of the Addendum or the Addendum involves only a matter of form and does not affect the price, quantity or quality of the Work to be performed.

8.04 Each Bidder shall submit their Bid electronically through Montgomery County’s OpenGov Procurement portal to the Owner. The Bid Form shall be signed with the name typed or printed below the signature. A Bid shall not be submitted by facsimile transmission. A Bidder that is a corporation shall sign its Bid with the legal name of the corporation followed by the name of

the state of incorporation and the legal signature of an officer authorized to bind the corporation to a contract.

8.05 Each Bid shall be submitted in accordance with the Notice to Bidders, unless modified by any Addenda issued by Owner.

8.06 The completed Bid shall include the following documents (referred to as the "Bid Submittal Documents"):

A. Bid Form (Section 00400)

B. Bid Guaranty or Bid and Performance/Payment Bond (Section 00410)

C. Bidder's Qualification Statement (Section 00420)

D. Drug-Free Workplace Compliance Affidavit (Section 00450)

E. Disclosure Policy (Section 00491)

8.07 The Bidder shall take the following precautions in preparing its Bid:

A. Sign the Bid and check to ensure all blank spaces have been filled in with requested information and that the specified accompanying documents (listed in Paragraph 8.06 above) have been included as described in Paragraph 8.05 above.

B. When the Bid Form provides for quoting either an addition or deduction for an alternate item, indicate whether the sum named is an addition or deduction. If it is not indicated, it will be conclusively presumed that the amount is a deduction.

C. When the Bid Form provides for quoting a unit price, the Bidder should quote the unit price as set forth in the Bid Documents.

D. When applicable, make sure that the Bid Guaranty is properly executed and signed by:

1. The Bidder

2. The surety or sureties.

E. Make sure that the amount of the Bid Guaranty (if the Bid Guaranty is in the form of a certified check, letter of credit, or cashier's check) is for a specific sum in an amount as instructed in Paragraph 8.08 A below. If the Bid Guaranty is in the form of the Bid Guaranty and Performance/Payment Bond, the amount may be left blank; if an amount is inserted, it must equal the total of the Base Bid and all add alternates included. If inserted, then the failure to state an amount equal to the total of the Base Bid and all add alternates shall make the Bid non-responsive if the Owner selects alternates not included in the amount.

F. Make sure that the appropriate Bid package and scope of Work is inserted in the correct space on the Bid Guaranty and Performance/Payment Bond Form. Failure to include Work covered by the Bid submitted may make the Bid non-responsive.

8.08 Bonds and Guarantees

A. Bid Guaranty: Bidder shall furnish a Bid Guaranty, in the form prescribed in Sections 153.54, 153.57, and 153.571 of the Ohio Revised Code, in the form of either: (1) a bond for the full

amount of the Bid in the form of the Bid and Performance/Payment Bond included in the Contract Documents in Specification Section 00410; or (2) a certified check, cashier's check, or irrevocable letter of credit in a form satisfactory to the Owner in an amount equal to 10% of the Bid. Bid amount shall be the total of all sums bid, including all add alternates, but excluding all deduct alternates. NOTE: AIA Bid Bond forms are not acceptable.

B. Performance/Payment Bond: The Successful Bidder, who, as a Bid Guaranty, submits a certified check, cashier's check, or irrevocable letter of credit in an amount equal to 10% of the Bid, shall furnish a Performance/Payment Bond in the form of the Performance/Payment Bond included in Specification Section 00512 in the Contract Documents in an amount equal to 100% of the Contract Sum. NOTE: AIA Bond forms are not acceptable.

C. The bond must be issued by a surety company authorized by the Ohio Department of Insurance to transact business in the State of Ohio and acceptable to the Owner. The bond must be issued by a surety capable of demonstrating a record of competent underwriting, efficient management, adequate reserves, and sound investments. These criteria will be deemed to be met if the surety currently has an A.M. Best Company Policyholders Rating of "A-" or better and has or exceeds the Best Financial Size Category of Class VI. Other sureties may be acceptable to the Owner, in its sole discretion

D. All bonds shall be signed by an authorized agent of an acceptable surety and by the Bidder.

E. Surety bonds shall be supported by credentials showing the Power of Attorney of the agent, a certificate showing the legal right of the surety company to do business in the State of Ohio, and a financial statement of the surety.

F. The Bid Guaranty, as applicable, shall be in the name of or payable to the order of the Owner.

G. The name and address of the surety and the name and address of the surety's agent should be typed or printed on each bond.

ARTICLE 9 – METHOD OF AWARD

9.01 All Bids shall remain open for acceptance for sixty (60) days following the day of the Bid opening, but the Owner may, in its sole discretion, release any Bid and return the Bid Guaranty prior to that date. The Bid Guaranty shall be subject to forfeiture, as provided in the Ohio Revised Code, if a Bid is withdrawn during the period when Bids are being held.

9.02 The Owner reserves the right to reject any, part of any, or all Bids and to waive any informalities and irregularities. The Bidder expressly acknowledges this right of the Owner to reject any or all Bids or to reject any incomplete or irregular Bid. Bidders must furnish all information requested on or accompanying the Bid Form. Failure to do so may result in disqualification of the Bid.

9.03 Determination of the Lowest and Best Bid. Subject to the right of the Owner to reject any or all Bids, the Owner will award the Contract for the Work to the responsible Bidder submitting the lowest and best Bid, taking into consideration accepted alternates. In evaluating Bids, the Owner may consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and alternates and unit prices, if requested, on the Bid Form. The Owner may also consider the qualifications and experience of subcontractors and suppliers. The Owner may conduct such investigations as are deemed necessary to establish the qualifications and financial ability of the Bidder and its subcontractors and suppliers. The factors the Owner may consider in determining which Bid is lowest and best include the factors

set forth below. The Owner, in its discretion, may consider and give such weight to these criteria as it deems appropriate.

A. The Bidder's Work History. The Bidder should have a record of consistent customer satisfaction and of consistent completion of projects, including projects that are comparable to or larger and more complex than the Owner's Project, on time and in accordance with the applicable Contract Documents, and the Bidder's claims history. If the Bidder's management operates or has operated another construction company, the Owner may consider the work history of that company in determining whether the Bidder submitted the lowest and best Bid.

1. The Owner will consider the Bidder's prior experience on other projects of similar scope and/or complexity including prior projects with the Owner and/or Design Professional, including the Bidder's demonstrated ability to complete its work on these projects in accordance with the Contract Documents and on time, and will also consider its ability to work with the Owner and Design Professional as a willing, cooperative, and successful team member. Bringing overstated claims, an excessive number of claims, acting uncooperatively, and filing lawsuits against project owners and/or their design professionals on prior projects of similar scope and/or complexity will be deemed evidence of a Bidder's inability to work with the Owner and Design Professional as a willing, cooperative, and successful team member.

2. The Bidder authorizes the Owner and its representatives to contact the owners and design professionals (and construction managers, if applicable) on projects on which the Bidder has worked and authorizes and requests such owners and design professionals (and construction managers) to provide the Owner with a candid evaluation of the Bidder's performance. By submitting its Bid, the Bidder agrees that if it or any person, directly or indirectly, on its behalf or for its benefit brings an action against any of such owners or design professionals (or construction managers) or the employees of any of them as a result of or related to such candid evaluation, the Bidder will indemnify and hold harmless such owners, design professionals (and construction managers) and the employees of any of them from any claims whether or not proven that are part of or are related to such action and from all legal fees and expenses incurred by any of them arising out of or related to such legal action. This obligation is expressly intended for the benefit of such owners, design professionals (and construction managers), and the employees of each of them.

B. The Bidder's financial ability to complete the Contract successfully and on time without resort to its surety.

C. The Bidder's prior experience with similar work on comparable or more complex projects.

D. The Bidder's prior history for the successful and timely completion of projects, including the Bidder's history of filing claims and having claims filed against it.

E. The Bidder's equipment and facilities.

F. The adequacy, in numbers and experience, of the Bidder's work force to complete the Contract successfully and on time.

G. The Bidder's compliance with federal, state, and local laws, rules, and regulations, including, but not limited to, the Occupational Safety and Health Act, the Ohio Prevailing Wage laws, and Ohio ethics laws.

H. The foregoing information with respect to each of the subcontractors and suppliers that the Bidder intends to use on the Project.

I. The Bidder's participation in a drug-free workplace program acceptable to the Owner, and the Bidder's record for both resolved and unresolved findings of the Auditor of State for recovery as defined in Section 9.24 of the Ohio Revised Code.

J. The Owner's prior experience with the Bidder's surety.

K. Evidence that the Bidder is qualified to do business in the State of Ohio or the ability of the Bidder to obtain such qualification prior to execution of the Owner-Contractor Agreement.

L. The Bidder's interest in the Project as evidenced by its attendance at any pre-bid meetings or conferences for Bidders.

M. Depending upon the type of the Work, other essential factors, as the Owner may determine and as are included in the Specifications.

9.04 Qualifications Statement. Each Bidder will submit with its Bid a completed Bidder's Qualifications Statement, which is included in Specification Section 00420 of the Contract Documents, and thereafter provide the Owner, Engineer and/or the Design Professional promptly with such additional information as the Owner, Engineer and/or the Design Professional may request regarding the Bidder's qualifications. A Bidder shall submit any requested additional information within five (5) business days of the date of the request.

9.05 The failure to submit requested information on a timely basis may result in the determination that the Bidder has not submitted the lowest and best Bid.

9.06 By submitting its Bid, the Bidder agrees that the Owner's determination of which Bidder is the lowest and best Bidder shall be final and conclusive, and that if the Bidder or any person on its behalf challenges such determination in any legal proceeding, the Bidder will indemnify and hold the Owner and its employees and agents harmless from any claims included or related to such legal proceeding, whether or not proven, and from legal fees and expenses incurred by the Owner, its employees, or agents that arise out of or are related to such challenge.

9.07 After Bid opening, within five (5) business days of a request made by the Owner, Engineer and/or the Design Professional, the apparent low Bidder and any other Bidder so requested by the Owner, Engineer and/or the Design Professional must submit the following:

A. For all subcontracts and supplier contracts with an estimated value of at least $20,000, a list of all Subcontractors and Suppliers that the Bidder will use to construct the Project, as well as an indication of whether or not the Bidder has ever worked with a proposed subcontractor or Supplier before, including the following information for the three most recent projects on which the Bidder and each subcontractor and Supplier have worked together:

1. Project Owner
2. Project Name
3. Subcontract Scope
4. Subcontract Value
5. Owner's contact name and phone number.

B. If Bidder and a proposed subcontractor or supplier have not worked together on at least three projects in the past five years, Bidder must submit the information set forth above for the three most recent similar projects to the Project that a proposed subcontractor or supplier has worked on.

C. The above subcontractor and/or supplier information, as well as the information pertaining to each proposed subcontractor and/or supplier, shall be used in the Owner's determination of the lowest and best Bid.

D. Once a Bidder identifies its proposed subcontractors and suppliers as set forth herein, and Owner makes no objections, the list shall not be changed unless written approval of the change is authorized by the Owner and Design Professional.

9.08 Affidavit as to Personal Property Taxes. Each Successful Bidder shall submit, prior to the time of the entry into the Contract, an affidavit in the form required by Section 5719.042, Ohio Revised Code, regarding the status of the Bidder's personal property taxes. A copy of the affidavit form is included with the Contract Documents in Specification Section 00560.

9.09 No Bidder may withdraw its Bid within sixty (60) days after the date Bids are opened. The Owner reserves the right to waive any formalities or irregularities or to reject any or all Bids.

9.10 The Owner reserves the right to disqualify Bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices on the part of the Bidder.

9.11 Award of Contract. The award of the Contract, when required, will only be made pursuant to a duly adopted resolution of the Owner.

9.12 More than one (1) Bid for the same Work from an individual, or a firm, partnership, corporation or an association under the same or different names will not be considered. Reasonable grounds for believing that any Bidder is interested in more than one (1) Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder is interested, unless the Bidding Documents specifically invite or permit combination bids.

ARTICLE 10 – EXECUTION OF CONTRACT

10.01 Within the time designated by the Owner after award of the Contract, the Successful Bidder shall execute and deliver to the Owner the required number of copies of the Owner-Contractor Agreement, in the form included in the Contract Documents in Specification Section 00510, and all accompanying documents requested, including, but not limited to, a Performance/Payment Bond in Specification Section 00512 (if applicable), Non-Collusion Affidavit (Principal Contractor) in Specification Section 00561, insurance certificates, and a valid Workers' Compensation Certificate. The Successful Bidder shall have no property interest or rights under the Owner-Contractor Agreement until the Agreement is executed by the Owner.

ARTICLE 11 – SUBSTITUTIONS/NON-SPECIFIED PRODUCTS

11.01 Certain brands of material or apparatus are specified. Each Bid will be based on these brands, which may be referred to in the Contract Documents as Standards. The use of another brand (referred to as a substitution or proposed equal in the Contract Documents, when a Bidder or the Contractor seeks to have a different brand of material or apparatus than that specified approved by the Owner for use in the Project) may be requested as provided herein.

11.02 The products specified in the Contract Documents establish a standard of required function, dimension, appearance, and quality.

11.03 Bidders wishing to obtain approval to bid non-specified products shall submit written requests to the Engineer, using the Pre-Bid Substitution Form (Specification Section 00110) a minimum of ten (10) working days before the Bid date and hour. To facilitate the submission of requests, a Pre-Bid Substitution Form is included in the Contract Documents. The Bidder shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution, including the name of the proposed manufacturer and/or product and a complete description of the proposed product including manufacturer's name and model number or system proposed, drawings, product literature, performance and test data, color selections or limitations, and any other information necessary for evaluation. Include a statement including any changes in other materials, equipment, or other work that would be required if the proposed product is incorporated in the materials, equipment, or other work that would be required if the proposed product is incorporated in the Work. The burden of proof of the merit of the proposed product is on the proposer. The Engineer's decision on approval of a proposed product will be final.

A. The following will be cause for rejection of a proposed substitution:

1. Requests submitted by subcontractors, material suppliers, and individuals other than Bidders;

2. Requests submitted without adequate documentation;

3. Requests received after the specified cut-off date.

11.04 When the Engineer approves a product submission before receipt of Bids, the approval will be included in an Addendum, and Bidders may include the pricing of this product in their Bid. Bidders shall not rely on approvals made in any other manner.

11.05 In proposing a non-specified product or a substitution, the Bidder represents and warrants that each proposed product will not result in any changes to the Project, including changes to the Work of other contractors, or any decrease in the performance of any equipment or systems to be installed in the Project and agrees to pay any additional costs incurred by the Owner and the Owner's consultants as a result of a non-specified or substitute product that is accepted.

11.06 Following the award of the Contract, there shall be no substitutions for specified products, except pursuant to a Change Order. The Owner in its sole discretion may decline to consider a substitution for a Change Order.

ARTICLE 12 – ALTERNATES

12.01 The Owner may request Bids on alternates. If the Owner requests Bids on alternates, the Bidder should include the cost of the alternates requested on its Bid Form.

12.02 At the time of awarding the Contract, the Owner will select or reject alternates as it determines is in its best interest. A Bidder's failure to include on its Bid Form the cost of an alternate selected by the Owner and applicable to the Bidder's work shall render the Bid non-responsive and be grounds for the rejection of the Bid. Otherwise, the failure to include the cost of an alternate will not be deemed material.

12.03 The Bidder acknowledges that although there is an estimate for the cost of the Project, the market conditions may and frequently do result in the estimate being different from the sum of the Bids received, either higher or lower. The Bidder understands that the Owner may include alternates, which may include deduct alternates as well as add alternates, to give it flexibility to build the Project with the funds available. The Bidder further understands and acknowledges that use of add and deduct alternates is a long held customary practice in the construction industry in the State of Ohio. The Bidder also acknowledges that the Owner will not make a decision about the alternates on which to base the award of contracts until the Bids are received, and the Owner can compare its available funds with the Base Bids and the cost or savings from selecting different alternates. The Bidder understands that the award to the Bidder submitting the lowest and best Bid will be based on the lowest Base Bid plus selected alternates and may result in an award to a Bidder other than the Bidder that submitted the lowest Base Bid.

12.04 If, during the progress of the Work, the Owner desires to reinstate any alternate not included in the Contract, the Owner reserves the right to reinstate the alternate at the price bid by the Contractor provided that such action is taken in sufficient time so as not to delay the progress of the Work or cause the Contractor additional expense.

ARTICLE 13 – UNIT PRICES AND BID SUMMARY SHEETS

13.01 DEFINITION

A. If the Bid is based on UNIT PRICES, the Bid Form shall include a Unit Price Sheet to be completed by Bidders. Unit Prices are defined as the cost per single unit for each Bid Item. When the Bid Item's estimated quantity is "Lump Sum" or "1 each," this quantity amount is equal to a single unit.

B. For each Bid Item, the "Unit Price Sheet(s)" requires the Bidder to enter UNIT PRICES, IN FIGURES, for LABOR COST and for MATERIAL COST, a COMBINED UNIT PRICE that totals the labor and materials unit prices, and a BID ITEM TOTAL COST, which multiplies the combined unit price by the estimated quantity.

13.02 SAMPLE Unit Price Sheet

A. In the Sample "Unit Price Sheet" below, there are six (6) columns labeled "A" through "F". Column "A" is the Bid's "ESTIMATED QUANTITY." Column "B" is the UNIT of Measure for the ESTIMATED QUANTITY. Column “C” is the Bid's "UNIT PRICE" for labor and Column "D" is the Bid's "UNIT PRICE" for materials. Column "E" is the Bid's "TOTAL UNIT PRICE" of labor and materials. Column "F" is the Bid's "TOTAL COST OF ITEM." Bidder MUST enter, in figures, the unit cost in Column "C" and Column “D” for each Bid Item. These amounts should then be added together, and the resulting sum entered in Column "E" for each Bid Item. The TOTAL cost for each Bid Item (Column "F") is calculated by multiplying the quantity of Column "A" by the amount entered in Column "E."

B. The Bidder MUST submit an unofficial “BIDDER’S TOTAL PRICE”, which is the grand total of prices entered in Column "F" for all Bid Items. This amount should be recorded in the box at the bottom of Column “F” and will be the figure read aloud at the Bid opening.

The following examples are illustrative only and my not apply to the specific requirements for this project.

Example of an accurately completed Unit Price Sheet

Bid Item No.	Bid Item Description	Estimated Quantity (A)	Units (B)	Unit Cost			Bid Item Total Cost (F) (F=AxE)
				Labor (C)	Materials (D)	Combined Unit Price (E) (E=C+D)	
1	Mobilization	1	LS	$3,000.00	$7,000.00	$10,000.00	$10,000.00
2	Traffic Control	1	LS	$6,000.00	$14,000.00	$20,000.00	$20,000.00
3	Fire Hydrant	10	EA	$2,000.00	$3,000.00	$5,000.00	$50,000.00
4	1" Copper Service	1500	LF	$10.00	$40.00	$50.00	$75,000.00
						Bidder's Total Price =	$155,000.00

13.03 All figures in the Unit Price Bid will be considered to reflect the intention of the Bidder.

13.04 In order to be considered, all Bids must contain all Unit Prices (separate and combined) and a Bidder's Total Price.

13.05 The Owner will verify the accurate mathematical totaling of all Bid amounts provided on the Unit Price Sheet(s), including the calculation of Column "E" and Column "F" and the Bidder's Total Price, which is the sum of Column "F". In the event there are any mathematical errors on the Bidder's Unit Price Sheet for the Bidder's calculation of any of the Bidder's Combined Unit Price(s) in Column "E," any of the Bidder's Bid Item Total Costs in Column "F" or the Bidder's Total Price, which is the sum of Column "F," the mathematical totaling of the amounts in Column "E" and Column "F", and the mathematical total of the sum of Column "F," as determined by Owner, shall control over the amounts inserted by Bidder in Column "E," Column "F" or the Bidder's Total Price.

13.06 The quantities in the column titled "Estimated Quantity" are those given in the Owner's approximate estimation and are those which will be used for the purpose of determining the lowest Bidder. These quantities are approximate only, and the contractor to whom the Contract is awarded shall not be entitled to any claim for loss or profits, nor for other damages, should the quantity of Work done prove to be greater or less than is herein given in said Estimated Quantity columns.

ARTICLE 14 – ADDENDA

14.01 The Owner reserves the right to issue Addenda changing, altering, or supplementing the Contract Documents prior to the time set for receiving Bids. The Owner will issue the Addenda to clarify Bidders' questions and/or to change, alter, or supplement the Contract Documents.

14.02 Any explanation, interpretation, correction, or modification of the Contract Documents will be issued in writing in the form of an Addendum, which shall be the only means considered binding; explanations, interpretations, etc., made by any other means shall NOT be legally binding. All Addenda shall become a part of the Contract Documents.

14.03 Bidders shall submit written questions to the Owner in sufficient time in advance of the Bid opening to allow sufficient time for the Owner and/or Design Professional to respond. In order

to receive consideration, questions must be received by the Owner at least seven (7) days prior to the date of the opening of Bids. All Addenda will be issued, except as hereafter provided, and e-mailed or otherwise furnished to potential bidders present at the mandatory Pre-Bid meeting for the project, at least seventy-two (72) hours prior to the published time for the opening of Bids, excluding Saturdays, Sundays, and legal holidays. If any Addendum is issued within such seventy-two (72) hour period, then the time for opening of Bids shall be extended one (1) week with no further advertising of Bids required.

14.04 Copies of each Addendum will NOT be sent to the Bidders. The Montgomery County Purchasing Department will publish all Addenda at: https://procurement.opengov.com/portal/montgomerycountyoh. Bidders are responsible for acquiring issued Addenda in time to incorporate them into their Bid. Bidders should contact the Montgomery County Purchasing Department at https://procurement.opengov.com/portal/montgomerycountyoh prior to the Bid opening to verify the number of Addenda issued. Receipt of Addenda shall be indicated by Bidders in the space provided on the Bid Form.

14.05 Each Bidder shall carefully read and review the Contract Documents and immediately bring to the attention of the Owner any error, omission, inconsistency, or ambiguity therein.

14.06 If a Bidder fails to indicate receipt of all Addenda through the last Addendum issued by the Montgomery County Purchasing Department on its Bid Form, the Bid of such Bidder will be deemed to be responsive only if:

A. The Bid received clearly indicates that the Bidder received the Addendum, such as where the Addendum added another item to be bid upon and the Bidder submitted a Bid on that item; or

B. The Addendum involves only a matter of form or is one which has either no effect or has merely a trivial or negligible effect on price, quantity, quality, or delivery of the item bid upon.

ARTICLE 15 – INTERPRETATION

15.01 If a Bidder contemplating submitting a Bid for the proposed Project is in doubt as to the true meaning of any part of the Contract Documents, it may submit a written request for an interpretation thereof to the Owner. Requests received fewer than seven (7) days prior to Bid opening may not be answered. Any interpretation of the proposed documents will be made by Addendum only, duly signed by the Owner and/or Design Professional, and a copy of such Addendum will be available on the County's website to potential bidders present at the mandatory Pre-Bid meeting and each Plan Room where the Contract Documents are maintained. The Owner will not be responsible for any other explanation or interpretation of the proposed documents.

15.02 In interpreting the Contract Documents, words describing materials that have a well-known technical or trade meaning, unless otherwise specifically defined in the Contract Documents, shall be construed in accordance with the well-known meaning recognized by the trade.

15.03 Bidders are responsible for notifying the Owner in a timely manner of any ambiguities, inconsistencies, errors, or omissions in the Contract Documents. The Bidder shall not, at any time after the execution of the Contract, be compensated for a claim alleging insufficient data, incomplete Contract Documents, or incorrectly assumed conditions regarding the nature or character of the Work, if no request was made by the Bidder prior to the Bid opening.

ARTICLE 16 – STATE SALES AND USE TAXES

16.01 The Owner is a political subdivision of the State of Ohio and is exempt from taxation under the Ohio Sales Tax and Use Tax laws. Building materials that the Successful Bidder purchases for incorporation into the Project will be exempt from state sales and use taxes if the Successful Bidder provides a properly completed Ohio Department of Taxation Construction Contract Exemption Certificate to the vendors or suppliers when the materials are acquired. The Owner will execute properly completed certificates on request.

ARTICLE 17 – DATE FOR SUBSTANTIAL COMPLETION / DATE FOR CONTRACT COMPLETION / LIQUIDATED DAMAGES

17.01 The Milestone Dates, including the Milestone Date for Substantial Completion (aka Contract Time), the Milestone Date for Contract Completion, and Liquidated Damages shall be as defined and set forth in the Owner-Contractor Agreement in Specification Section 00510. By submitting its Bid, each Bidder agrees that the period for performing its Work is reasonable.

ARTICLE 18 – OWNER'S RIGHT TO WAIVE DEFECTS AND IRREGULARITIES

18.01 The Owner reserves the right to waive any and all irregularities provided that the defects and irregularities do not affect the amount of the Bid in any material respect or otherwise give the Bidder a competitive advantage.

ARTICLE 19 – MODIFICATION/WITHDRAWAL OF BIDS

19.01 Modification. A Bidder may modify its Bid by written communication to the Owner addressed to the Owner's Representative at any time prior to the scheduled closing time for receipt of Bids, provided such written communication is received by Owner's Representative prior to the Bid deadline. The written communication shall not reveal the Bid price but should provide the addition or subtraction or other modification so that the final prices or terms will not be known until the sealed Bid is opened. If the Bidder's written instructions with the change in Bid reveal the Bid amount in any way prior to the Bid opening, the Bid may be rejected as non-responsive.

19.02 Withdrawal Prior to Bid Deadline. A Bidder may withdraw its Bid at any time for any reason prior to the Bid deadline for the opening of Bids established in the Notice to Bidders. The request to withdraw shall be made in writing to and received by the Owner's Representative prior to the time of the Bid opening.

19.03 Withdrawal after Bid Deadline.

A. All Bids shall remain valid and open for acceptance for a period of at least sixty (60) days after the Bid opening; provided, however, that a Bidder may withdraw its Bid from consideration after the Bid deadline when all of the following apply:

1. the price bid was substantially lower than the other Bids;

2. the reason for the Bid being substantially lower was a clerical mistake, rather than a mistake in judgment, and was due to an unintentional and substantial error in arithmetic or an unintentional omission of a substantial quantity of work, labor, or material;

3. the Bid was submitted in good faith; and

4. the Bidder provides written notice to the Owner, to the attention of the Owner's Representative, within two (2) business days after the Bid opening for which the right to withdraw is claimed.

B. No Bid may be withdrawn under this provision if the result would be the awarding of the Contract on another Bid for the Bid Package from which the Bidder is withdrawing its Bid to the same Bidder.

C. If a Bid is withdrawn under this provision, the Owner may award the Contract to another Bidder determined by the Owner to be the lowest and best Bidder or the Owner may reject all Bids and advertise for other Bids. In the event the Owner advertises for other Bids, the withdrawing Bidder shall pay the costs incurred in connection with the rebidding by the Owner, including the cost of printing new Contract Documents, required advertising, and printing and mailing notices to prospective Bidders, if the Owner finds that such costs would not have been incurred but for such withdrawal.

ARTICLE 20 – COMPLIANCE WITH APPLICABLE LAWS

20.01 By submitting a Bid for Work on the Project, the Bidder acknowledges that it is in compliance with applicable federal, state, and local laws and regulations, including, but not limited to, the following:

A. Equal Employment Opportunity/Nondiscrimination. The Bidder agrees that if it is awarded a contract that in the hiring of employees for performance of work under the contract or any subcontract, neither it nor any subcontractor, or any person acting on its behalf or its subcontractor's behalf, by reason of race, creed, sex, disability as defined in Section 4112.01 of the Ohio Revised Code, or color, shall discriminate against any citizen of the state in the employment of labor or workers who are qualified and available to perform work to which the employment relates. The Bidder further agrees that neither it nor any subcontractor or any person on its behalf or on behalf of any subcontractor, in any manner, shall discriminate against or intimidate any employees hired for the performance of the work under the contract on account of race, creed, sex, disability as defined in Section 4112.01 of the Ohio Revised Code, or color.

B. Ethics Laws. The Bidder represents that it is familiar with all applicable ethics law requirements, including without limitation Sections 102.04 and 3517.13 of the Ohio Revised Code, and certifies that it is in compliance with such requirements.

20.02 Particular attention is called to the statutory requirements of the State of Ohio relative to licensing of corporations organized under the laws of any other state. These requirements include, but are not necessarily limited to, the stipulations contained in Section 1703.04 of the Ohio Revised Code.

20.03 The Bidder shall certify, by notarized statement, on the Drug-Free Workplace Compliance Affidavit Form as provided in Specification Section 00450, that it is enrolled and in good standing with the Ohio Bureau of Workers' Compensation Drug-Free Workplace Program, or enrolled and in good standing with a comparable program, which has been approved by the Bureau of Workers' Compensation, prior to providing any labor at the Project site of the public improvement, which is the subject of this Bid, pursuant to O.R.C. § 153.03 and § 153.031. The Bidder shall also agree, on the same affidavit, that it will be contractually responsible for ensuring that all subcontractors of any tier shall be enrolled and in good standing with the Ohio

Bureau of Workers' Compensation, or with a comparable Bureau approved program, prior to the provision of any labor at the subject public project site by any such subcontractor.

ARTICLE 21 – FINDINGS FOR RECOVERY

21.01 By submitting its Bid, each Bidder certifies for reliance of the Owner that it has no unresolved finding for recovery against it issued by the Auditor of the State of Ohio on or after January 1, 2001, except as permitted by Section 9.24 (F) of the Ohio Revised Code.

ARTICLE 22 – PREVAILING WAGES

22.01 The Successful Bidder and all of its subcontractors, regardless of tier, will strictly comply with its obligation to pay a rate of wages on the Project not less than the rate of wages fixed for this Project under Section 4115.04 of the Ohio Revised Code. Additionally, the Successful Bidder will comply with all other provisions of Chapter 4115 of the Ohio Revised Code.

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SECTION 00110

PRE-BID SUBSTITUTION FORM

MONTGOMERY COUNTY, OHIO
Solid Waste Old Admin Building Renovation

Note. Certain brands of material or apparatus are specified. Each Bid will be based on these brands, which may be referred to in the Contract Documents as Standards. The use of another brand (referred to as a substitution or proposed equal in the Contract Documents, when a Bidder or the contractor seeks to have a different brand of material or apparatus than that specified approved by the Owner for use in the Project) may be requested as provided in the Instructions to Bidders. Substitutions, however, unless approved and issued in an Addendum, will not be considered in determining which Bidder to award the contract to.

The detailed procedures for submitting substitutions are set forth in Article 11 of the Instructions to Bidders.

Specification Section	Brand or Name Specified	Proposed Substitution

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SECTION 00400

BID FORM

BID FOR:

MONTGOMERY COUNTY, OHIO

DELIVER BID TO:

BOARD OF COUNTY COMMISSIONERS
MONTGOMERY COUNTY, OHIO
MONTGOMERY COUNTY ADMINISTRATION BUILDING
451 WEST THIRD STREET
DAYTON, OHIO 45422

BID SUBMITTED BY:

_____

(Print or Type Name of Bidder)

1. The Undersigned Bidder, having carefully reviewed the Instructions to Bidders, Drawings, Specifications and other Contract Documents for the Project entitled:

   SOLID WASTE OLD ADMIN BUILDING RENOVATION
   PROJECT NO. 130075-64

   including, having also received, read and considered the following Addenda:

Addendum No.	Date Received

   and likewise having inspected the site and the conditions affecting and governing the Project and confirmed the location of the site utilities and all existing structures, the undersigned hereby proposes to furnish all materials and to perform all labor, as specified and described in the said Specifications and/or as shown on the said Drawings for all Work necessary to complete the Project on a timely basis and in accordance with the Contract Drawings regardless of whether expressly provided for in such Specifications and Drawings.

2. Before completing the Bid Form, the undersigned represents that it has carefully reviewed the Notice to Bidders, Instruction to Bidders, this Bid Form, Contractor's Affidavit (if applicable), Form of Bid and Performance/Payment Bond, Delinquent Personal Property Tax Affidavit, Contractor's Non-Collusion Affidavit, Owner-Contractor Agreement, General Conditions of the Contract (as modified), Supplementary Conditions (if any), Plans, Project Specifications, and other

Contract Documents. Failure to comply with provisions of the Contract Documents may be cause for disqualification of the Bid.

3. BONDS AND CONTRACT: If the undersigned is notified of Bid acceptance, it agrees to furnish required bonds as indicated in the Instructions to Bidders.

4. COMPLETION OF WORK: In submitting a Bid, the undersigned agrees to execute the Owner-Contractor Agreement in the form included in the Contract Documents and to Substantially Complete the Work as required by the Contract Documents.

5. The wording of the Bid Form shall be used throughout, without change, alteration or addition. Any change may cause it to be rejected.

6. Bidder is cautioned to bid only on the Brands or Standards specified in the Contract Documents, including any Addenda issued by Owner.

BID FORM
SOLID WASTE OLD ADMIN BUILDING RENOVATION
PROJECT NO. 130075-64

Include the cost of all labor and materials for each Bid Item in the Unit Price Sheet below.
Bidder is to fill in all blanks in the Unit Price Sheet related to the Bid Package.

Bid Item No.	Bid Item Description	Estimated Quantity (A)	Units (B)	Unit Cost			Bid Item Total Cost (F) (F=A x E)
				Labor (C)	Materials (D)	Combined Unit Price (E)	
A.	**General**						
1.	Base bid per drawings and specifications	1	Lump Sum				
B.	**Hazardous Materials**						
1.	Base bid per drawings and specifications	1	Lump Sum				
C.	**Architectural Demolition**						
1.	Base bid per drawings and specifications	1	Lump Sum				
D.	**Plumbing Demolition**						
1.	Base bid per drawings and specifications	1	Lump sum				
E.	**Mechanical Demolition**						
1.	Base bid per drawings and specifications	1	Lump Sum				
F.	**Electrical Demolition**						
1.	Base bid per drawings and specifications	1	Lump Sum				
G.	**Architectural**						
1.	Base bid per drawings and specifications	1	Lump Sum				
H.	**Structural**						
1.	**Concrete Wall Repairs**: This work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to repair deteriorated concrete on face of concrete walls per information included on structural drawings.	150	SQ. FT.				

BID FORM
SOLID WASTE OLD ADMIN BUILDING RENOVATION
PROJECT NO. 130075-64

Include the cost of all labor and materials for each Bid Item in the Unit Price Sheet below.
Bidder is to fill in all blanks in the Unit Price Sheet related to the Bid Package.

Bid Item No.	Bid Item Description	Estimated Quantity (A)	Units (B)	Unit Cost			Bid Item Total Cost (F) (F=A x E)
				Labor (C)	Materials (D)	Combined Unit Price (E)	
2.	**Concrete Crack Repair:** This work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to repair cracks on surface walls using high strength structural epoxy, per information included on structural drawings and specifications.	100	LN. FT.				
3.	**CMU Block Replacement:** This work consists of furnishing all labor, materials, supervision and incidentals necessary for replacement of broken/ cracked/ deteriorated CMU units with new 8" solid CMU. New CMU unit texture and size to match existing CMU blocks. see typical details on structural drawings and specifications for additional information.	25	per CMU block				
4.	**Tuck-pointing Repair:** This work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to perform tuck-pointing repairs per typical detail on structural drawing.	200	LN. FT.				

BID FORM
SOLID WASTE OLD ADMIN BUILDING RENOVATION
PROJECT NO. 130075-64

Include the cost of all labor and materials for each Bid Item in the Unit Price Sheet below.
Bidder is to fill in all blanks in the Unit Price Sheet related to the Bid Package.

Bid Item No.	Bid Item Description	Estimated Quantity (A)	Units (B)	Unit Cost			Bid Item Total Cost (F) (F=A x E)
				Labor (C)	Materials (D)	Combined Unit Price (E)	
5.	**Brick Replacement:** This work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary for replacement of existing broken/ cracked/ deteriorated brick units with new solid face brick. New brick color, texture and size to match existing bricks.	50	per brick unit				
6.	**Stitch Tie Repair:** This work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to perform stitch tie repairs at locations where stepped cracks occur in mortar joints on CMU wall, per typical detail on structural drawing.	25	per stitch tie				
I.	**Plumbing**						
	Base bid per drawings and specifications	1	Lump Sum				
J.	**Mechanical**						
	Base bid per drawings and specifications	1	Lump Sum				
K.	**Electrical**						
	Base bid per drawings and specifications	1	Lump Sum				

Bidder's Total Price =

In the event there are any mathematical errors in the Bidder's calculation of the Bidder's Total Price, the sum of the Bid Item Cost in Column "E," or the Combined Unit Price(s) in Column "D," the Base Bid amount will be determined in accordance with the Instructions to Bidders.

INSTRUCTIONS FOR SIGNING

1. The person signing for a sole proprietorship must be the sole proprietor or his/her authorized representative. The name of the sole proprietor must be shown below.

2. The person signing for a partnership must be a partner or his/her authorized representative.

3. The person signing for a corporation must be the president, vice president, or other authorized representative; or must show authority by affidavit to bind the corporation.

4. The person signing for some other form of legal entity must show his/her authority, by affidavit, to bind the legal entity.

BIDDER CERTIFICATIONS

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

1. The Bidder acknowledges that this is a public project involving public funds and that the Owner expects and requires that each Successful Bidder adhere to the highest ethical and performance standards. The Bidder by submitting its Bid pledges and agrees that (a) it will act at all times with absolute integrity and truthfulness in its dealings with the Owner and the Design Professional, (b) it will use its best efforts to cooperate with the Owner and the Design Professional and all other Contractors on the Project and at all times will act with professionalism and dignity in its dealings with the Owner, Design Professional and other Contractors, (c) it will assign only competent supervisors and workers to the Project, each of whom is fully qualified to perform the tasks that are assigned to him/her, and (d) it has read, understands and will comply with the terms of the Contract Documents.

2. The Bidder represents that it has had a competent person carefully and diligently review each part of the Contract Documents, including the Divisions of the Specifications and parts of the Drawings that are not directly applicable to the Work on which the Bidder is submitting its Bid. By submitting its Bid, each Bidder represents and agrees, based upon its careful and diligent review of the Contract Documents, that it is not aware of any conflicts, inconsistencies, errors or omissions in the Contract Documents for which it has not notified the Design Professional in writing at least seven (7) days prior to the Bid opening. If there are any such conflicts, inconsistencies, errors or omissions in the Contract Documents, the Bidder (i) will provide labor, equipment or materials of the better quality or greater quantity of Work; and/or (ii) will comply with the more stringent requirements. The Bidder will not be entitled to any additional compensation for any conflicts, inconsistencies, errors or omissions that would have been discovered by such careful and diligent review, unless it has given such prior written notice to the Design Professional.

3. The Bidder represents that it has had a competent person carefully and diligently inspect and examine the entire site for the Project and the surrounding area, including all parts of the site applicable to the Work for which it is submitting its Bid, including the location, condition and layout of the site and the location of utilities, and carefully correlate the results of the inspection with the requirements of the Contract Documents. The Bidder agrees that its Bid shall include all costs attributable to site and surrounding area conditions that would have been discovered by such careful and diligent inspection and examination of the site and the surrounding area, and the Bidder shall not be entitled to any Change Order, additional compensation, or additional time on account of conditions that could have been discovered by such an investigation.

4. The Bidder represents, understands and agrees that (a) the Claim procedures in the General Conditions are material terms of the Contract Documents, (b) if it has a Claim, it will have its personnel provide complete and accurate information to complete and submit the Statement of Claim form on a timely basis, (c) the proper completion and timely submission of a Statement of Claim form is a condition precedent to any change in the Contract Sum or the Contract Time(s), and (d) the proper and timely submission of the Statement of Claim form provides the Owner and the Design Professional with necessary information so that the Owner may investigate the Claim and mitigate its damages.

5. The Bidder represents that the Bid contains the name of every person interested therein and is based upon the Standards specified in the Contract Documents.

6. The undersigned Bidder offers and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Bid Price and within the Bid Times indicated in this Bid and in accordance with other terms and conditions of the Contract Documents. If the Bidder does not execute the Contract Form for any reason, other than as authorized by law, the Bidder and the Bidder's surety are liable to the Owner.

7. Bidder accepts all of the terms and conditions of the Notice to Bidders and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for sixty (60) days after the day of Bid opening. Bidder will sign and deliver the required number of counterparts of the Agreement with the bonds and other documents required by the Contract Forms within ten (10) days after the date of Owner's Notice of Award.

8. If the undersigned is notified of Bid acceptance, it agrees to furnish required bonds as indicated in the Instructions to Bidders.

9. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

    a. Bidder is familiar with and is satisfied as to all federal, state and local laws and regulations that may affect cost, progress, performance and furnishing of the Work.

    b. Bidder acknowledges that Owner and Design Professional do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by Bidder and safety precautions and programs incident thereto and has included all such in the Bid. Bidder does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Contract Documents.

    c. Bidder is aware of the general nature of Work to be performed by Owner and others at the site, if any, that relates to Work for which this Bid is submitted as indicated in the Contract Documents.

d. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.

e. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

f. The Bidder certifies that upon the award of a Contract, the Contractor will ensure that all of the Contractor's employees, while working on the Project site, will not purchase, transfer, use or possess illegal drugs or alcohol or abuse prescription drugs in any way.

g. The Bidder agrees to furnish any information requested by the Design Professional or the Owner's authorized representative to evaluate that the Bidder is the lowest and best bidder and that the Bid is responsive to the specifications.

h. The Bidder certifies that it has no unresolved findings for recovery issued by the Auditor of State.

i. The Bidder certifies that it is aware of and in compliance with the requirements of Ohio Revised Code Section 3517.13 regarding campaign contributions.

In accordance with the above understandings and agreements, Bidder will complete the Work for the Bid Amount, including any accepted alternates, as submitted by Bidder in this Bid Form (Specification Section 00400).

Bidder agrees that the Contract Time for the Work shall be as stated in the Agreement unless the period for completion is extended in accordance with the Contract Documents.

Bidder accepts the provisions of the Contract Documents as to liquidated and special damages in the event of failure to complete the Work on time.

The following documents are attached to and made a condition of this Bid:

1. Bid security in the amount of _____

   _____

   Dollars and _____ Cents ($_____)

2. Bidder's Qualification Statement with supporting data

3. Drug-free Workplace Compliance Affidavit Form

4. Disclosure Policy

The terms used in this Bid, which are defined in the General and Supplementary Conditions, have the meanings assigned to them in the General and Supplementary Conditions.

Respectfully submitted on _____, 20_____.

LEGAL NAME OF BIDDER: _____

BIDDER is:_____
(sole proprietorship, partnership, corporation, other legal entity)

NAME AND TITLE OF PERSON LEGALLY AUTHORIZED TO BIND BIDDER TO A CONTRACT

_____
(Signature)

_____
(Printed or Typed Name of Individual)

Business Address: _____

_____

_____

Phone No.: _____

Federal Tax I.D. # _____

NOTE: When the Bidder is a partnership or joint venture, state name and address of each partner in the partnership or each participant in the joint venture below:

_____ _____

Name _____

_____
Address

_____ _____

Name _____

_____
Address

_____ _____

Name _____

_____
Address

BIDDER'S AFFIDAVIT

(To be filled in and executed if Bidder is a Corporation)

COUNTY OF _____)
)ss:
STATE OF _____)

_____, being duly sworn, deposes and
(Affiant)

says that he is _____of _____ a Corporation
(Title) (Name of Corporation)

organized and existing under and by virtue of the laws of the State of _____,
(State)

and having its principal office at

_____ _____
(Street and Number) (City)

_____ _____
(County) (State)

Affiant further says that he is familiar with the records, minute books

and by-laws of _____.
(Name of Corporation)

Affiant further says that _____
(Officer's Name)

as _____ of the Corporation, is duly
(Officer's Title)

authorized to sign the Contract for _____

_____, for said

Corporation by virtue of _____
(State whether a provision of by-laws or a Resolution of the Board of

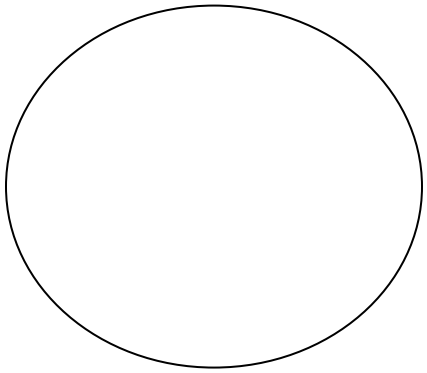
_____
Directors and if by Resolution, give date of adoption)

Signed: _____
(Affiant)

Typed or printed name _____

Title: _____

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



Notary Seal

(written signature)_____

(typed or printed name) _____

Notary Public, State of Ohio
My commission expires

_____
(month, day, year)

Montgomery County Public Improvement Qualitative Bid Selection Criteria

The following requirements shall apply to all Montgomery County public improvement bids over $50,000. By signing the Bid Form, Bidder acknowledges and accepts the terms of this Bid Selection Criteria.

1. All Bids will be evaluated by Montgomery County and/or a Consulting Engineer or Architect based on "Lowest and Best" criteria pursuant to ORC 307.86.

2. The Successful Bidder shall furnish a notarized statement (Specification Section 00560) listing any delinquent taxes and must not be on the State of Ohio Auditor's Office Finding for Recovery database in compliance with ORC 5719.042.

3. The Successful Bidder shall furnish a valid BWC Certificate covering all employees. All prime contractors must insure that all subcontractors maintain current BWC Certification for all employees.

4. Bidder shall disclose any Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA) or other regulatory entity issues, citations, or violations in the last seven (7) years.

5. Bidder shall disclose whether it plans to utilize independent contractors on the Project.

6. If the Bidder is a foreign corporation, i.e. not incorporated under the laws of Ohio, it shall furnish a Certificate of Good Standing from the Ohio Secretary of State showing the right of the Bidder to do business in the State. If the Bidder is an individual or partnership, the Bidder shall certify it has 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 lawful legal action.

7. The Bidder, upon award, shall supervise and direct the Work using their best skill and attention commensurate with the responsibility to provide a satisfactory product.

8. The Bidder, upon award, shall not permit employment of person not skilled in tasks assigned. Only qualified personnel shall survey, lay out and construct the Work.

9. The Successful Bidder, within ten (10) days after award of the Contract, shall furnish in writing, to Montgomery County, the names of person or entities (including those who are to furnish materials or equipment fabricated to special design) proposed for each principal portion of the Work. The Board will promptly relay to the Successful Bidder in writing stating whether or not the Board, after due investigation, has any objection to any such proposed person or entity.

10. Bidder shall disclose any determination made by Ohio Department of Commerce, Bureau of Wage & Hour that it made an underpayment to its employees as required by Ohio's prevailing wage law, whether the underpayment occurred intentionally or unintentionally, or whether the underpayment was settled subsequent to the finding, over the past seven (7) years.

11. Bidder shall certify all of the following as requirements for Bid acceptance:

a. For projects that are classified as prevailing wage, Bidder certifies compliance with Ohio Department of Commerce Division of Industrial Compliance regulations as provided in ORC Chapter 4115 and OAC Chapter 4101:9-4**.** Any violations of these regulations for the previous five (5) years shall be disclosed by the Bidder in their Bid packet.

b. Bidder certifies it has complied with unemployment and workers' compensation laws for at least the twelve (12) months preceding the date of Bid opening.

c. Bidder certifies compliance with Ohio Drug Free Workplace in accordance with ORC 153.03 at the time of its Bid submission. If Bidder has known subcontractors at the time of its Bid, it must certify those subcontractors are in compliance with ORC 153.03.

d. Bidder certifies that it offers a health care medical plan and a retirement program other than Social Security to their employees.

e. Bidder certifies it will employ supervisory personnel on this Project that have three (3) or more years in the specific trade and/or maintain the appropriate state licensure, if any.

f. Bidder certifies within the past five (5) years, neither the Bidder, nor any principal, owners, officer, major stockholder (10% or more of voting share for publicly traded companies, 25% or more for all other companies), affiliates or any person involved in the bidding, contracting or leasing process has been the subject of any administrative proceeding, civil action, sanction, judgement or conviction for any business-related conduct constituting a crime under federal, state or local law including, but not limited to, fraud, extortion, bribery, racketeering, price-fixing or bid collusion or any crime related to truthfulness and/or business conduct.

g. Bidder certifies that it has a valid Contractor license or registration required to do the work in the State of Ohio and any appropriate subdivisions of the State and furnish proof of all such licenses.

h. Bidder certifies it has not had a professional license revoked in the past five (5) years in Ohio or any other state.

i. Bidder certifies it has implemented a safety program compliant with OSHA and all other laws and regulations and will provide evidence of such upon request.

12. The following shall be Montgomery County's rights for Bid acceptance:

a. Montgomery County may reject any or all Bids, may waive any or all informalities, irregularities or clerical errors not involving price, time, or changes in the Work, and may reject all nonconforming, nonresponsive or conditional Bids.

b. Montgomery County may reject any Bid not accompanied by specified documentation and Bid security.

c. Montgomery County may reject any Bid if it shows any omissions, alterations of forms, additions not called for, conditions or qualifications or irregularities of any kind.

d. Montgomery County may reject any Bid that, in its sole discretion, is considered to be unbalanced or unreasonable as to the amount bid for any lump sum or unit price item.

e. In evaluating Bids, Montgomery County will consider the qualifications and experience of Bidders; whether or not the Bids comply with the prescribed requirements; the alternatives, if any; the time(s) for completion as stated in the Bid Form and the lump sum and unit prices, if request in the Bid Form.

f. Montgomery County may consider the qualification and experience of subcontractors, suppliers and other persons and organizations (including those who are to furnish the principal items of material or equipment) proposed for those portions of the Work as to which the identity of subcontractors, suppliers and other persons and organizations must be submitted as provided in the Supplementary Conditions.

g. Montgomery County may conduct such investigation necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Bidders, proposed subcontractors, suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents. Montgomery County reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to Montgomery County's satisfaction.

Any questions regarding this criterion should be directed to the Barbara Asberry, Senior Buyer, at asberryb@mcohio.org. All questions must be submitted in writing.

By signing the Bid Form, Bidder certifies that Bidder acknowledges and accepts the preceding criteria as conditions of Bid acceptance.

END OF SECTION

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SECTION 00410

BID AND PERFORMANCE/PAYMENT BOND
(Sec. 153.571 Ohio Revised Code)

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____ ("Contractor") as

Principal, and_____ as Surety, are hereby held and firmly bound unto the Board of County Commissioners of Montgomery County, Ohio (hereinafter called the "Obligee"), in the penal sum of the dollar amount of the Bid submitted by the Principal to the Obligee on _____, 20____, to undertake the project known as the Solid Waste Old Admin Building Renovation ("Project").

The penal sum referred to herein shall be the dollar amount of the Principal's Bid to the Obligee, incorporating any additive or deductive Alternates 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 foregoing blank is not filled in, the penal sum will be the full amount of the Principal's Bid, including add Alternates. Alternatively, if the blank is filled in, the amount stated must not be less than the full amount of the Bid, including add 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 work on the 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, details, specifications, and bills of material; and in the event the Principal pays to the Obligee the difference not to exceed ten percent (10%) of the penalty hereof between the amount specified in the Bid and such larger amount for which the Obligee may in good faith contract with the next lowest Bidder to perform the work covered by the Bid; or in the event the Obligee does not award the contract to the next lowest Bidder and resubmits the project for bidding, the Principal pays to the Obligee the difference not to exceed ten percent (10%) of the penalty 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 void, otherwise to remain in full force and effect. If the obligee accepts the Bid of the Principal and the Principal within ten (10) days after the awarding of the contract, enters into a proper contract in accordance with the Bid, plans, details, specifications, and bills of material, which said contract is made a part of this bond the same as though set forth herein.

NOW ALSO, IF THE SAID Principal shall well and faithfully do and perform the things agreed by said Principal to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, materialmen, 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 materialman 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; and Surety shall indemnify the Obligee against all damage suffered by failure of the Principal to perform the contract according to its provisions and in accordance with the plans, details, specifications, and bills of material therefor and to pay all lawful claims of subcontractors, materialmen, and laborers for labor performed or material furnished in carrying forward, performing, or completing the contract and surety further agrees and assents that this undertaking is for the benefit of any subcontractor, materialman, or laborer having a just claim, as well as for the Obligee; 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 the said contract or in or to the plans and specifications therefor shall in any wise affect the obligations of said Surety on this bond, and it does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the work or to the specifications.

SIGNED AND SEALED this _____ day of _____, 20 _____ .

PRINCIPAL: _____

BY: _____
(Signature)

_____
(Typed or Printed Name)

TITLE: _____

SURETY: _____

BY: _____
(Attorney/Attorney-in-Fact Signature*)

_____
(Typed or Printed Attorney/Attorney-in-Fact Name*)

* Attach certified and effective dated copy of power of attorney showing authority of attorney-in-fact to execute in behalf of corporation.

Sec. 9.32 of the Ohio Revised Code requires awarding authorities to simultaneously with notice of award to contractor, to give written notice to Surety and Agent. Show name and mailing addresses of both Agent and Surety.

SURETY COMPANY ADDRESS:	SURETY AGENT'S NAME AND ADDRESS:
_____	_____
_____	_____
_____	_____

NOTE: The Contract Bond form that follows is to be used ONLY by a Bidder that is awarded a contract <u>and</u> submits a form of bid guaranty other than the combined Bid Guaranty and Contract Bond with its Bid. If a Bidder submits a combined Bid Guaranty and Contract Bond, then the Bid guaranty becomes the contract bond when the contract is awarded.

AIA Bid Bond or Payment and Performance Bond forms are not acceptable for this Project.

END OF SECTION

SECTION 00420

BIDDER'S QUALIFICATION STATEMENT

(Completion of this statement is required and must be submitted with the Bid in order to qualify for consideration for award of contract.)

SUBMITTED TO:

BOARD OF COUNTY COMMISSIONERS
MONTGOMERY COUNTY, OHIO
MONTGOMERY COUNTY ADMINISTRATION BUILDING
451 WEST THIRD STREET
DAYTON, OHIO 45422

SUBMITTED FOR:

MONTGOMERY COUNTY, OHIO
SOLID WASTE OLD ADMIN BULIDING RENOVATION
PROJECT NO. 130075-64

SUBMITTED BY:

Name: _____

Address: _____

_____

_____

[ ] Corporation
[ ] Partnership
[ ] Individual/Sole Proprietorship
[ ] Joint Venture
[ ] Other

Commissioners:

The undersigned certifies under oath the truth and correctness of all statements and of all answers to questions made hereinafter.

(Note: Attach Separate Sheets as Required)

1. ORGANIZATION

   a. How many years has your organization been in business as a contractor?

   _____

   b. How many years has your organization been in business under its present name?

   _____

   c. Under what other or former names has your organization operated?

   _____

   d. If your organization is operating under a trade name registration with the Secretary of State for the State of Ohio, identify the entity for which the trade name is registered. If none, state "none."

   _____

2. If your organization is a corporation, answer the following:

   a. Date of incorporation: _____

   b. State of incorporation: _____

   c. President's name: _____

   d. Vice President's name(s): _____

   e. Secretary's name: _____

   f. Treasurer's name: _____

3. If your organization is a partnership, answer the following:

   a. Date of organization: _____

   b. Type of partnership (if applicable): _____

   c. Name(s) of general partner(s): _____

4. If your organization is individually owned, answer the following:

   a. Date of organization: _____

   b. Name of owner: _____

5. If the form of your organization is other than those listed above, describe it and name the principals:

   _____

   _____

If your organization is a division or wholly-owned subsidiary of another entity or has another relationship with another entity, identify the entity of which it is a division or wholly-owned subsidiary or with which it has another relationship and also identify the nature of the relationship. If none, state "not applicable."

_____

6. LICENSING

a. List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable.

_____

_____

b. List jurisdictions in which your organization's partnership or trade name is filed.

_____

_____

7. EXPERIENCE

a. List the categories of work that your organization normally performs with its own forces.

_____

_____

b. Has any construction contract to which you have been a party been terminated by the owner; have you ever terminated work on a project prior to its completion for any reason; has any surety which issued a performance bond on your behalf ever completed the work in its own name or financed such completion on your behalf; has any surety expended any monies in connection with a contract for which they furnished a bond on your behalf? If the answer to any portion of this question is "yes", please furnish details of all such occurrences including name, address, phone number, and contact person of owner, architect or engineer, and surety, and name and date of project.

No _____

Yes _____, If yes, attach details described above.

c. Has any officer or partner of your organization ever been an officer or partner of another organization that had any construction contract terminated by the owner; terminated work on a project prior to its completion for any reason; had any surety which issued a performance bond complete the work in its own name or financed such completion; or had any surety expend any monies in connection with a contract for which they furnished a bond? If the answer to any portion of this question is "yes", please furnish details of all such occurrences including name, address, phone number, and contact person of owner, architect or engineer, and surety, and name and date of project.

No _____

Yes _____, If yes, attach details described above.

d. Within the last five (5) years, has your organization or any of its officers prosecuted any Claim, had any Claims prosecuted against it or them, or been involved in or is currently involved in any mediation or arbitration proceedings or lawsuits related to any construction project, or has any judgments or awards outstanding against it or them?

No _____

Yes _____, If the answer is yes, please attach the details for each Claim, including the names and telephone numbers of the persons who are parties, the amount of the Claim, the type of Claim and basis for the claim, and the outcome.

Note: As used in this document "Claim" means a Claim initiated under the Contract Documents for a project.

e. List construction projects your organization has in progress at this time, giving the name of project, contact name and its telephone number, original contract amount, percent complete and scheduled completion date.

Project Name	Contact Name and Phone Number	Original Contract Amount	Percent Complete	Scheduled Completion Date

f. Provide the following information for each project your organization has had during the last five (5) years, which your organization believes is of comparable or greater size and complexity than Owner's project. If there are more than ten (10) of these projects, only provide information on the most recent ten (10) projects, including current projects.

Project Name	Final Contract Amount	Owner's Name and Phone Number	Design Professional's Contact Name and Phone Number	Project Completion Date

g. State average annual amount of construction work your organization has performed during the last five years.

_____

h. If any of the following members of your organization's management—president, chairman of the board, or any director—operates or has operated another construction company during the last five (5) years, identify the member of management and the name of the construction company.

_____

_____

i. List the construction education, training, and construction experience for each person who will fill a management role on the Project, including without limitation the Project Executive, Project Architect, Project Manager, and Project Superintendent. For each person listed, include with the other information the last three projects on which the person worked and the name and telephone number of the Design Professional and Owner of each project.

_____

_____

_____

_____

j. List name and construction experience of the principal individuals of your organization.

_____

_____

_____

_____

8. REFERENCES

List name, address and telephone number of an individual who represents each of the following and whom OWNER may contact for a financial reference:

a. A surety:
Name _____

Contact _____

Address _____

Phone No. _____

Financial Reference _____

b. A bank:
Name _____

Contact _____

Address _____

Phone No. _____

Financial Reference _____

c. A major material supplier:
Name _____

Contact _____

Address _____

Phone No. _____

Financial Reference _____

9. FINANCING

a. Attach a financial statement, preferably audited, including your organization's latest balance sheet and income statement showing the following items:

Current Assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses)

Net Fixed Assets;

Other Assets;

Current Liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes); and

Other Liabilities (e.g., capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

b. Name and address of firm preparing attached financial statement, and date thereof.

c. Is the attached financial statement for the same organization named on page one?

d. If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).

e. Will the organization whose financial statement is attached act as a guarantor of the contract for construction?

CERTIFICATION. The undersigned certifies for the reliance of the Owner that after diligent investigation, to the best of the undersigned's belief, the information provided with this Contractor's Qualification Statement is true, accurate, and not misleading.

Dated at _____ , this _____ day of _____, 20____.

Name of organization: _____

By: _____

Signature: _____

Title: _____

SEAL

_____, being duly sworn, deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Subscribed and sworn before me this _____ day of _____, 20___.

_____
NOTARY PUBLIC

My Commission Expires: _____

END OF SECTION

SECTION 00450

DRUG-FREE WORKPLACE COMPLIANCE AFFIDAVIT FORM
(O.R.C. § 153.03 - § 153.031)

I, _____, the _____ of _____
(name) (title) (corporation/company name)

on behalf of said corporation/company and in accordance with O.R.C. § 153.03 and § 153.031, hereby swear and certify that _____ is enrolled
(corporation/company name)

and in good standing with the Ohio Bureau of Workers' Compensation Drug-Free Workplace Program, or in a comparable program, called _____,
(name of comparable program)

which has been approved by the Bureau of Workers' Compensation.

I further certify and acknowledge that _____ understands
(corporation/company name)

that this compliance form shall be incorporated into and become a part of the contract between the public contracting authority and _____, as
(corporation/company name)

Contractor, if the said corporation/company is the Successful Bidder on the _____ Project.
(name of Project)

The Contractor hereby additionally certifies, agrees, and acknowledges that it is hereby contractually responsible to the public contracting authority for taking whatever measures are legally necessary to ensure that its Subcontractors, and any subsequent tier of Subcontractors, are also enrolled and in good standing with the Ohio Bureau of Workers' Compensation Drug-Free Workplace Program, or with a comparable Bureau approved program, prior to the provision of any labor on the _____ Project by any Subcontractor of any tier.
(name of Project)

Further Affiant Sayeth Naught.

_____
(signature of Affiant)

_____
(printed or typed name of Affiant)

For: _____
(name of corporation/company/contractor)

Its: _____
(title of Affiant)

STATE OF)
) SS:
COUNTY OF)

Sworn to and subscribed before me, a Notary Public in and for the State of _____, on this _____ day of _____, _____ by ____ _____ as his/her voluntary act and deed.
(Affiant)

_____
Notary Public

END OF SECTION

SECTION 00491

DISCLOSURE POLICY

The Board of County Commissioners of Montgomery County, Ohio, has adopted a disclosure policy which requires persons or business contracting with the Board of County Commissioners of Montgomery County, Ohio, to disclose to the Board any business and/or family relationship which the contracting party has with any public official, or person employed by any public official in Montgomery County, Ohio. Immediate family relationships, for disclosure purposes, is defined as spouse; children; parents (natural and by-law); and siblings (natural and by-law). Disclosure of this information will not necessarily preclude the award of a contract to the undersigned. The undersigned party, in accordance with intent of Resolution No. 88-1276 adopted by the Board of County Commissioners, Montgomery County, Ohio on July 6, 1988, agrees to disclose, to the best of its knowledge and ability, the following information:

CORPORATION

The identity of any county official, county employee, or member of a county official or county employee's immediate family, who hold(s) a position of responsibility being defined as position having decision making capacities including but not limited to a member of the board of directors, officer of the corporation, or trustee;

PARTNERSHIP

The identification of person(s) employed by the partnership and or the names(s) of any of the immediate family who is, or who are, also simultaneously employed by a public official of Montgomery County, Ohio, or public office or agency of Montgomery County, Ohio;

CONSULTANT

The identification of person(s) employed by the consultant and or name(s) of the consultant's immediate family who is, or who are, also simultaneously employed by any official of Montgomery County, Ohio, or public office or agency of Montgomery County, Ohio.

JOINT VENTURE

The identity of individuals of corporations, partnerships or consultants as defined above of which said corporations, partnerships or consultants are a party of a joint venture.

Should the undersigned party have knowledge or information concerning the above categories, the undersigned party is to submit this acknowledgement form with a detailed explanation of the names of the parties involved and the particular relationship. Please check the appropriate box.

☐ DOES NOT APPLY ☐ DOES APPLY AND EXPLANATION ATTACHED

SIGNATURE _____ SIGNATURE _____

TITLE _____ TITLE _____

END OF SECTION

SECTION 00500

NOTICE OF AWARD

TO: _____

_____

_____

You are hereby notified that the Board of County Commissioners, Montgomery County, Ohio, herein called OWNER, has reviewed all Bids submitted for the construction of

Solid Waste Old Admin Building Renovation

PROJECT NO. 130075-64

in accordance with the Contract Documents and that your Bid in the amount of

_____Dollars ($_____) is the apparent lowest and best Bid for the Project and that OWNER intends to execute the Agreement for this Work, provided, however, that you first comply with the obligations of the Successful Bidder set forth in the Instructions to Bidders and subject to the provisions of the form of OWNER-Contractor Agreement enclosed herewith and the proper, punctual execution thereof by you. Acceptance by the OWNER is conditioned upon approval of the Agreement by resolution and your compliance with the obligations identified herein. Prior to approval of the Agreement by resolution, OWNER reserves the right to refrain from entering into or to rescind the award of the Contract in accordance with the Contract Documents for the Project, which includes, but is not limited to your failure to fulfill the obligations identified herein within the respective times specified.

Also enclosed for your execution are the following forms: 1) Contract Bond, if Bid and Performance/Payment Bond was not included with the Bid; and, 2) and Non-Collusion Affidavit (Principal Contractor and Subcontractor). These documents shall be executed and dated by you and your Surety and returned within ten (10) calendar days to OWNER at the address listed below. CONTRACTOR shall also deliver bonds, insurance certificates and Workers' Compensation Certificate to OWNER as stated in the General Conditions, including paragraph 2.01 of the General Conditions.

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES
1850 SPAULDING ROAD
DAYTON, OHIO 45432
Attn: David Hackett
Project Manager

Subsequent to execution of the Agreement by OWNER, the required number of copies of the Agreement and Escrow Agreement will be provided to you for your signature.

Date:_____,20___ _____

By _____

_____

Title

In accordance with the Ohio Revised Code Section 9.32, “Notice to Sureties”, this Notice of Award is also being sent to the following agencies:

SURETY:	SURETY AGENT:
_____	_____
_____	_____
_____	_____
	_____

END OF SECTION

SECTION 00510

AGREEMENT

BOARD OF COUNTY COMMISSIONERS

MONTGOMERY COUNTY, OHIO

SOLID WASTE OLD ADMIN BUILDING RENOVATION

PROJECT NO. 130075-64

THIS AGREEMENT is dated as of the _____ day of _____ in the year 20___, by and between the Board of County Commissioners, Montgomery County, Ohio, Montgomery County Administration Building, 451 West Third Street, Dayton, Ohio, 45422, (hereinafter called OWNER) and

_____(hereinafter called CONTRACTOR).

WITNESSETH: OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 – CONTRACT DOCUMENTS

1.01 *The Contract Documents consist of the following documents:*

A. Notice to Bidders (00020);

B. Instructions to Bidders (00100);

C. Bid Form (00400);

D. Bid and Performance/Payment Bond (00410);

E. Performance/Payment Bond (Used in lieu of "D" with an accepted security from "F") (00512);

F. Certified Check, Letter of Credit, or Cashier's Check;

G. Bidder's Qualification Statement (00420);

H. Drug-Free Workplace Compliance Affidavit Form (00450);

I. Disclosure Policy (00491);

J. Notice of Award (00500);

K. Agreement (00510);

L. Escrow Agreement (00511);

M. Notice to Proceed (00520);

N. Delinquent Personal Property Tax Affidavit (O.R.C. 5719.042) (00560);

O. Non-Collusion Affidavit (Principal Contractor) (00561);

P. Non-Collusion Affidavit (Subcontractor) (00562);

Q. Drawings;

R. Specifications, including the Montgomery County Environmental Services Standard Specifications and all Supplemental Specifications;

S. The "Montgomery County Environmental Services Rules and Regulations," hereinafter abbreviated the MCRR, their latest edition;

T. Other applicable specifications such as the City of Kettering (CKS), and the Project Specific Contract Documents;

U. Addenda issued;

V. Construction Contract Exemption Certificate (00663);

W. Prevailing Wages Affidavit of Contractor (00670);

X. Contractor's Payment Application Checklist (00679);

Y. Contractor's Affidavit with List of Subcontractors and Suppliers (00680);

Z. Contractor's Waiver & Release Affidavit ("Affidavit") (00681);

AA. Subcontractors, Suppliers Waiver & Release Affidavit ("Affidavit") (00682);

BB. Modifications issued after the execution of the contract, including:

1. Written Field Order for a minor change of the Work issued by the DESIGN PROFESSIONAL in accordance with the General Conditions (00684);

2. Work Change Directive; or,

3. Change Order (00685).

CC. Certificate of Substantial Completion (00686)

DD. Statement of Claim Form (00687);

EE. Consent of Surety Form (00688);

FF. General Conditions of the Contract for Construction EJCDC C-700, as modified (00700);

GG. Supplementary Conditions of the Contract (00800);

HH. Prevailing Wage Rates (00830);

II. Certificate(s) of Insurance;

JJ. State of Ohio Bureau of Workers' Compensation Insurance Certificate;

KK. Notice of Commencement of Public Improvement(00530);

LL. Certified Payroll Information;

MM. Final Payroll Affidavit;

1.02 *Non-Contract Documents. The following are the design drawings of the projects related to the Site, if any, that the DESIGN PROFESSIONAL has used in preparing the Contract Documents. These are not Contract Documents. The General Conditions, as modified, contain additional terms related to these drawings. (None if none are listed).*

A. Montgomery County Incinerator South Plant_

By Barrows Moulenbelt Seifert_

June_____, 1967

B. Transfer Station and Auxiliary Facilities Contract_

By HDR Engineering, Inc_

March 26____, 1996

C. Solid Waste Transfer Station Improvements - South_

By HDR Engineering, Inc

January 31____, 2005

1.03 *Non-Contract Documents. The following are those reports and drawings related to any Hazardous Conditions at the Site, if any. These are not Contract Documents. The General Conditions, as modified, contain additional terms related to these reports and drawings. (None if none are listed).*

A. Hazardous Building Material Inspection Report_

By _Lawhon & Associates, Inc._

September 11___, 2025

B. _____

By _____

_____, 20__

C. _____

By _____

_____, 20__

ARTICLE 2 – THE WORK

2.01 CONTRACTOR shall at his own cost and expense furnish all labor, services, tools, materials, equipment and incidentals necessary to perform all Work required by the Contract Documents to construct the Solid Waste Old Admin Building Renovation Project No. 130075-64 at 2550 Sandridge Drive, Montgomery County, Ohio, in complete accordance with the Contract

Documents. The Work under the Contract Documents is generally described in Section S-01011 of the General Requirements.

2.02 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

This project entails a comprehensive renovation of the Solid Waste Transfer & Recycling Facility Old Admin Building. The renovation includes four levels and addresses essential infrastructure including HVAC, plumbing, electrical, elevator, structural improvements, and interior remodeling.

ARTICLE 3 – DESIGN PROFESSIONAL

The Contract Documents shall not be construed to create a contractual relationship of any kind between the DESIGN PROFESSIONAL and the CONTRACTOR or any subcontractor or Material Supplier to the Project. The DESIGN PROFESSIONAL, however, shall be entitled to performance of the obligations of the CONTRACTOR intended for its benefit and to enforcement of such obligations, but nothing contained herein shall be deemed to give the CONTRACTOR or any third party any claim or right of action against the DESIGN PROFESSIONAL that does not otherwise exist without regard to this Contract. The CONTRACTOR and its subcontractors shall not be deemed to be beneficiaries of any of the acts or services of the DESIGN PROFESSIONAL that are performed for the sole benefit of the OWNER. The CONTRACTOR shall forward all communications to the OWNER through the ENGINEER and hereby acknowledges and agrees that any instructions, reviews, advice, approvals, orders, or directives that are rendered to it by the DESIGN PROFESSIONAL are specifically authorized and directed by the OWNER to the CONTRACTOR through the ENGINEER acting on behalf of the OWNER.

3.01 The DESIGN PROFESSIONAL is:

Name: SPGB Architects LLC
Address: 433-A Tuller Road
Dublin, Ohio 43017

The DESIGN PROFESSIONAL's Representative is Chandra Wilson,SPGB Architects, LLC

ARTICLE 4 – CONTRACT TIMES

4.01 DATE FOR COMMENCEMENT. The Date of Commencement of the Work shall be the date identified in the Notice to Proceed issued by the OWNER to the CONTRACTOR. If such Notice to Proceed is not issued, the Date of Commencement of the Work shall be 30 days after the Effective Date of this Agreement.

4.02 The CONTRACTOR shall complete the following activities of Work within the milestone durations indicated. These milestones are as defined below and their work activity durations are calendar days after Notice to Proceed.

MILESTONE	ACTIVITY	MILESTONE WORK ACTIVITY DURATION
Milestone No. 1	Equipment Procurement	60 Days
Milestone No. 2	Substantial Completion	275 Days
Milestone No. 3	Contract Completion	305 Days
Milestone No. 4	Contract Expiration	365 Days

A. Milestone No. 1: Equipment Procurement. The activities associated with Milestone No. 1 include All electrical, mechanical, HVAC, elevator, fie suppression, plumbing, and structural equipment, ordered with delivery dates and scheduled.

B. Milestone No. 2: Substantial Completion. Substantial Completion is the time at which the Work has progressed to the point where the Work is sufficiently complete, in accordance with the Contract Documents, so that the Work can be utilized for the purposes for which it is intended. The Project and Work for the Project consists of all labor, materials, equipment, and services necessary for construction of the Project, all in accordance with the Drawings and Specifications prepared by the DESIGN PROFESSIONAL. The Project shall be substantially complete on or before the Milestone Date for Substantial Completion as provided in this Agreement, or as modified by a properly executed change order.

C. Milestone No. 3: Contract Completion. Contract Completion (also referred to as Final Completion) shall mean that the Work is complete in accordance with the Contract Documents and the CONTRACTOR has submitted to the OWNER all documents required to be submitted to the OWNER for final payment

D. Milestone No. 4: Contract Expiration.

4.03 The contractual Milestone Dates shall only be changed or modified by Change Order, other Modification, or a Claim that is Finally Resolved regardless of any dates in any schedules, including the Construction Progress Schedule, created by any person, including the CONTRACTOR.

4.04 SHUTDOWN DATES. Due to events scheduled by the OWNER and/or other OWNER considerations, CONTRACTOR will not be able to perform Work on the Project on the following dates (there are no shutdown dates if none listed):

CONTRACTOR's Construction Schedule for performing the Work shall account for CONTRACTOR not being able to perform Work on these dates and the contractual Milestone

Dates will not be changed due to CONTRACTOR not being able to perform Work on these dates.

4.05 CONSTRUCTION SCHEDULE. The Construction Schedule shall be developed by the CONTRACTOR as provided in the Contract Documents.

4.06 COORDINATING CONTRACTOR. The Coordinating Contractor shall be the [_____] Contractor (if this blank is completed, then the Coordinating Contractor shall be the General Trades Contractor or, if there is only one contractor, the Contractor). The Coordinating Contractor shall be responsible for coordinating the work of all contractors on the Project.

ARTICLE 5 – LIQUIDATED DAMAGES AND SPECIAL DAMAGES

5.01 Liquidated Damages:

A. OWNER and CONTRACTOR recognize that time is of the essence as to Contract Completion and that OWNER will suffer financial loss apart from any other damages, including, but not limited to the damages described in Paragraph 5.02, if the Work is not complete within the Contract Times specified in Article 4, plus any extensions thereof allowed in accordance with Article 11 of the General Conditions. If the CONTRACTOR does not complete its Work in accordance with the applicable Milestone date(s), the CONTRACTOR shall pay the OWNER (and the OWNER may set off from sums coming due the CONTRACTOR) Liquidated Damages in the per diem amounts as set forth below:

MILESTONE	**ACTIVITY**	**Dollars Per Calendar Day**
Milestone No. 1	Equipment Procurement	$0
Milestone No. 2	Substantial Completion	$600
Milestone No. 3	Contract Completion	$0
Milestone No. 4	Contract Expiration	$0

B. The CONTRACTOR acknowledges that such amounts of Liquidated Damages represent a reasonable estimate of the actual damages for loss of or interference with the intended use of the Project that the OWNER would incur if the CONTRACTOR fails to complete the Work for each Milestone within the applicable number of days for each Milestone, including any extensions thereof made in accordance with Article 11 of the General Conditions.

C. In addition to such Liquidated Damages, the CONTRACTOR shall indemnify, defend and hold the OWNER and its employees and agents harmless from any and all claims, whether or not such claims are proven, and from all costs and expenses incurred, as a result of or related to such claims, including but not limited to attorneys' and consultants' fees and expenses, provided that such claims arise out of or are related to the CONTRACTOR's failure to meet any Milestone Dates. The CONTRACTOR's obligation to indemnify, defend and hold the OWNER harmless under this Paragraph shall be joint and several. These Liquidated Damages are in addition to any other remedies available to the OWNER under the Contract Documents.

5.02 Special Damages:

A. In addition to the amount provided for Liquidated Damages, CONTRACTOR shall pay OWNER the actual costs reasonably incurred by OWNER for engineering and inspection forces employed on the Work for each day that expires after the time specified in Article 4 for all milestones with associated liquidated damages including the Contract Completion Milestone, including any extensions thereof made in accordance with Article 11 of the General Conditions, until the Work is complete.

B. The amount of liquidated and special damages set forth in Article 5, Paragraphs 5.01 and 5.02 shall be assessed cumulatively. OWNER may set off from sums coming due the CONTRACTOR under this Agreement.

ARTICLE 6 – CONTRACT PRICE

6.01 Subject to the requirements for Unit Prices, as defined in the Contract Documents, including, but not limited to Paragraph 13.03 of the General Conditions (00700), the lump sum Contract Sum to be paid by the OWNER to the CONTRACTOR, as provided herein, for the satisfactory performance and completion of the Work and all of the duties, obligations and responsibilities of the CONTRACTOR under this Agreement and the other Contract Documents will be [_____] Dollars [$_____] as set forth in the Bid Form. The Contract Sum includes all the necessary labor, materials and equipment of every description to carry out and complete in a substantial and workmanlike manner all the items in connection with the construction of the Project, and all Work incidental thereto, in accordance with the Contract Documents. The Contract Sum includes all federal, state, county, municipal, and other taxes imposed by law, including but not limited to any sales, use, and personal property taxes payable by or levied against the CONTRACTOR on account of the Work or the materials incorporated into the Work. The CONTRACTOR will pay any such taxes. The Contract Sum includes the following:

Base Bid Amount: $_____

6.02 LIMITATION ON LIABILITY. The OWNER's total liability under this Agreement will be limited to the amount set forth in the Fiscal Officer's certificate accompanying this Agreement. Under no circumstances will the elected officials, officers, employees, board members, or agents of the OWNER be personally liable for any obligations or claims arising out of or related to this Agreement.

6.03 RETAINAGE. Retainage applicable to the Contract by Ohio Revised Code Sections 153.12, .13, and .14 will be withheld as defined in the General Conditions.

ARTICLE 7 – PAYMENT PROCEDURES

7.01 CONTRACTOR shall submit Applications for Payment in accordance with Article 15 of the General Conditions and as amended by the Supplementary Conditions. Applications for Payment will be processed as provided in the General Conditions and as amended by the Supplementary Conditions.

7.02 Progress Payments:

A. OWNER shall make monthly progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by DESIGN PROFESSIONAL. CONTRACTOR's Applications for Payment will be due on the day of the month agreed upon by the OWNER and CONTRACTOR. All progress payments will be on the basis of the progress of the Work measured by the schedule of values provided for in Paragraph 15.01 of the General Conditions.

1. Progress payments will be made in accordance with Section 153.12 of the Ohio Revised Code.

2. OWNER shall retain an amount in accordance with Sections 153.12, 153.13, 153.14 and 153.63 of the Ohio Revised Code. The retained funds will be paid 30 days from the date of the Final Estimate or acceptance if the Contract has been faithfully performed, whichever is later.

7.03 Final Payment:

A. Upon final completion and acceptance of the Work in accordance with the Contract Documents, including, but not limited to Paragraph 15.06 of the General Conditions and the Supplementary Conditions, OWNER shall pay the remainder of the Contract Price as recommended by DESIGN PROFESSIONAL.

ARTICLE 8 – INTEREST

8.01 All moneys not paid when due hereunder as allowed by the Ohio Revised Code and stated in the Agreement shall be deposited in a joint escrow account with the OWNER and the CONTRACTOR required to co-sign for any withdrawals. The savings institution shall be selected by the CONTRACTOR. The savings institution shall be an Ohio Banking Association organized and existing under the laws of the State of Ohio and acceptable to the OWNER. The type of account shall be selected by the CONTRACTOR. All interest and principal arising from moneys due the CONTRACTOR shall be paid to him upon completion of the Contract in

accordance with Section 00511, Escrow Agreement and Section 153.13 of the Ohio Revised Code.

ARTICLE 9 – CONTRACTOR'S REPRESENTATIONS

9.01 As part of the inducement for OWNER to enter into this Agreement CONTRACTOR makes the following representations:

A. CONTRACTOR has familiarized himself with the nature and extent of the Contract Documents, Work, site, locality, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

B. CONTRACTOR has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or those reports that otherwise may affect cost, progress, performance or furnishing of the Work which were utilized by DESIGN PROFESSIONAL in the preparation of the Drawings and Specifications and which have been identified in the Contract Documents.

C. CONTRACTOR has made or caused to be made examinations, investigations and tests and studies of such reports and related data in addition to those referred to in Paragraph 9.01 B as he deems necessary for the performance of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports, studies or similar information are or will be required by CONTRACTOR for such purposes.

D. CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and studies with the terms and conditions of the Contract Documents.

E. CONTRACTOR has given DESIGN PROFESSIONAL written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

ARTICLE 10 – COORDINATION OF SPECIFICATIONS

10.01 In the event of any conflict between Contract Documents, the Project Specific Contract Documents shall govern.

10.02 The Project Specific Contract Documents include the Montgomery County Environmental Services Standard Specifications and all Supplemental Specifications, denoted by the prefix "S". DESIGN PROFESSIONAL shall provide clarifications, interpretations and decisions as stated in the General Conditions. In the event of any conflict between the requirements of the Standard Specifications and the Supplemental Specifications, the Supplemental Specifications shall govern.

ARTICLE 11 – MISCELLANEOUS

11.01 MODIFICATION. No modification or waiver of any of the terms of this Agreement or of any other Contract Documents will be effective against a party unless set forth in writing and signed by or on behalf of a party. In the case of the OWNER, the person executing the modification or waiver must have express authority to execute the modification on behalf of the OWNER

pursuant to a resolution that is duly adopted by the OWNER. Under no circumstances will forbearance, including the failure or repeated failure to insist upon compliance with the terms of the Contract Documents, constitute the waiver or modification of any such terms. The parties acknowledge that no person has authority to modify this Agreement or the other Contract Documents or to waive any of its or their terms, except as expressly provided in this paragraph.

11.02 ASSIGNMENT. The CONTRACTOR may not assign this Agreement without the written consent of the OWNER, which the OWNER may withhold in its sole discretion.

11.03 LAW AND JURISDICTION. All questions regarding the validity, intention, or meaning of this Agreement or any modifications of it relating to the rights and obligation of the parties will be construed and resolved under the laws of the State of Ohio. Any suit, which may be brought to enforce any provision of this Agreement or any remedy with respect hereto, shall be brought in the Common Pleas Court, Montgomery County, Ohio, and each party hereby expressly consents to the exclusive jurisdiction of such court.

11.04 CONSTRUCTION. The parties acknowledge that each party has reviewed this Agreement and the other Contract Documents and entered into this Agreement as a free and voluntary act. Accordingly, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party will not be employed in the interpretation of this Agreement, the other Contract Documents, or any amendments or exhibits to it or them.

11.05 APPROVALS. Except as expressly provided herein, the approvals and determinations of the OWNER and DESIGN PROFESSIONAL will be subject to the sole discretion of the respective party and be valid and binding on the CONTRACTOR, provided only that they be made in good faith, i.e., honestly. If the CONTRACTOR challenges any such approval or determination, the CONTRACTOR has the burden of proving that it was not made in good faith by clear and convincing evidence.

11.06 PARTIAL INVALIDITY. If any term or provision of this Agreement is found to be illegal, unenforceable, or in violation of any laws, statutes, ordinances, or regulations of any public authority having jurisdiction, then, notwithstanding such term or provision, this Agreement will remain in full force and effect and such term will be deemed stricken; provided this Agreement will be interpreted, when possible, so as to reflect the intentions of the parties as indicated by any such stricken term or provision.

11.07 COMPLIANCE WITH LAWS AND REGULATIONS. The CONTRACTOR, at its expense, will comply with all applicable federal, state, and local laws, rules, and regulations applicable to the Work, including but not limited to Chapter 4115 of the Ohio Revised Code and Sections 153.59 and 153.60 of the Ohio Revised Code, which prohibit discrimination in the hiring and treatment of employees, with respect to which the CONTRACTOR agrees to comply and to require its subcontractors to comply.

11.08 NON-DISCRIMINATION. CONTRACTOR agrees:

A. That in the hiring of employees for the performance of Work under this Agreement or in any subcontract, neither the CONTRACTOR, subcontractor, or any person acting on behalf of either of them, shall by reason of race, creed, sex, disability as defined in Section 4112.01 of the Ohio Revised Code, or color, shall discriminate against any citizen of the state in the employment of labor or workers who are qualified and available to perform the Work to which the employment relates.

B. That there shall be deducted from the amount payable to the CONTRACTOR by the OWNER under this Agreement a forfeiture of twenty-five dollars ($25.00) as required by Ohio Revised Code Section 153.60 for each person who is discriminated against or intimidated in violation of this Agreement.

C. That this Agreement may be canceled or terminated by the OWNER and all money to become due hereunder may be forfeited for a second or subsequent violation of the terms of this section of this Agreement.

11.09 PREVAILING WAGE RATES. The CONTRACTOR and its subcontractors, regardless of tier, shall strictly comply with their obligation to pay their employees working on the Project site at the applicable prevailing wage rates for the type of work, including any changes thereto, without increase in the Contract Price.

11.10 ETHICS. By signing and entering into this Agreement with the OWNER, the CONTRACTOR represents that it is familiar with all applicable ethics law requirements, including without limitation Sections 102.04 and 3517.13 of the Ohio Revised Code, and certifies that it is in compliance with such requirements. The CONTRACTOR understands that failure to comply with the ethics laws is, in itself, grounds for termination of this contract and may result in the loss of other contracts with the OWNER.

11.11 JOB MEETINGS. The CONTRACTOR or one of its representatives with authority to bind the CONTRACTOR will attend all job meetings. The OWNER anticipates that job meetings will be scheduled on a bi-weekly basis during construction or as needed. The CONTRACTOR will ensure that its subcontractors also hold regular job meetings at which safety issues and job matters are discussed as these relate to the Work being performed. Job meetings include, but are not limited to, pre-construction meetings, bi-weekly job meetings, weekly safety tool box meetings, and monthly safety meetings.

11.12 PROPERTY TAX AFFIDAVIT. The CONTRACTOR's affidavit given under Section 5719.042 Ohio Revised Code, is incorporated herein.

11.13 PARTNERING. CONTRACTOR agrees that it will participate, as part of the Contract Price, in any partnering sessions scheduled by OWNER.

11.14 ENTIRE AGREEMENT. This Agreement and the other Contract Documents constitute the entire agreement among the parties with respect to their subject matter and will supersede all prior and contemporaneous, oral or written, agreements, negotiations, communications, representations, and understandings with respect to such subject matter, and no person is

justified in relying on such agreements, negotiations, communications, representations, or understandings.

11.15 Terms used in this Agreement which are defined in Article 1 of the General Conditions have the meanings indicated in the General Conditions.

11.16 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

11.17 The CONTRACTOR hereby acknowledges that this Agreement must be signed and returned to the OWNER by the CONTRACTOR within thirty (30) days of receipt of said Agreement for signature or this Agreement may be canceled and voided by the OWNER.

Solid Waste Old Admin Building Renovation
PROJECT NO. 130075-64

AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first written above.

This Agreement will be effective on _____, 20_____.

ATTEST:

_____

_____
(Title)

_____

_____
(Title)

BOARD OF COUNTY COMMISSIONERS
OF MONTGOMERY COUNTY, OHIO

By _____

By _____

By _____

OR

By _____
Michael B. Colbert, County Administrator

By _____
Matt Hilliard, Environmental Services Director

By_____
Chris Williams, Assistant County Administrator

ATTEST:

_____

_____
(Title)

CONTRACTOR (If Corporation, complete attached affidavit)

By _____

_____
(Title)

(Seal if bid is by a Corporation)

APPROVED AS TO FORM:

Mathias H. Heck, Jr.
Prosecuting Attorney

By _____

Assistant Prosecuting Attorney

CONTRACT AFFIDAVIT

(To be filled in and executed if CONTRACTOR is a Corporation)

COUNTY OF _____)
)ss:
STATE OF _____)

_____, being duly sworn, deposes and

says that he is Secretary of _____ a Corporation organized and existing

under and by virtue of the laws of the State of _____, and having its principal office at

_____ _____
(Street and Number) (City)

_____ _____
(County) (State)

Affiant further says that he is familiar with the records, minute books and by-laws

of _____ .
(Name of Corporation)

Affiant further says that _____
(Officer's Name)

is _____, of the Corporation, is duly

authorized to sign the Contract for _____

_____ for said

Corporation by virtue of _____
(State whether a provision of by-laws or a

_____

Resolution of the Board of Directors and if by Resolution, give date of adoption.)

Signed: _____

(Affiant)

Typed or printed name: _____

Title: _____

Sworn to and subscribed in my presence this _____day of

_____, 20____.

(written signature) _____

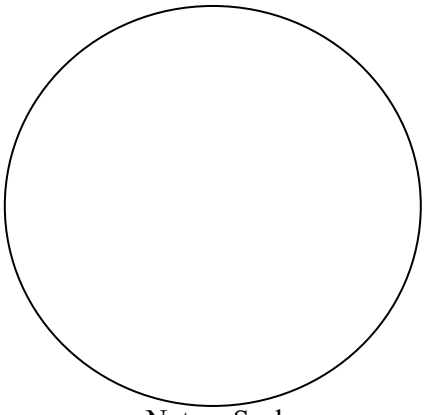
(typed or printed name) _____

Notary Public, State of Ohio

My commission expires

_____

(month, day, year)



Notary Seal

END OF SECTION

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SECTION 00512

PERFORMANCE/PAYMENT BOND
(Sec. 153.57 Ohio Revised Code)

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned _____

_____ as Principal, and

_____ as Surety, are hereby held and firmly bound unto Montgomery County Board of County Commissioners hereinafter called the OWNER, in the penal sum of _____ Dollars ($_____ _____)
to undertake the project known as _____, for the payment of which 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 entered into a contract with the OWNER, dated the

_____ day of _____, 20____, for the above referred to project, which said contract is made a part of this bond the same as though set forth herein.

IF THE SAID Principal shall well and faithfully perform each and every condition of such contract; and indemnify the Montgomery County Board of County Commissioners against all damage suffered by failure to perform such contract according to the provisions thereof and in accordance with the plans, details, specifications, and bills of material therefor; and shall pay all lawful claims of subcontractors, materialmen, 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 materialmen 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 the said contract or in or to the plans and specifications therefor shall in any wise affect the obligations of said Surety on this bond, and it does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the work or to the specifications.

SIGNED AND SEALED this _____ day of _____, A.D. 20_____.

PRINCIPAL: _____

_____

BY: _____
(Signature)

_____
(Typed or Printed Name)

TITLE: _____

SURETY: _____

_____

BY: _____
(Attorney/Attorney-in-Fact Signature*)

_____
(Typed or Printed Attorney/Attorney-in-Fact Name*)

* Attach certified and effective dated copy of power of attorney showing authority of attorney-in-fact to execute in behalf of corporation.

Sec. 9.32 of the Ohio Revised Code requires awarding authorities to simultaneously with notice of award to contractor, to give written notice to Surety and Agent. Show name and mailing addresses of both Agent and Surety.

SURETY COMPANY ADDRESS:	SURETY AGENT'S NAME AND ADDRESS:
_____	_____
_____	_____
_____	_____

END OF SECTION

SECTION 00520

NOTICE TO PROCEED

To: _____ Date: _____

_____

_____

_____

Project:

MONTGOMERY COUNTY, OHIO
Solid Waste Old Admin Building Renovation
PROJECT NO. 130075-64

You are hereby notified to commence Work in accordance with the Agreement

dated _____, 20___, authorized by Resolution

No. _____ dated _____, on or before _____

_____, 20___ hereinafter referred to as the effective date of the Notice to Proceed. You are to complete the work in accordance with the milestone schedule in the Owner-Contractor Agreement (the "Agreement"), which is repeated below for reference only. The milestone work activity durations are as stated in the Agreement and are calendar days. The milestone dates are established based on the number of calendar days after the effective date of the Notice to Proceed. Liquidated damages in the amount set forth below will accrue per calendar day for each calendar day the work remains incomplete after its associated milestone date, as more fully set forth in the Agreement. Liquidated Damages will be imposed unless the Contract Times are otherwise adjusted for by change order to the Agreement. Note that special damages, if applicable, will also be imposed in accordance with the Agreement.

MILESTONE	MILESTONE WORK ACTIVITY DURATION	MILESTONE DATE	LIQUIDATED DAMAGES
Milestone No. 1	60 Days	Date	$0
Milestone No. 2	275 Days	Date	$600
Milestone No. 3	305 Days	Date	$0
Milestone No. 4	365 Days	Date	$0

Please return a copy of this Notice to Proceed to the undersigned, indicating your receipt of this document in the space provided below.

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

_____,

this the _____ day

of _____, 20_____

By _____

Title _____

END OF SECTION

SECTION 00530

NOTICE OF COMMENCEMENT FOR
PUBLIC IMPROVEMENT UNDER
SECTION 1311.252 OF THE OHIO REVISED CODE

The undersigned, _____, of _____ _____, first being sworn gives the following information with respect to the indicated public improvement.

1. The name of the public improvement is Solid Waste Old Admin Building Renovation

2. The public improvement is located in Montgomery County, Ohio.

3. The project number for the public improvement is 130075-64.

4. The name and address of this public authority is as follows:

   Montgomery County Board of Commissioners
   Attn: David Hackett
   1850 Spaulding Road
   Dayton, Ohio 45432

5. The date of the Agreement with _____ is _____.

6. The name and address of all principal contractors working on the public improvement, the trade of each principal contractor, and the name and address of the surety for each principal contractor are as follows:

   A. _____
   _____
   _____
   _____

   Surety: _____
   _____
   _____
   _____

   B. _____
   _____
   _____
   _____

Surety: _____

_____

_____

_____

7. The name and address of the representative of the public authority for the purposes of serving the lien affidavit are as follows:

Clerk, Montgomery County Board of Commissioners
451 W. Third St.
Dayton, Ohio 45422

County of Montgomery
State of Ohio

Signed: _____
(Affiant)

Typed or printed name: _____

Title: _____

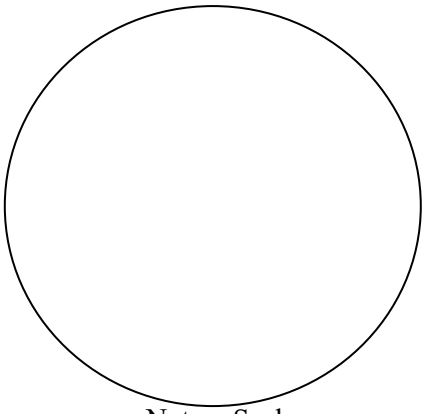
Sworn to and subscribed in my presence this _____day of

_____, 20____.

(written signature) _____

(typed or printed name) _____
Notary Public, State of Ohio
My commission expires

_____
(month, day, year)



Notary Seal

Note. If the public improvement is a fast track construction project which is bid in stages, then the public authority should update the notice of commencement to reflect the additional principal contractors and their sureties as additional contracts are awarded.

END OF SECTION

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SECTION 00560

DELINQUENT PERSONAL PROPERTY TAX AFFIDAVIT
(Must be Executed by the Successful Bidder)

AFFIDAVIT

STATE OF OHIO)
) SS
COUNTY OF _____)

_____, being first duly sworn, deposes and says

that he/she is _____, a duly authorized representative
(Title)

of _____, the Successful Bidder on
(Contractor)

the attached Contract with the Board of County Commissioners, Montgomery County,

Ohio, for _____, and for the purpose of
(describe or identify contract)

complying with Section 5719.042 of the Ohio Revised Code, states that at the

time the Bid for said Contract was submitted, said Bidder _____
(was)(was not)

charged with delinquent personal property taxes on the General Tax list of

personal property in Montgomery County.

The amount of such due and unpaid delinquent taxes, penalties and interest

thereon is as follows:

Taxes	Penalties & Interest	Total
$_____	$_____	$_____
$_____	$_____	$_____
$_____	$_____	$_____

Signed: _____
(Affiant)

Typed or printed name: _____

Title: _____

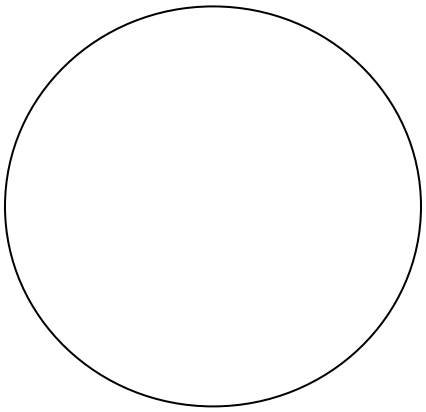
Sworn to and subscribed in my presence this _____day of

_____, 20____.

(written signature) _____

(typed or printed name) _____
Notary Public, State of Ohio
My commission expires

_____
(month, day, year)



Notary Seal

END OF SECTION

SECTION 00561

NON-COLLUSION AFFIDAVIT

The following non-collusion affidavit will be completed only by the Successful Bidder to whom the OWNER proposed to award the Contract.

The OWNER reserves the right to require the Successful Bidder to submit such an affidavit, dated and executed after the opening of the Bids, as a condition precedent to its award of the Contract.

AFFIDAVIT OF PRINCIPAL CONTRACTOR

STATE OF _____:
:SS
COUNTY OF _____:

_____ being first duly sworn, deposes and

says that he is _____
(Sole Owner/Partner/President/Secretary/Other Title)

of _____ who on _____,
(Name of Bidder) (Date Bid Submitted)

20___, submitted to _____

_____ a Bid as set forth in the attached copy; that all statements of fact in such Bid are true; that such Bid was not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization, or corporation; that such Bid is genuine and not collusive or sham; that said Bidder has not directly or indirectly, by agreement, communication of conference with anyone attempting to induce action prejudicial to the interests of the public body which is to award the contract, or of any other Bidder or anyone else interested in the proposed contract; and further, that prior to the public opening and reading of Bids, said Bidder,

(a) did not directly or indirectly, induce or solicit anyone else to submit a false or sham Bid;

(b) did not directly or indirectly, collude, conspire, connive or agree with anyone else that said bidder or anyone else would submit a false or sham bid, or that anyone should refrain from bidding or withdraw his bid;

(c) did not, in any manner, directly or indirectly, seek by agreement, communication or conference with anyone to raise or fix the Bid price of said Bidder or of anyone else, or to raise or fix any overhead, profit or cost element of his Bid price, or that of anyone else;

(d) did not, directly or indirectly, submit his Bid price or any breakdown thereof, or the contents thereof, or divulge information or data relative thereto, to any corporation, partnership, company, association, organization, Bid depository, or to any member or agent thereof, or to any individual or group of individuals, except to the awarding authority or to any person or persons who have a partnership of other financial interest with said Bidder in his business; and

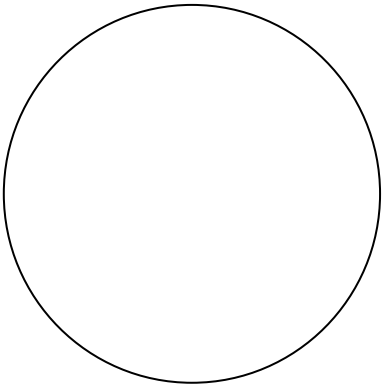
(e) did not include in his Bid price any fees, dues, charges, or assessments because required to do so by reason of his membership in or affiliation with any association, organization, corporation, partnership, company, individual or group of individuals, or because of any agreement or understanding with anyone that he would do so.

Signed: _____
(Affiant)

Typed or printed name: _____

Title: _____

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



(written signature) _____

(typed or printed name) _____
Notary Public, State of Ohio
My commission expires

_____
(month, day, year)

Notary Seal

END OF SECTION

SECTION 00562

NON-COLLUSION AFFIDAVIT

The OWNER reserves the right to require, as a condition precedent to its approval of proposed subcontractors, that the principal contractor shall submit to the OWNER the name of each of the proposed subcontractors and upon notice of approval of said subcontractors by the OWNER, the principal contractor shall furnish satisfactory non-collusion affidavits in the following form executed by each accepted subcontractor.

AFFIDAVIT OF SUBCONTRACTOR

STATE OF _____:
SS:
COUNTY OF _____:

_____ being first duly sworn, deposes

and says that he is _____
(Sole Owner/Partner/President/Secretary/Other Title)

of _____ who on _____,
(Name of Proposed Subcontractor) (Date Bid Submitted)

20____, submitted to _____
(Name of Principal Contractor)

a Bid as set forth in the attached copy, for a subcontract; that all statements of fact contained in such Bid are true; that such Bid was not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization, or corporation; that such Bid is genuine and not collusive or sham; and further, that prior to the execution of this affidavit, said Bidder,

(a) has not, directly or indirectly, induced or solicited anyone else to submit a false or sham Bid to said principal contractor or to anyone else;

(b) has not, directly or indirectly, colluded, conspired, connived or agreed with anyone else that said Bidder or anyone else would submit a false or sham Bid to said principal contractor or to anyone else, or that anyone should refrain from Bidding or withdraw his Bid;

(c) has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to raise or fix the Bid price of said Bidder or of anyone else, or to raise or fix any overhead, profit or cost element of his Bid price, or that of anyone else;

(d) did not, directly or indirectly, submit his Bid price or any breakdown thereof, or the contents thereof, or divulge information or data relative thereto, to any corporation, partnership, company, association, organization, Bid depository, or to any member or agent

thereof, or to any individual or group of individuals, except to the awarding authority or to any person or persons who have a partnership of other financial interest with said Bidder in his business; and

(e) did not include in his Bid price any fees, dues, charges, or assessments because required to do so by reason of his membership in or affiliation with any association, organization, corporation, partnership, company, individual or group of individuals, or because of any agreement or understanding with anyone that he would do so.

Signed: _____
(Affiant)

Typed or printed name: _____

Title: _____

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

(written signature) _____

(typed or printed name) _____
Notary Public, State of Ohio
My commission expires

_____
(month, day, year)

Notary Seal

END OF SECTION

STATE OF OHIO

DEPARTMENT OF TAXATION

CONSTRUCTION CONTRACT EXEMPTION CERTIFICATE

Identification of Contract:

Contractee's (Owner's) Name: _____

Exact Location of Job/Project: _____

Name of Job/Project as it appears
on Contract Documentation: _____

The undersigned hereby certifies that the tangible personal property purchased under this exemption certificate was purchased for incorporation into:

☐ real property under a construction contract with the United States government, its agencies, the State of Ohio, or an Ohio political subdivision.

☐ real property which is owned or will be accepted for ownership at the time of completion, by the United States government, its agencies, the State of Ohio, or an Ohio political subdivision.

☐ a house of public worship or religious education.

☐ a building used exclusively for charitable purposes by a nonprofit organization operated exclusively for charitable purposes as defined in section 5739.02(B)(12) of the Revised Code.

☐ the original construction of a sports facility under section 307.696 of the Revised Code.

☐ a hospital facility entitled to exemption under section 140.08 of the Revised Code.

The original of this certificate must be signed by the owner/contractee and/or government official and must be retained by the prime contractor. Copies must be maintained by the owner/contractee and all subcontractors. When copies are issued to suppliers when purchasing materials, each copy must be signed by the contractor or subcontractor making the purchase.

Prime Contractor

Name _____

Signed by _____

Title _____

Address _____

City, State, Zip _____

Date _____

Owner/Contractee

Name _____

Signed by _____

Title _____

Address _____

City, State, Zip _____

Date _____

Subcontractor

Name _____

Signed by _____

Title _____

Address _____

City, State, Zip _____

Date _____

Political Subdivision

Name _____

Signed by _____

Title _____

Address _____

City, State, Zip _____

Date _____

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SECTION 00670

PREVAILING WAGES
AFFIDAVIT OF CONTRACTOR

AFFIDAVIT
(To be completed by all Contractors and Subcontractors)

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

of the _____, do hereby certify that the

wages paid to all employees for the full number of hours worked in connection with

the Contract for the Improvement, Repair and Construction of:

_____
(Project & Location)

during the following period from _____ to _____
is in accordance with the prevailing wage prescribed by the contract document.

I further certify that no rebates of deductions for any wages due any person have

been directly or indirectly made other than those provided by law.

_____
(Signature of Officer or Agent)

Typed or printed name: _____

Title: _____

Sworn to and subscribed in my presence this _____day of

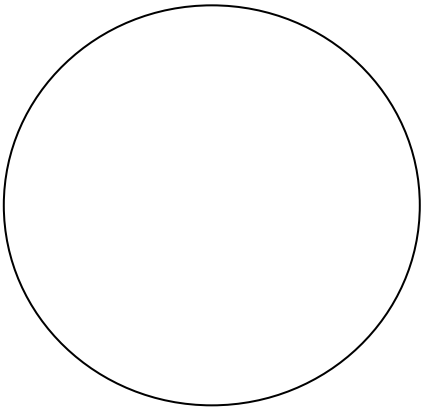
_____, 20____.

(written signature) _____

(typed or printed name) _____

Notary Public, State of Ohio
My commission expires

_____
(month, day, year)



Notary Seal

The above affidavit must be executed and sworn to by the officer or agent of the CONTRACTOR who supervises the payment of employees, before the OWNER will release the surety and/or make a final payment due under the terms of the contract.

END OF SECTION

SECTION 00679

CONTRACTOR'S PAYMENT APPLICATION CHECKLIST

THE CONTRACTOR MUST COMPLETE THIS CHECKLIST AND SUBMIT IT TO THE OWNER WITH ITS PAYMENT APPLICATION AND ALL REQUIRED DOCUMENTATION.

1. Contractor's Name: _____

2. Name, title, and telephone and e-mail address of Contractor's representative to contact regarding the Payment Application and required documentation:

   Name: _____ Title: _____

   Office Telephone No.: (____) _____ E-mail address: _____

3. Payment Application Number and Date:

   No. _____ Date: _____ ___, 20____

4. The following is a list of required documentation that must accompany its Payment Application. The Contractor certifies that it has submitted the documentation listed below with its Payment Application. If the Contractor cannot do so, the Contractor should explain why in Paragraph 5. Such explanations shall not excuse the Contractor from the requirements for submitting this documentation.

   _____ .1 One (1) copies of a properly completed and executed Application for Payment with a properly completed and executed Schedule of Values attached to each;

   _____ .2 Properly Completed Contractor's Affidavit with List of Subcontractors and Suppliers and Any Amounts Withheld (00680);

   _____ .3 Contractor's Wavier and Release Affidavit (beginning with the second Application for Payment) (00681);

   _____ .4 For each of its Subcontractors and Suppliers, a Subcontractors and Suppliers Waiver and Release Affidavit (beginning with the second Application for Payment) (00682);

   _____ .5 Schedule of all materials and equipment stored on-site;

   _____ .6 For materials and equipment stored off-site:

      _____ A list of the materials and equipment consigned and stored off-site in connection with the Project (which shall be clearly identified), giving the place of storage, together with copies of invoices and reasons why the materials and equipment cannot be delivered to the site;

      _____ Certification that all items have been tagged for delivery to the Project and that they will not be used for any other purpose;

      _____ A letter from the Contractor's surety bonding company indicating agreement to the arrangements and that payment to the Contractor shall not relieve either party of its responsibility to complete the facility;

_____ Evidence of adequate insurance covering the material and equipment in storage, which shall name the Owner as additional insured;

_____ Evidence that the Owner or duly authorized representative has visited the Contractor's place of storage and found that all the materials and equipment set forth in the payment request and represented to be stored off-site are stored at the place of storage (any costs incurred by the Owner to inspect material and equipment in off-site storage shall be paid by the Contractor); and

_____ Itemization of the materials and equipment and their cost, which were approved on previous Pay Applications and which remain in off-site storage.

_____ .7 Other documentation or information required by the Contract Documents or by the Design Professional or Owner.

5. Reason why required documentation is not submitted:

_____

_____

_____

_____

_____

_____

NOTE: The failure to submit required documentation, regardless of the reason, may result in non-payment, partial payment, and/or late payment.

_____
Signature

_____
Printed Name

_____
Date

OWNER'S REVIEW

_____ Checklist and documentation complete.

_____ Checklist and documentation incomplete.

_____
Signature

_____
Printed Name

_____
Date

SECTION 00680

CONTRACTOR'S AFFIDAVIT AND CERTIFICATION WITH LIST OF SUBCONTRACTORS AND SUPPLIERS WITH ANY AMOUNTS WITHHELD

PROJECT: _____ CONTRACTOR: _____

In Support of PAYMENT APPLICATION No.: _____

For the Period Through: _____

STATE OF _____:
: SS,
COUNTY OF _____:

The undersigned after first being sworn swears that a) all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment; b) set forth below is a complete list of its Subcontractors and Suppliers; and c) set forth below is a complete description of all amounts withheld from any Subcontractor or Supplier and the reason why. Attach additional sheets if necessary.

Typed or Printed Name of Subcontractor or Supplier	Address of Subcontractor or Supplier	Telephone Number of Subcontractor or Supplier

WITHHOLDINGS FROM SUBCONTRACTORS AND/OR SUPPLIERS:

Typed or Printed Name of Subcontractor or Supplier	Amount Withheld	Reason for Withholding

Moreover, Contractor certifies that, except for as set forth immediately above, Contractor has paid all of its subcontractors and suppliers who were due to be paid with the proceeds of the prior Application for Payment and Contractor acknowledges that Owner is relying upon such certification when paying Contractor the amount asked for in the payment application that this Affidavit and Certification supports.

Signed: _____
(Affiant)

Typed or printed name: _____

Title: _____

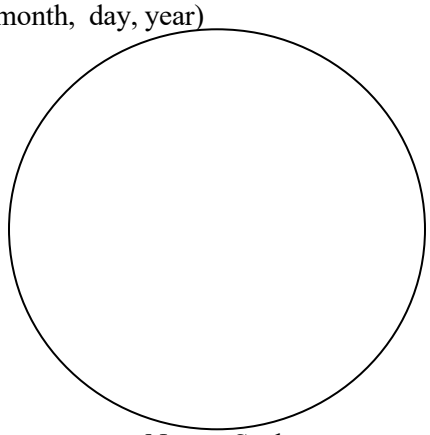
Sworn to and subscribed in my presence this _____day of

_____, 20____.

(written signature) _____

(typed or printed name) _____
Notary Public, State of Ohio
My commission expires

_____
(month, day, year)



Notary Seal

END OF SECTION

SECTION 00681

CONTRACTOR'S WAIVER and RELEASE AFFIDAVIT
("AFFIDAVIT")
(To be completed by Prime Contractors)

STATE OF _____)
) ss
COUNTY OF _____)

PROJECT: _____

The undersigned hereby acknowledges receipt of payment for all Work on the Project through the date of the prior Application for Payment by the Board of Commissioners for Montgomery County, Ohio (the "OWNER") with which it has a contract for the Project.

In return for said payment, and/or pursuant to certain contractual obligations of the undersigned, the undersigned hereby waives and releases any rights it has or may have through the date of the last Application for Payment to any and all types of claims relating to the Project, including without limitation claims of payment, Mechanic's Lien, stop notice, equitable lien, labor and material bond, breach of contract or unjust enrichment, or any other claim against the OWNER, for any labor, materials, or equipment the undersigned may have delivered or provided to the Project, except for any Claims the undersigned has made by properly and timely submitting a Statement of Claim. The undersigned further certifies that this Affidavit covers claims by all Contractors, Subcontractors, and suppliers who may have provided any labor, material, or equipment to the Project through the undersigned or at the undersigned's request. The undersigned acknowledges that all such Contractors, Subcontractors, sub-subcontractors and suppliers have signed an affidavit in the form of this Affidavit releasing any and all claims against the OWNER, except for any Claims the undersigned has made by properly and timely submitting a written Statement of Claim. The undersigned hereby represents and warrants that it has paid any and all welfare, pension, vacation or other contributions required to be paid on account of the employment by the undersigned of any laborers on the Project.

This Affidavit is for the benefit of, and may be relied upon by the OWNER. The undersigned hereby agrees to indemnify, defend and hold harmless each of the foregoing, the Project, work of improvement, and real property from any and all claims, or liens arising out of work covered by this release.

Authorized Signature: _____
(Affiant)

Typed or printed name: _____

Company/Contractor Name: _____

Title: _____

Date: _____

Sworn to and subscribed in my presence this _____day of

_____, 20____.

(written signature) _____

(typed or printed name) _____
Notary Public, State of Ohio
My commission expires

_____
(month, day, year)

Notary Seal

END OF SECTION

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES
Solid Waste Old Admin Building Renovations
PROJECT NO. 130075-64

FIELD ORDER NO. **

To: Contractor Name
Contractor Address
Contractor Address

Attn: Contractor Contact

Title: Short Description of Field Order

Description:

1. Provide Detailed Description. Reference appropriate specification sections and drawing numbers. Attach sketches as appropriate.

Reason:

1. Brief reason or justification for field order.

c:

Issued By: _____

Title

Issue Date: _____

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CHANGE ORDER FORM

Change Order No. _____

Owner:	Date of Issuance:
Contractor:	Effective Date:
Engineer:	Contractor's Project No.:
Project:	Engineer's Project No.:

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments:

CHANGE IN CONTRACT PRICE	**CHANGE IN CONTRACT TIMES** *[note changes in Milestones if applicable]*
Original Contract Price: $_____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: $_____	[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price prior to this Change Order: $_____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: $_____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: $_____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

By: _____	By: _____	By: _____
Engineer (if required)	Owner	Contractor
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable)

By: _____ Date: _____

Title: _____

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CERTIFICATE OF SUBSTANTIAL COMPLETION

Project: _____

Date of Issuance: _____

Owner: The Board of County Commissioners of Montgomery County, Ohio

Project No.: _____

Contract No.: _____

Contractor: _____

Engineer _____

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof.

To: The Board of County Commissioners of Montgomery County, Ohio
Owner

And To _____
Contractor

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

_____
Date of Substantial Completion

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within _____ days of the above date of Substantial Completion.

From the date of Substantial Completion, the responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees shall be as follows:

RESPONSIBILITIES

OWNER: _____

_____

_____

_____

CONTRACTOR: _____

_____

_____

_____

The following documents are attached to and made a part of this Certificate:

[For items to be attached see definition of Substantial Completion as supplemented and other specifically noted conditions precedent to achieving Substantial Completion as required by Contract Documents.]

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

Executed by ENGINEER on _____, 20___

_____
ENGINEER

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on _____, 20___

_____
CONTRACTOR

By: _____

OWNER accepts this Certificate of Substantial Completion on _____, 20___

_____
OWNER

By: _____
(Authorized Signature)

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STATEMENT OF CLAIM FORM

Claim No. ___ for Contractor

1. Name of Contractor: _____

2. Date written claim given: _____.

3. Contractor's representative to contact regarding the claim:

   Name: _____ Title: _____

   Telephone No. _____ (office)FAX No. _____

   E-mail: _____

4. General description of claim:

_____
_____
_____

5. Contract Documents. If the claim is based upon any part or provision in the Contract Documents, including but not limited to pages in the Drawings and/or paragraphs in the Specifications, Owner-Contractor Agreement, General Conditions or Supplementary General Conditions, state upon which parts or provisions the claim is based:

_____
_____
_____

6. Delay claims:

   6.1 Date delay commenced: _____
   6.2 Duration or expected duration of the delay, if known: _____
   6.3 Apparent cause of the delay and part of critical path affected:

_____
_____
_____

   6.4 Expected impact of the delay and recommendations for minimizing such impact:

_____
_____
_____

7. Additional compensation. Set forth in detail all additional compensation to which the Contractor believes it is entitled with respect to this claim:

_____
_____
_____

8. Instructions for Completing the Statement of Claim Form ("Instructions"). The Instructions are incorporated in this Form.

9. Truth of Claim. By submitting this claim, the Contractor and its representative certify that after conscientious and thorough review and to the best of his or her knowledge and belief a) the Contractor has complied fully with the Instructions, b) the information in this State of Claim is accurate, c) the Contractor is entitled to recover the compensation in paragraph 7, and d) the Contractor has not knowingly presented a false or fraudulent claim. The Contractor by its authorized representative must acknowledge this Statement of Claim before a notary public.

Contractor: _____

By: _____

Name and Title: _____

Date: _____

CONTRACTOR'S ACKNOWLEDGMENT

State of _____,

County of _____, ss:

_____ first being sworn, states that after conscientious and thorough review, the statements made in attached Statement of Claim Form are complete and true to the best of his or her knowledge and belief.

_____

Sworn to before me a notary public by _____ on _____ __, 20__.

_____

Notary Public

WHEN COMPLETED, FORWARD A COPY OF THIS NOTICE AND STATEMENT OF CLAIM FORM TO THE OWNER AND DESIGN PROFESSIONAL.

INSTRUCTIONS FOR COMPLETING THE STATEMENT OF CLAIM FORM

1. Completing the Statement of Claim Form ("Claim Form") is a material term of the Contract. The Claim Form tells the Owner and Design Professional that the Contractor is making a Claim and that they need to act promptly to mitigate the effects of the occurrence giving rise to the Claim. The Claim Form also provides them with information so that they can mitigate such effects. The Contractor acknowledges that constructive knowledge of the conditions giving rise to the Claim through job meetings, correspondence, site observations, etc. is inadequate notice, because knowledge of these conditions does not tell the Owner and Design Professional that the Contractor will be making a Claim and most often is incomplete.

2. If the space provided in the Claim Form is insufficient, the Contractor, as necessary to provide complete and detailed information, must attach pages to the Claim Form with the required information.

3. Paragraph 4. The Contractor must state what it wants, *i.e.*, time and/or compensation, and the reason why it is entitled to time and/or compensation.

4. Paragraph 5. The Contractor must identify the exact provisions of the Contract Documents it is relying on in making its Claim. For example, if the Claim is for a change in the scope of the Contractor's Work, the Contractor must identify the specific provisions of the Specifications, and the Plan sheets and details that provide the basis for the scope change.

5. Paragraph 6. This paragraph applies to delay claims, including delays that the Contractor believes result in constructive acceleration. The Contractor must identify the cause of the delay, party or parties responsible, and what the party did or did not do that caused the delay, *i.e.*, specific work activities. The Contractor acknowledges that general statements are not sufficient, and do not provide the Owner with sufficient information to exercise the remedies available to the Owner or to mitigate the effects of the delay.

   For example, if the Contractor claims a slow response time on submittals caused a delay, the Contractor must identify the specific submittals, all relevant dates, and then show on the applicable schedule, by circling or highlighting, the activities immediately affected by the delays. Also, for example, if the Contractor claims it was delayed by another Contractor, the Contractor must identify the delaying Contractor, specifically what the delaying Contractor did or did not do that caused the delay, and then show the applicable schedule, by circling or highlighting, the activities immediately affected by the delays. Further by example, if the Contractor seeks an extension of time for unusually severe weather, the Contractor must submit comparative weather data along with a record of the actual weather at the job site and job site conditions.

6. Paragraph 6.4. Time is of the essence under the Contract Documents. If there is a delay, it is important to know what can be done to minimize the impact of the delay. It therefore is important that the Contractor provide specific recommendations on how to do so.

7. Paragraph 7. The Contractor must provide a specific and detailed breakdown of the additional compensation it seeks to recover. For future compensation, the Contractor shall provide its best estimate of such compensation.

8. Paragraph 8 and Acknowledgment. By submitting this Claim, the Contractor and its representative certify that after conscientious and thorough review and to the best of his or her knowledge and belief a) the Contractor has complied fully with the Instructions, b) the information in this Claim Form is accurate, c) the Contractor is entitled to recover the compensation in paragraph 7, and d) the Contractor has not knowingly presented a false or fraudulent claim. The Contractor by its authorized representative must acknowledge this Statement of Claim before a notary public.

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SECTION 00688

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

Owner ☐
Design Professional ☐
Contractor ☐
Surety ☐
Other ☐

PROJECT NAME:_____
(address)**:**

TO OWNER:
Montgomery County Board of County Commissioners

APPLICABLE BOND NUMBER: _____
CONTRACT FOR: _____

CONTRACTOR (name and address):

CONTRACT DATE: _____

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the _____, Surety Company,

On bond of _____, Contractor, hereby approves final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of any of its obligations to the Montgomery County Board of County Commissioners, Owner, as set forth in the said Surety Company's bond.

IN WITNESS WHEREOF,
The Surety Company has hereunto set its hand this _____ day of _____, 20___

_____
Surety Company

Attest:
(Seal):

_____
Signature of Authorized Representative

_____
Title

Note: Surety shall attach valid Power of Attorney to executed Form.

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SECTION 00700

STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Documents or Contract Documents, a term printed with initial capital letters or with all capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda* – Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Documents or the proposed Contract Documents.

2. *Agreement or Owner-Contractor Agreement* – The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment* – The form acceptable to Owner which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid* – The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder* – An individual or entity that submits a Bid to Owner.

6. *Bidding Documents* – The Bidding Requirements, Bid Submittal Documents the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements* – The advertisement or invitation to bid and the Instructions to Bidders.

8. *Change Order* – A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal* – A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim* – (a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal;

or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern* – Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract* – The entire and integrated written contract between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

13. *Contract Documents* – Those items so designated in the Agreement, and which together comprise the Contract. Only printed or hard copies of the items in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

14. *Contract Price* – The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 13.03 in the case of Unit Price Work).

15. *Contract Times* – The number of days or the dates stated in the Agreement by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

16. *Contractor* – The individual or entity with which Owner has contracted for performance of the Work and has entered into the Agreement.

17. *Coordinating Contractor* – The Coordinating Contractor (if any) is defined in the Owner-Contractor Agreement (00510).

18. *Cost of the Work* – See Paragraph 13.01 for definition.

19. *Drawings* – The part of the Contract Documents prepared or approved by the Engineer that graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

20. *Design Professional* – A person, firm or corporation having a contract with the Owner to furnish services as the Engineer's independent professional associate or consultant with respect to the Project.

21. *Effective Date of the Contract* – The date, indicated in the Agreement, on which the Contract becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed by the Owner.

22. *Engineer* – The Sanitary Engineer of Montgomery County, Ohio or the Owner's duly authorized representative.

23. *Field Order* – A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

24. *General Requirements* – Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

25. *Hazardous Environmental Condition* – The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.

26. *Laws and Regulations; Laws or Regulations* – Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

27. *Liens* – Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

28. *Milestone* – A principal event in the performance of the Work that the Contract requires Contractor to achieve by a date or by a time as defined in the Agreement.

29. *Notice of Award* – The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

30. *Notice to Proceed* – A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

31. *Owner* – The Board of County Commissioners of Montgomery County, Ohio with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

32. *Progress Schedule* – A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times. The Progress Schedule is also referred to as the Construction Schedule.

33. *Project* – The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

34. *Project Manual* – The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions (if any), and Specifications. The contents of the Project Manual may be bound in one (1) or more volumes.

35. *Resident Project Representative* – The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.

36. *Samples* – Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

37. *Schedule of Submittals* – A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.

38. *Schedule of Values* – A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

39. *Shop Drawings* – All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

40. *Site* – Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.

41. *Specifications* – The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

42. *Subcontractor* – An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

43. *Substantial Completion* – The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Owner, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof. Substantial Completion is further defined as (i) that degree of completion of the Project's operating facilities or systems sufficient to provide Owner the full time, uninterrupted, and continuous beneficial operation of the Work; and (ii) all required functional, performance, and acceptance or startup testing has been successfully demonstrated for all components, devices, equipment, and instrumentation and control to the satisfaction of Owner in accordance with the requirements of the Specifications.

44. *Successful Bidder* – The Bidder who's Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

45. *Supplementary Conditions* – The part of the Contract Documents that amends or supplements these General Conditions.

46. *Supplier* – A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

47. *Technical Data* – Those items expressly identified as Technical Data in the Contract Documents, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.

48. *Underground Facilities* – All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. *Unit Price Work* – Work to be paid for based on unit prices.

50. *Work* – The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

51. *Work Change Directive* – A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner, ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Documents or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional

judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day:*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

   a. does not conform to the Contract Documents; or

   b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

   c. has been damaged prior to final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

E. *Furnish, Install, Perform, Provide:*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words "furnish," "install," "perform," or "provide," then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. *Bonds:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Contractor's Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured identified in the Supplementary Conditions Owner-approved copies of certificates of insurance, copies of endorsements, and other evidence of insurance which either of them or any additional insured may reasonably request, which Contractor is required to purchase and maintain in accordance with Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor two (2) printed copies of the Contract Documents and one (1) copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one (1) original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules:* Within twenty-one (21) days after the Effective Date of the Notice to Proceed (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Coordinating Contractor (if any), Engineer and Owner for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including all Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in enough detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work. The total of the Schedule of Values prepared for the Work, as required by these Modified General Conditions, shall not exceed the Bid submitted for the Work, unless such amount is adjusted as provided in the Contract Documents.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for

handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

A. At least ten (10) days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional ten (10) days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Owner.

1. The Construction/Progress Schedule shall be prepared as provided in the Contract Documents.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. For non-unit price Work, Contractor's Schedule of Values will be acceptable to Owner and Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work. Once approved by the Owner, the Contractor will not change the allocation of the Contract Price to the component parts of the Work without the Owner's written approval. The Owner and/or Engineer thereafter may from time to time require the Contractor to adjust such schedule if the Owner and/or Engineer determines it to be in any way unreasonable or inaccurate. The Contractor then shall adjust the schedule of values as required by the Owner and/or Engineer within ten (10) days.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.

B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether specifically called for at no additional cost to Owner.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Owner and/or Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

A. Standards Specifications, Codes, Laws and Regulations

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Verification of Figures and Field Measurements:* In addition to its obligations under the Instructions to Bidders, before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor

shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Owner and Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof or Contractor failed to perform its obligations under the Instructions to Bidders.

4. In addition to its obligations under the Instructions to Bidders, if Contractor proceeds with work that Contractor had actual knowledge or should have known that a conflict, error, ambiguity, or discrepancy existed as indicated above, correction or work constructed without notification to Owner and Engineer shall be at Contractor's expense, (except in an emergency as authorized by Paragraph 7.15).

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

   a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether specifically incorporated by reference as a Contract Document); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

2. Within the Contract Documents, the requirements of the Agreement shall take precedence over the Modified General Conditions.

3. Within the Contract Documents, the Specifications shall take precedence over the Drawings.

4. Within a Contract Document, figure dimensions on Drawings shall take precedence over general Drawings. Specific instructions or specifications shall take precedence over the general instructions or specifications.

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs) or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run in accordance with Article 4 of the Agreement.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Owner and Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel. Contractor is referred to the General Requirements for additional requirements for laying out the Work.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Construction Schedule established in accordance with the Contract Documents. See section 01310 of the Technical Specification titled "Construction Schedules."

1. The Milestone Date(s), including, but not limited to the Milestone Date for Substantial Completion shall only be changed or modified by Change Order, other Modification, or a Claim that is Finally Resolved, regardless of the date in the Construction Schedule.

2. The float in the Construction Schedule and any updates to it shall belong to the Owner. Float shall mean the amount of time by which activities may be delayed without affecting the Contract Date for Substantial Completion.

3. The Contractor's obligation to furnish scheduling information is a material term of its Contact. If the Contractor fails to furnish requested scheduling information in writing within five (5) days of a request for such information from the Coordinating Contractor, Engineer or Owner, the Contractor shall pay, and the Owner may withhold from the Contractor Liquidated Damages at the rate of Fifty Dollars ($50.00) a day for each calendar day thereafter that the Contractor fails to furnish the requested information.

4. The Contractor shall update the Construction Schedule in accordance with the Contract Documents, including Specification Section 01310, unless there is a Coordinating Contractor identified in the Agreement. If a Coordinating Contractor is identified in the Agreement, the Coordinating Contractor shall be responsible for updating the Construction Schedule.

5. Contractor shall submit, to Owner, Engineer and Coordinating Contractor (if any) all scheduling information requested by Owner, Engineer and Coordinating Contractor, which may include, but is not limited to 1) written reports describing the activities begun or finished during the preceding week; 2) Work in progress; 3) expected completing dates for individual tasks and for the Work; 4) look ahead schedules; and, 5) Contractor's crew size and total resource hours associated with the Work.

B. THE PERIODS OF TIME IN THE PROJECT CONSTRUCTION SCHEDULE ARE OF THE ESSENCE TO THIS CONTRACT. THE CONTRACTOR SHALL PROSECUTE ITS WORK IN ACCORDANCE WITH THE CURRENT PROJECT CONSTRUCTION SCHEDULE.

1. Notice of Delays. As a condition precedent to any increase in the Contract Price and/or Contract Times, the Contractor shall give the Owner and the Engineer verbal notice of any

delay affecting its Work within two (2) business days of the commencement of the delay. In addition, and also as a condition precedent to any increase in the Contract Price and/or Contract Times, the Contractor shall give the Owner and Engineer written notice of the delay within ten (10) business days of the commencement of the delay with specific recommendations about how to minimize the effect of the delay. The written notice of the delay shall conspicuously state that it is a "NOTICE OF DELAY." A notice of delay shall not constitute the submission of a Claim. Contract Times shall only be changed as provided in the Agreement. The Contractor acknowledges and agrees that these notice provisions are material terms of the Contract Documents and give the Owner the opportunity to take action to minimize the cost and/or effect of delays.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph; it being understood and agreed that the Contractor has included in the Contract Price a contingency for the risk of such delays. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. weather conditions as provided in Paragraph 4.05.H;

3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and

4. acts of war or terrorism.

D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.

E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph in accordance with the notice requirements in the Contract Documents.

H. Weather Delays. When the Contractor is prevented from completing any part of the Work on the critical path within the Contract Time due to weather conditions, if a Claim is made as provided for in these Modified General Conditions, the Contract Time will be extended by one (1) day for each work day lost due to weather that delays Work on the critical path in excess of those in the following table:

Month	Number of Workdays Lost Due to Weather
January	8
February	8
March	7
April	6
May	5
June	4
July	4
August	4
September	5
October	6
November	6
December	6

I. A work day will be lost due to weather only when weather conditions reduce production by more than 50 percent on Work on the critical path. Production shall be measured by hours worked. The Contractor shall have the burden of establishing that weather conditions reduced the production by more than 50 percent on Work on the critical path.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

B. Upon reasonable written request, Owner shall furnish Contractor with a Notice of Commencement prepared for the Project, as provided in Specification Section 00530 and conforming to the provisions of Ohio Revised Code Section 1311.252.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas:

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, alleged to have been caused by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. Removal of Debris During Performance of the Work: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. Cleaning: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. Loading of Structures: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Owner-Contractor Agreement (Specification Section 00510) identifies:

1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and

3. Technical Data contained in such reports and drawings.

4. It is possible that there may be other reports, and/or tests of subsurface conditions at or contiguous to the Site not prepared by or on behalf of Owner. The Owner makes no representation about such reports and/or tests, assuming they exist.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data contained in such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information. For example, interpolations and extrapolations of Technical Data performed by Contractor to estimate locations or quantities of subsurface strata are independent factual assumptions which Owner does not warrant.

5.04 Differing Subsurface or Physical Conditions

A. Notice by Contractor: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or

2. is of such a nature as to require a change in the Drawings or Specifications; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor, as a condition precedent to any increase in the Contract Price and/or an extension of the Contract Times shall, within 48 hours after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. Engineer's Review: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. Owner's Statement to Contractor Regarding Site Condition: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. Possible Price and Times Adjustments:

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

   b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and

   c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

   a. Contractor knew or should have known of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract

Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or

b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Documents or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

c. Contractor failed to give the written notice as required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 Underground Facilities

A. Contractor's Responsibilities: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, or by others. Unless it is otherwise expressly provided elsewhere in these Modified General Conditions:

1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and

2. the cost of all the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. protecting all Underground Facilities in a manner at least as cautious and protective of safety and of underground facilities as those methods identified in Ohio Revised Code Sections 3781.25 and 3781.30;

b. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

c. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. Notice by Contractor: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

C. Engineer's Review: Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. Owner's Statement to Contractor Regarding Underground Facility: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. Possible Price and Times Adjustments:

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

    a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;

    b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

    c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and

    d. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 Hazardous Environmental Conditions at Site

A. Reports and Drawings: The Agreement identifies:

1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

2. Technical Data contained in such reports and drawings.

B. Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Contract Documents with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.

H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 Performance, Payment, and Other Bonds

A. Contractor shall furnish a Performance bond and a Payment bond in the amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. Such bonds shall be in the form that meets the requirements of the Ohio Revised Code. If the Contractor submitted a combined Bid Guaranty and Contract Bond with its bid for the Work, that form of Bond shall satisfy the Contractor's requirement to provide a Performance and Payment Bond. . Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury and meet the other requirements of the Contract Documents. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's

authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.

D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.

E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

F. Upon request, Owner shall provide a copy of the Payment Bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

G. Material Default or Termination. If the Owner notifies the Contractor's surety that the Contractor is in material default, the surety will complete its investigation of the claimed material default within 21 days. The surety is advised to start looking for a replacement contractor upon notice of material default. As part of its investigation, the surety shall promptly visit the offices of the Contractor, Engineer, and Owner to inspect and copy the available Project records. The Owner, Engineer, and Contractor, upon written request by the surety, shall make such records available during regular business hours for such inspection and copying. The Owner and Engineer's making such records available as provided herein shall satisfy the Owner's obligation to the surety to furnish documents for the investigation. The surety will provide the Owner with the results of its investigation, including any written reports or documents.

1. If the Owner terminates the Contract and the surety proposes to take over the Work, the surety shall do so no later than the expiration of the 21-day investigation period or ten (10) days after the date the Owner terminates the Contract, whichever is later. If the Owner terminates the Contract, and the surety proposes to provide a replacement contractor, the replacement contractor shall not be the Contractor, or a contractor comprised of mostly Contractor's employees, unless the Owner agrees in writing. In the event the Surety takes over the Project, the surety's obligation shall not be limited to the penal sum of the Bond.

2. If the surety does not propose an acceptable contractor as required by this Paragraph 6.01.G, the Owner may complete the Work by such means as it deems appropriate. In the event the Owner agrees to accept a replacement contractor, the replacement contractor shall furnish its own bond for the replacement contractor's scope of work, and neither the Contractor nor the surety shall be relieved of their obligations under the Contract Documents.

3. This Paragraph 6.01.G is in addition to any other rights of the Owner under the Contract Documents and is not intended to create any rights of the surety, including but not limited to the right to take over the Contractor's obligations.

4. In the event of the Contractor's termination and if the surety does not take over the Work as provided in this Paragraph 6.01.G, the Owner may take possession of and use all materials, facilities, and equipment at the Project Site or stored off-site for which Owner has paid in whole or in part.

6.02 *Insurance—General Provisions*

A. Contractor shall obtain and maintain insurance as required in this Article and in the Contract Documents.

B. All insurance required by the Contract to be purchased and maintained by Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Modified General Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-IX or better.

C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract Documents), three (3) certificates of insurance, copies of endorsements, or when specifically requested by the Owner, three (3) certified copies of the insurance policies and a receipt evidencing full payment on the premiums, and other evidence of insurance requested by Owner establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

D. Failure of Owner to demand such certificates or other evidence of full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to obtain and maintain such insurance.

E. If either party does not purchase or maintain all the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

F. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.

G. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.

H. By requiring such insurance and insurance limits herein, Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.

I. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract Documents.

6.03 *Contractor's Insurance*

A. Workers' Compensation: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.

2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).

3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement).

4. Foreign voluntary worker compensation (if applicable).

B. Commercial General Liability – Claims Covered: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:

1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.

2. claims for damages insured by reasonably available personal injury liability coverage.

3. claims for damages, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

C. Commercial General Liability – Form and Content: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage:

a. Such insurance shall be maintained for three years after final payment (if applicable).

b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract Documents) evidence of continuation of such insurance at final payment and three years thereafter (if applicable).

2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.

3. Broad form property damage coverage.

4. Severability of interest.

5. No exclusions for underground, explosion, and collapse coverage.

6. Personal injury coverage.

7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.

8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.

9. The policy shall be endorsed to include a definition of "Occurrence" to include an accident, including continuous or repeated exposure to substantially the same general harmful conditions. Faulty workmanship does not constitute an occurrence. When faulty workmanship performed causes bodily injury or causes property damage to property other than your work, bodily injury or property damage will be considered caused by an occurrence.

D. Automobile liability: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.

E. Umbrella or excess liability: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

F. Contractor's pollution liability insurance: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

G. Additional insureds: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions or elsewhere in the Contract Documents; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.

H. Contractor's professional liability insurance: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of three years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

I. General provisions: The policies of insurance required by this Paragraph 6.03 shall:

1. Include at least the specific coverages provided in this Article.

2. Be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.

3. Contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least sixty (60) days prior written notice has been given to Contractor, except when cancellation is for non-payment of premium, then ten days prior notice may be given. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.

4. Remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.

5. Be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.

6. Include products and completed operations insurance $2,000,00 Aggregate.

7. Include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 5.02 and 7.18.

8. With respect to products and completed operations insurance remain in effect for at least three years after final payment.

    a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions or elsewhere in the Contract Documents, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one (1) year thereafter.

J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

K. The following provisions shall also apply to the insurance provided by the Contractor:

1. Contractor's insurance shall be primary and non-contributory.

2. Insurance policies shall be written on an occurrence basis only.

3. The Contractor shall require all Subcontractors to provide Workers' Compensation, CGL, and Automobile Liability Insurance with the same minimum limits specified in the Supplementary Conditions or elsewhere in the Contract Documents, unless the Owner agrees to a lesser amount.

4. Owner shall be named as a certificate holder on the policies of insurance maintained by Contractor. The Contractor shall provide each additional insured with a certificate of insurance.

5. The additional insured endorsement shall be ISO 20 10 10 01 and CG 20 37 10 01 or their equivalents, so that Completed Operations liability extends to the additional insured after the completion of the Project.

L. In all cases, the insurance shall be issued by an insurance company authorized to conduct business in the State of Ohio, and specifically with the Board of County Commissioners of Montgomery County, Ohio, and having an AM Best rating of not less than A "IX". The county in no way warrants that the above-required minimum insurer rating is sufficient to protect the Contractor from potential insurer insolvency. In the remarks section of the Certificate of Insurance, the associated Bid Number, Job Number and/or project name shall be referenced. All insurance policies required by this article shall be subject to a sixty (60) day written notice of cancellation or diminution of coverage to the Board

6.04 Property Insurance

A. Builder's Risk: Unless otherwise provided in the Contract Documents, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Contract Documents or required by Laws and Regulations). This insurance shall:

1. include the Owner, Engineer, and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Contract Documents to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding sections in the Contract Documents, the parties required to be insured shall collectively be referred to as "insureds."

2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Contract Documents. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are

not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).

6. extend to cover damage or loss to insured property while in transit.

7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

8. allow for the waiver of the insurer's subrogation rights, as set forth below.

9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.

10. not include a co-insurance clause.

11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.

12. include performance/hot testing and start-up.

13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.

B. Contractor shall maintain adequate commercial property insurance covering equipment, fixtures, improvements and betterments Contractor owns, rents, or leases. Coverage shall be for full replacement cost.

C. Contractor may, at its option, purchase business income, extra expense or similar coverage as part of this commercial property insurance, and in no event shall Montgomery County be liable for any business interruption or other consequential loss sustained by Contractor, whether or not it is insured, even if such loss is caused by the negligence of Montgomery County, its employees, officers, directors or agents

D. Notice of Cancellation or Change: All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least sixty (60) days prior written notice has been given to the purchasing policyholder except when cancellation is for non-payment of premium, then ten (10) days prior notice may be given. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.

E. Deductibles: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible. The deductible shall not exceed $1,000.

F. Partial Occupancy or Use by Owner: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

G. Additional Insurance: If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.

H. Insurance of Other Property: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.05 Waiver of Rights

A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.06 Receipt and Application of Property Insurance Proceeds

A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 Supervision and Superintendence

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

7.02 Labor; Working Hours

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, Shut Down Dates as defined in the Agreement, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, Shut Down Dates as defined in the Agreement, or legal holidays only with Owner's written consent, which will not be unreasonably withheld. Contractor (and Subcontractor) regular working hours consist of 8 up to 10 working hours within an 11-hour period between 7:00 a.m. and 6:00 p.m., on a regularly scheduled basis, excluding Saturday, Sunday, and holidays. Overtime work is work in excess of 40 hours per week. Contractor must receive advanced written approval from the Owner prior to performing work on weekends or

County Holidays. Approval of such weekend and/or holiday work is in the Owner's sole discretion.

C. If Contractor wishes to perform regular Work at times other than regular working hours, Contractor shall be required to pay the Owner for the services of the Resident Project Representative and the Engineer at established rates on record in the office of Montgomery County Environmental Services.

1. Contractor shall give a minimum of forty-eight (48) hours' notice of intent to work at times other than regular working hours to the Resident Project Representative and Engineer.

2. Engineer has the right to deny permission, with due cause, for the Contractor to work at times other than regular working hours.

7.03 Services, Materials, and Equipment

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. Contractor warrants that all materials and equipment are suitable and fit for the intended use of such materials and equipment and are free from defects in material, workmanship, or design. The foregoing applies whether the materials or equipment are specified in the Contract Documents.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

A. Substitutions prior to the receipt of bids shall be governed by the Instructions to Bidders. Substitutions after the entry into the Agreement shall be governed by these Modified General Conditions. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) it has a proven record of performance and availability of responsive service; and

4) it is not objectionable to Owner.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. Contractor's Expense: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. Engineer's Evaluation and Determination: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. Effect of Engineer's Determination: Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding and may not be reversed through an appeal under any provision of the Contract Documents.

E. Treatment as a Substitution Request: If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 Substitutes

A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

   a. shall certify that the proposed substitute item will:

      1) perform adequately the functions and achieve the results called for by the general design,

      2) be similar in substance to that specified, and

      3) be suited to the same use as that specified.

   b. will state:

      1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,

      2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

      3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

   c. will identify:

      1) all variations of the proposed substitute item from that specified, and

      2) available engineering, sales, maintenance, repair, and replacement services.

   d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. Engineer's Evaluation and Determination: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. Special Guarantee: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. Reimbursement of Engineer's Cost: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract

Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. Contractor's Expense: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. Effect of Engineer's Determination: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 Concerning Subcontractors, Suppliers, and Others

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.

B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract Documents to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, Contractor shall not be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement.

G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.

J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.

K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.

L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 Patent Fees and Royalties

A. Contractor shall pay all license fees and royalties 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 which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims,

costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 Permits

A. Owner has obtained or will obtain permits for the Project as set forth in the Supplementary Conditions. Contractor shall secure and pay for all other permits not obtained by the Owner as are necessary to complete the Project. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

B. A copy of each permit is available at Owner's office. Contractor shall examine the permits and conform to the requirements contained therein, and such requirements are hereby made part of these Contract Documents as though the same were set forth herein. Failure to examine the permit(s) will not relieve Contractor from compliance with the requirements stated therein.

7.09 Taxes

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

B. Materials purchased for use or consumption in connection with the proposed Work will be exempt from the State of Ohio Sales Tax, as provided in Section 5739.02 of the Ohio Revised Code, and also from the State of Ohio Use Tax, as provided in Section 5741.01 of the Ohio Revised Code. A Construction Tax Exempt Certificate is included with the Bid Documents.

C. Purchases by the Contractor of expendable items, such as form lumber, tools, oil, greases, fuel, or equipment rentals, are subject to the application of Ohio Sales or Use Taxes.

D. Contractor shall withhold any income taxes due to the Owner for wages, salaries, and commissions paid to its employees for work done under this Agreement and further agrees that any of its subcontractors shall, by the terms of its subcontract, be required to withhold any such income taxes due for work performed under this Agreement.

7.10 Laws and Regulations

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the

Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within thirty (30) days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

D. Prevailing Wage Rates. If indicated in the Agreement or Instructions to Bidders, each laborer, worker, or mechanic employed by Contractor, Subcontractor, or other persons performing Work on the Project shall be paid not less than the applicable prevailing rate of wages pursuant to Ohio Revised Code Chapter 4115.

7.11 Record Documents

A. Contractor shall maintain in a safe place at the Site two printed record copies of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. The Contractor shall deliver these record documents, samples, and shop drawings to the Engineer, no later than the date for Substantial Completion, for the Engineer's review and transmittal to the Owner.

7.12 Safety and Protection

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when

prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Contract Documents identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. As part of the required project submittals, Contractor shall submit a Site-Specific Safety Plan. The Site-Specific Safety Plan is to be specific, addressing anticipated/potential hazards that will be encountered while performing the contracted work. The Plan is to identify the procedures and methods for controlling the project-specific safety hazards identified. Review of this Site-Specific Safety Plan by the Owner or Engineer does NOT release the Contractor of responsibility. The duty and liability for safety shall remain with the Contractor to ensure compliance with all federal, state and local safety laws and regulations including, but not limited to, OSHA requirements.

F. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

G. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

H. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 Safety Representative

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

B. Contractor shall keep at the Site at all times during the progress of the Work as required by law a competent person to comply with OSHA trenching and excavation requirements. The competent person shall be one who is capable of identifying existing and predictable hazards in the surrounding, or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. Neither the Owner nor the Engineer will be considered a competent person under the terms of this contract.

7.14 Hazard Communication Programs

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 Emergencies

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 Shop Drawings, Samples, and Other Submittals

A. Shop Drawing and Sample Submittal Requirements:

1. Before submitting a Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. Submittal Procedures for Shop Drawings and Samples: Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. Shop Drawings:

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. Samples:

a. Contractor shall submit the number of Samples required in the Specifications.

b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Other Submittals: Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. Engineer's Review:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. Resubmittal Procedures:

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than the number of submittal reviews specified in Paragraph 15.01.E.4 of these Modified General Conditions. Engineer will record Engineer's time for reviewing a subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time in accordance with Paragraph 15.01.E.4. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 Contractor's General Warranty and Guarantee

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal;

6. the issuance of a notice of acceptability by Engineer;

7. any inspection, test, or approval by others; or

8. any correction of defective Work by Owner.

D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

E. Upon final payment, the Contractor must assign and transfer to Owner all guarantees, warranties, and agreements from and with all contractors, subcontractors, vendors, suppliers, and manufacturers regarding their performance, quality of workmanship, or quality of materials supplied in connection with the work. Contractor represents and warrants that all such guarantees, warranties, and agreements will be in place and enforceable by the Owner in accordance with their terms. The Owner, however, will not assume through any assignment or transfer required under this subparagraph any of the Contractor's payment obligations to any entities.

7.18 Indemnification

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims (whether alleged or proven), demands, costs, losses, and damages, including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs, arising out of or relating to the performance of the Work or any breach of Contractor's obligations under the Contract Documents, including but not limited to the breach of any warranty provided in the Contract Documents.

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 Delegation of Professional Design Services

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.

B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 Other Work

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render

it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 Coordination

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the Owner will provide for the coordination of the work at the Site in the Contract Documents.

8.03 Legal Relationships

A. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.

B. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify Owner and Engineer as required under Paragraph 7.18.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 Communications to Contractor

A. Except as otherwise provided in these Modified General Conditions, Owner shall issue all communications to Contractor through Engineer or the Resident Project Representative.

9.02 Replacement of Engineer

A. Owner may at its discretion appoint an engineer to replace Engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 Furnish Data

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 Pay When Due

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 Lands and Easements; Reports, Tests, and Drawings

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 Insurance

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 Change Orders

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 Inspections, Tests, and Approvals

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 Limitations on Owner's Responsibilities

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 Undisclosed Hazardous Environmental Condition

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 Evidence of Financial Arrangements

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 Safety Programs

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 Owner's Representative

A. Engineer will be Owner's representative during the construction period. The Engineer's duties and responsibilities during the construction period are in addition to the duties and responsibilities of the Owner's Representative, as referenced in the Agreement. The duties and responsibilities and the limitations of authority of Engineer as a representative of the Owner during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

10.02 Visits to Site

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 Project Representative

A. Owner may furnish a Resident Project Representative to assist Engineer at the Site, assist Engineer in providing more extensive observation of the progress and quality of the Work, and assist in carrying out the Engineer's other responsibilities under the Contract Documents and its agreement with the Owner.

B. The duties and responsibilities of the Resident Project Representative may include, but not be limited to, the following:

1. Review schedules and amendment thereto.

2. Attend conferences and meetings with Contractor.

3. Serve as liaison between Owner, Engineer, and Contractor.

4. Conduct on-site observation of the work.

5. Observe tests, equipment, and system startups.

6. Report to Engineer and Owner when clarifications and interpretations of the Contract Documents are needed. Consider, evaluate, and report to Engineer and Owner, Contractor's requests for modification.

7. Maintain orderly records, keep a daily log (when on a part-time basis, keep log for days visiting site).

8. Before project completion, prepare final list of items to be completed or corrected and make recommendations to Owner concerning acceptance of the Work.

9. Review Payment Applications from Contractor.

C. The Resident Project Representative shall not:

1. Authorize any deviation from the Contract Documents or substitutions of materials or equipment, unless authorized by Owner.

2. Undertake any of the responsibilities of Contractor, Subcontractor, or Contractor's superintendent.

3. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences, or procedures of construction.

4. Advise on, issue directions regarding, or assume control over safety precautions and programs in connection with the Work.

5. Accept shop drawing or sample submittals from anyone other than Contractor.

6. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

7. Authorize Owner to occupy the Project in whole or in part.

8. Participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by Engineer.

10.04 Rejecting Defective Work

A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 Shop Drawings, Change Orders and Payments

A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.

B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.

C. Engineer's authority as to Change Orders is set forth in Article 11.

D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 Determinations for Unit Price Work

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

B. Unit Price Work for which a typical cross section or other detail from the Contract Documents applies shall be paid only up to the quantity determined by using the dimensions provided in the typical cross section or other detail. By way of example, this provision means that if a typical trench width detail in the Drawings shows a maximum width of 30 inches, all pay quantities associated with the actual work of constructing the detail shall be calculated using a trench width not greater than 30 inches. This means that the actual pay quantity could also be less than that based upon a 30-inch-wide trench, if the actual trench width is smaller and otherwise in conformance with the Contract Documents, but the Contractor would not be paid more if the actual trench width exceeds 30 inches. Contractor is responsible for determining what actual trench width may be required due to field conditions and applicable laws and regulations existing at the time of its bid.

10.07 Decisions on Requirements of Contract Documents and Acceptability of Work

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 Limitations on Engineer's Authority and Responsibilities

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 Compliance with Safety Program

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 Amending and Supplementing Contract Documents

A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

1. Change Orders:

a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order as provided in Specification Section 00685. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.

b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. Work Change Directives: A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than thirty (30) days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than sixty (60) days after issuance of the Work Change Directive.

3. Field Orders: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order, as provided in Specification Section 00684 and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 Owner-Authorized Changes in the Work

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations. The agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including but not limited to, all direct, indirect, and cumulative costs associated with such change and all adjustments to the Contract Sum and the Date for Substantial Completion.

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of Work Change Directive, a Claim may be made therefor as provided in Article 12.

11.03 Unauthorized Changes in the Work

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 Change of Contract Price

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or

2. where the parties do reach an agreement to a lump sum, then by that mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or

3. where the parties do not reach an agreement to a lump sum, then based on the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

C. Contractor's Fee: When applicable, the Contractor's fee for overhead and profit shall be determined as follows, and is the maximum total allowable amount:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

   a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;

   b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;

   c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;

   d. no fee shall be payable based on costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

   e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

   f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed based on the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 Change of Contract Times

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.

B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 Change Proposals

A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. Procedures: Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 7 calendar days after the start of the event giving rise thereto. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 7 calendar days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal and consider any comments or response from Owner regarding the Change Proposal.

2. Engineer's Action: Engineer will review each Change Proposal and, within 7 calendar days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not act on the Change Proposal within 7 calendar days, then as a result of Engineer's inaction the Change Proposal is deemed denied.

3. Binding Decision: Engineer's decision will be final and binding upon Contractor, unless Contractor files a Claim under Article 12.

B. Resolution of Certain Change Proposals: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work performed in accordance with a Work Change Directive;

2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and

4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 Notification to Surety

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change. Failure to provide notice to the surety of any such change shall not exonerate the surety from its obligations under the bond.

ARTICLE 12 – CLAIMS

12.01 Claims

A. Claims Process: The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:

1. Contractor demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and

B. Submittal of Claim:

1. By Contractor - As a condition precedent to a change in the Contract Price or the Contract Terms, for each Claim the Contractor shall deliver, 1) Change Proposal in accordance with Article 11.06; and, 2) a fully completed Statement of Claim Form, a copy of which form is a Contract Document and in included at Specification Section 00687, to the Engineer and the Owner, within 30 calendar days of the start of the underlying cause of the Claim. The Contractor shall be responsible for substantiating its Claim. The Contractor's failure to deliver a Change Proposal in accordance with Article 11.06 and a fully completed Statement of Claim form in accordance with Article 12.01 shall be an irrevocable waiver of Contractor's right to any form of additional compensation, be it in time or money, arising out of the Claim or the circumstances underlying the Claim. Further, Contractor's obligation to deliver a Change Proposal in accordance with Article 11.06 and a fully completed Statement of Claim form within such 30-day period is a material term of the Contract Documents and provides the Owner with the opportunity to mitigate its damages.

2. By Owner - As a condition precedent to a change in the Contract Price or Contract Times or a recovery of damages against the Contractor, the Owner will give the Contractor written notice of a Claim. The Owner shall be responsible for substantiating its claim.

C. Review and Resolution: Engineer will review each Claim from Contractor and, within 14 calendar days after receipt of the Statement of Claim Form, take one of the following actions in writing:

1. deny the Claim in whole or in part;

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further

resolution of the Claim, such notice shall be deemed a denial. In the event the Engineer does not act on a Claim within said 14 days, the Claim shall be denied.

D. Final and Binding Results: Engineer's written action under Paragraph 12.01.C.3 or denial pursuant to Paragraphs 12.01.C.1 will be final and binding upon Contractor, unless Contractor invokes the dispute resolution procedures set forth in Article 17.

E. False or Fraudulent Claim. The Contractor shall not knowingly present or cause to be presented to the Owner a false or fraudulent Claim. Knowingly shall have the same meaning as in Section 3729(b) USC of the Federal False Claims Act. If the Contractor knowingly presents or causes to be presented a false or fraudulent Claim, then the Contractor shall be liable to the Owner for the same civil penalty and damages as the United States Government would be entitled to recover under such Section 3729(a) USC and shall also indemnify and hold the Owner harmless from all costs and expenses, including Owner's attorneys' and consultants' fees and expenses incurred in investigating and defending against such Claim and in pursuing the collection of such penalty, damages, and fees and expenses.

F. Claim Documentation. Within ten (10) days of written request from the Owner, Contractor shall make available to Owner or its representative any books, records, or other documents in its possession or to which it has access, including but not limited to Contractor's daily logs/reports, original estimates of Work and applicable agreements, correspondence with subcontractors and suppliers, internal correspondence (including e-mail), accounting records, and other information from which the Contractor's records, and other information from which the Contractor's costs may be derived. To the extent permitted by law, the Owner shall keep the Project accounting records and estimate for the Project confidential. As requested by the Owner, the Contractor shall provide such documents and information in paper copies and/or computer format (including the format of the Contractor's accounting software and/or ASCII format). The Contractor's provision of the requested documents and information shall be a condition precedent to any further proceeding under the Contract Documents or to payment of an Application for Payment.

G. Failure to provide the requested documents shall be a material breach of the Contract, and Contractor shall indemnify Owner for all of Owner's costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to Contractor's failure to comply with this provision. If the Contractor fails to provide the requested documents, the Contractor shall be precluded from presenting such documents in any subsequent dispute resolution proceedings, if the data was reasonably available at the time of the request.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES

13.01 Cost of the Work

A. Purposes for Determination of Cost of the Work: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined based on Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. Costs Included: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned based on their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid based on Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

   a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

   b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost,

less market value, of such items used but not consumed which remain the property of Contractor.

c. Construction Equipment and Machinery

1) Rentals of all construction equipment and machinery, and the parts thereof in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor and used on the Work will be paid at a rate shown for such equipment in the latest edition of the Associated Equipment Distributors' rental rate manual. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than $1,000 will be considered small tools. Costs for equipment and machinery owned by Contractor for which Contractor is seeking monetary compensation due to the equipment and machinery being idled through no cause of Contractor will be paid at half of the Associated Equipment Distributors' rate.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Fees for permits and licenses.

f. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

g. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for determining Contractor's fee.

h. The cost of utilities, fuel, and sanitary facilities at the Site.

i. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

j. The portion of the costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain, that can be attributed to this Contract.

C. Costs Excluded: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. Contractor's Fee: When the Work is performed based on cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined based on Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment because of any of the foregoing will be valid.

C. Contingency Allowance: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor because of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. Contractor shall not be paid for any Unit Price Work that represents an actual quantity greater than 100% of the estimated quantity, without a Change Order. The Contractor shall maintain such records as required to track the quantities of Unit Price Work in anticipation of exceeding the 100% threshold.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.

E. Within thirty (30) days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that it is entitled to an increase in Contract Price because of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 Access to Work

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 Tests, Inspections, and Approvals

A. All Work is subject to testing to indicate compliance with Contract Document requirements. Duplicate copies of test results required shall be submitted to Engineer. Testing laboratories used by Contractor are subject to the approval of Owner. Tests and inspection of work may be conducted by Owner or an independent laboratory employed by Owner. Tests may also be performed in the field by Engineer as a basis for acceptance of the Work. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests and shall cooperate with inspection and testing personnel to facilitate required inspections and tests. Samples required for testing shall be furnished by Contractor at no cost to Owner. If completed Work does not conform to specification requirements during the initial test, the Work shall be corrected and retested for conformance. The entire cost of retesting completed Work shall be borne by Contractor. This shall include the extra cost for inspection to Owner which will be deducted from the final amount due Contractor.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer. Tests required by the Contract Documents to be performed by Contractor that require test certificates to be submitted to Owner and Engineer for acceptance shall be made by an independent testing laboratory or agency licensed or certified in accordance with Laws and Regulations and applicable state and local statutes. In the event state license or certification is not required, testing laboratories or agencies shall meet the following applicable requirements:

a. "Recommended Requirements for Independent Laboratory Qualification," published by the American Council of Independent Laboratories.

b. Basic requirements of ASTM E329, "Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction" as applicable.

c. Calibrate testing equipment at reasonable intervals by devices of accuracy traceable to either the National Institute of Standards and Technology or accepted values of natural physical constants.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Owner or Engineer, Contractor shall, if requested by Owner or Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Owner and Engineer timely notice of Contractor's intention to cover the same and Owner and Engineer had not acted with reasonable promptness in response to such notice.

14.03 Defective Work

A. Contractor's Obligation: It is Contractor's obligation to assure that the Work is not defective.

B. Engineer's Authority: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. Notice of Defects: Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. Correction, or Removal and Replacement: Promptly after receipt of written notice of defective Work and so as not to delay the Project, Contractor shall correct all such defective Work, whether fabricated, installed, or completed, or, if Owner or Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. Preservation of Warranties: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. Costs and Damages: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising

out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 Uncovering Work

A. Engineer has the authority to require special inspection or testing of the Work, whether the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within thirty (30) days of the determination that the Work is not defective.

14.06 Owner May Stop the Work

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, fails to comply with any requirements of the Contract Documents, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them. Contractor shall not be entitled to an adjustment in contract price or contract times for delay, disruption, and interference resulting from an order from the Owner to stop the work for any reason contained within this section that are caused by or within the control of the Contractor. Delay, disruption, and interference attributable to and within the control of any Subcontractor shall be deemed to be within the control of Contractor.

14.07 Owner May Correct Defective Work

A. If Contractor fails within two (2) business days of a written notice from Owner or Engineer, or such longer time as may be stated in such notice, to correct, or take reasonable steps to commence to correct, defective Work, or to remove and replace, or take reasonable steps to remove and replace, rejected Work in accordance with Paragraph 14.03.D or as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may correct or remedy any such deficiency. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor all the costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07. If payments then or thereafter due the Contractor are not enough to cover such amounts, the Contractor shall pay the difference to the Owner. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

B. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

A. Basis for Progress Payments: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Owner. The Owner-approved version of the Application for Payment

form, which includes information on completed Schedule of Values items, is to be used by the Contractor when making an Application for Progress Payment. Progress payments because of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. Applications for Payments:

1. At least by the 20th day of the month(but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment (including a Schedule of Values described in Paragraph 2.05.A of the Modified General Conditions) filled out and signed by Contractor covering the Work completed as of the date of the Application, and any other supporting documentation required by the Contract Documents or by the Engineer. The Application for Payment will be in the form and submitted with the number of copies of it and all related documents as required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner. Each Application for Payment shall include a Contractor's Affidavit with List of Subcontractors and Suppliers and Any Amounts Withheld (00680).

2. Beginning with the second Application for Payment, each Application shall include Contractor's Affidavit with List of Subcontractors and Suppliers with Amounts Withheld (00680) including a certification that Contractor has paid all of its subcontractors and suppliers who were due to be paid with the proceeds of the prior Application for Payment; and, Contractor's Wavier and Release Agreement (00681), for each of its Subcontractors and Suppliers, a Subcontractor's - Supplier's Waiver and Release Agreement (00682) all using the forms provided by Owner and included in the Project Manual.

3. Retainage. Partial payments to Contractor for labor performed shall be made at the rate of 92 percent of the amount invoiced through the Application for Payment that shows the total Contract Completion at 50 percent or greater, pursuant to Ohio Revised Code Section 153.14. After the Contract is 50 percent complete as evidenced by payments in the amount of at least 50 percent of the Contract Price to Contractor, no additional funds shall be retained from payments for labor.

4. Contractor shall submit one (1) original (unless a different quantity is otherwise agreed upon) on 8-1/2 by 11 paper of each lien waiver submitted.

5. Contractor shall submit one (1) original (unless a different quantity is otherwise agreed upon) of each pay request for approval.

6. No advanced payment for shop drawing preparation will be made. Shop drawing costs will be paid when equipment and materials are delivered and suitably stored on the site.

7. All stored equipment and materials for which payment is requested shall have one (1) original (unless a different quantity is otherwise agreed upon) of invoices included with

the pay request. Equipment shall be identified thoroughly on the invoices, including serial numbers.

8. Payment for the stored equipment and material which are on the site shall not exceed the invoiced amount for each item, less the Contract retainage. The overhead and profit for the stored items shall not be invoiced until the item is installed.

9. Payment for off-site storage is normally reserved for sensitive or very large pieces of equipment that in Engineer's opinion would not be practical to have stored on the site. Payment for off-site stored items shall be limited to 75% of the invoiced value of the item, less Contract retainage. Contractor shall reimburse Owner the Cost of inspecting off-site stored items. When off-site storage is approved, Contractor shall provide Insurance Certificates and Document of Ownership to Owner.

C. Review of Applications:

1. Engineer will, within ten (10) days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

   b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

    a. to supervise, direct, or control the Work, or

    b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

    c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

    d. to make any examination to ascertain how or for what purposes Contractor has used the money paid because of the Contract Price, or

    e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

    a. the Work is defective, requiring correction or replacement;

    b. the Contract Price has been reduced by Change Orders;

    c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

    d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

    e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents; or

    f. the Contractor is in default of any other Agreement it has with the Owner.

D. Payment Becomes Due:

1. Thirty days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. Reductions in Payment by Owner:

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

    a. claims have been made against Owner because of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or

damages because of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. the Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. the Contract Price has been reduced by Change Orders;

i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;

j. liquidated damages have accrued because of Contractor's failure to achieve Milestones, Substantial Completion, or completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

l. there are other items entitling Owner to a set off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

4. Items entitling Owner to retain set-offs from the amount recommended include, but are not limited, to the following:

a. Owner compensation to Engineer at an average rate of $200 per each extra personnel hour for labor plus expenses, if applicable, because of the following Contractor-caused events:

1) Return visits to manufacturing facilities to witness factory testing or retesting;

2) Submittal review more than two reviews by Engineer for substantially the same Submittal, in accordance with Paragraph 7.16.E of these Modified General Conditions;

3) Evaluation of proposed substitutes and in making changes to Contract Documents occasioned thereby, in accordance with Paragraph 7.05 of these Modified General Conditions; and

4) Overtime worked by Contractor necessitating Engineer or anyone else to work overtime in accordance with Paragraph 7.02 of these Modified General Conditions.

b. Liability for liquidated damages incurred by Owner as set forth in the Contract Documents.

15.02 Contractor's Warranty of Title

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall inspect the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected)

reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

G. Time for Completion of Items on Tentative List and Remedies. The time fixed by the Engineer for the completion of all items on the list accompanying the tentative certificate of Substantial Completion shall not be greater than thirty (30) days. The Contractor shall complete all items on the list within such 30-day period. If the Contractor fails to do so, the Owner in its discretion may perform the Work by itself or others and the cost thereof shall be charged to the Contractor. The Contractor irrevocably designates the Owner as the Contractor's attorney-in-fact to execute a Change Order deducting such cost from the balance of the Contract Price and any additional costs or expenses incurred by the Owner arising out of or related to the failure of the Contractor to complete such items, including but not limited to attorneys', consultants', and Engineer's fees. The Contractor's warranties under the Contract Documents shall remain in full force and effect and cover any remedial Work, even if performed by others. If more than one inspection by the Engineer for purposes of evaluating corrected Work is required, it will be performed at the Contractor's expense.

15.04 Partial Use or Occupancy

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall inspect that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. Owner may at any time request Contractor in writing to permit Owner to take over operation of any part of the Work although it is not substantially complete. A copy of such request will be sent to Engineer, and within a reasonable time thereafter, Owner, Contractor, and Engineer shall inspect that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If Contractor does not object in writing to Owner and Engineer that such part of the Work is not ready for separate operation by Owner, Engineer will finalize the list of items to be completed or corrected and will deliver such lists to Owner and Contractor together with a written recommendation as to the division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, maintenance, utilities, insurance, warranties, and guarantees for that part of the Work which will become binding upon Owner and Contractor at the time when Owner takes over such operation (unless they shall have otherwise agreed in writing and so informed Engineer). During such operation and prior to Substantial Completion of such part of the Work, Owner shall allow Contractor reasonable access to complete or correct items on said list and to complete other related Work.

5. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 Final Inspection

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 Final Payment

A. Application for Payment:

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents;

b. consent of the surety, if any, to final payment;

c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects or will so pass upon final payment.

d. a list of all disputes that Contractor believes are unsettled; and

e. a Contractor's Waiver and Release Agreement for itself as of the date of Final Application for Payment and Subcontractors-Suppliers Waiver and Release Agreements for each of its Subcontractors and Suppliers as of the date of the Final Application for Payment.

3. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

4. If Contractor is required to pay prevailing wages, prior to final payment and in accordance with ORC 4115.05, Contractor and its Subcontractors shall each file with Owner an affidavit certifying their compliance with ORC 4115.03 to ORC 4115.16 regarding wages.

B. Engineer's Review of Application and Acceptance:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Completion of Work: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. Payment Becomes Due: Thirty (30) days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 Waiver of Claims

A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from

defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 Correction Period

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such other adjacent areas;

2. correct such defective Work;

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

C. In special circumstances where an item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or limitation upon, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 Owner May Suspend Work

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than ninety (90) consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than thirty (30) days after the date fixed for resumption of Work.

16.02 Owner May Terminate for Cause

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply enough skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) three business days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

3. Such termination shall be effective as of the date stated in the termination notice provided to Contractor.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within three business days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other

professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

16.03 Owner May Terminate for Convenience

A. Upon three business days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. Such termination shall be effective as of the date stated in the written notice. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including compensation as set forth in the schedule of values or Bid Form in the case of unit prices;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid because of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

C. Contractor shall require similar provisions contained in Paragraph 16.03 in each of its subcontracts to protect Contractor from claims by Subcontractors arising from the Owner's termination for convenience, or to minimize claims by such subcontractors. The remedy provided to Contractor under this Paragraph 16.03 shall be the Contractor's sole remedy in the event of termination for convenience by Owner.

16.04 Contractor May Stop Work or Terminate

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than ninety (90) consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within thirty (30) days after it is submitted, or (3) Owner fails for sixty (60) days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within thirty (30) days after it is submitted, or Owner has failed for sixty (60) days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 Methods and Procedures

A. Litigation, Settlement, Methods, and Procedures.

1. Any dispute, claim, or other matter not settled by negotiation, shall be determined by the Court of Common Pleas for Montgomery County, Ohio, which shall be exclusive venue and jurisdiction over such matters and claims, to the exclusion of any other court, including any U.S. District Court.

ARTICLE 18 – MISCELLANEOUS

18.01 Giving Notice

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 Computation of Times

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 Cumulative Remedies

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each duty, obligation, right, and remedy to which they apply.

18.04 Limitation of Damages

A. With respect to all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 No Waiver

A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 Survival of Obligations

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 Controlling Law

A. This Contract is to be governed by the law of the State of Ohio.

18.08 Headings

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

18.09 Equal Employment Opportunity and Non-Discrimination.

A. The Contractor shall comply with and shall require all Subcontractors of any tier to comply with, the applicable equal employment opportunity and non-discrimination statute and regulations of the State of Ohio.

18.10 Severability

A. If any provision of this Agreement is held invalid, illegal or unenforceable in any respect, the remainder of the terms, provisions, covenants and restrictions set forth in this Agreement shall in no way be affected, impaired or invalidated. With respect to any invalidated provision of this Agreement, the parties shall negotiate and in good faith agree to such amendments, modifications or supplements to this Agreement, and shall, to the maximum extent practicable, implement and give effect to the intentions of the parties in this Agreement.

18.11 Assignment

A. No assignment of this Agreement by Contractor is permitted or authorized without the express written consent of Owner.

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SECTION 00800

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions (Modified EJCDC 2013 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

TABLE OF ARTICLES

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

ARTICLE 2 – PRELIMINARY MATTERS

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

ARTICLE 6 – BONDS AND INSURANCE

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-1.01 Defined Terms

Add to the list of definitions in Paragraph 1.01.A by inserting the following as numbered items in their proper alphabetical positions:

1. *Water Reclamation Manger* – The person employed by the Owner to operate, supervise and otherwise control the existing water reclamation facilities.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.03 *Subsurface and Physical Conditions*

A. No reports of exploration or tests of subsurface conditions at or adjacent to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to the Owner.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.03 Contractor's Insurance:

Add the following new paragraphs immediately after Paragraph 6.03.A.4 of the General Conditions, which is to read as follows:

2. Policy shall contain a waiver of subrogation in favor of The Board of County Commissioners of Montgomery County, Ohio, Montgomery County Environmental Services, and [enter the appropriate elected officials, departments and agencies].

3. Contractor's subcontractor(s) shall be subject to the same minimum requirements identified in this section.

Replace Paragraph 6.03.C.7 with the following:

4. Additional insured forms should be CG 20 10 11 85 or CG 20 10 10 01 or 04 13 and CG 20 37 07 04 or an equivalent.

Add the following new paragraphs immediately after Paragraph 6.03.C.9 of the General Conditions, which is to read as follows:`

5. The policy shall be endorsed to include the following additional insured language: "The Board of County Commissioners, Montgomery County, Ohio, Montgomery County Environmental Services, and [consulting engineer and funding source] shall be named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of the Contractor, including completed operations."

6. Coverage shall be primary and non-contributory. Associated bid number, job number, or project number should be referenced on the certificate.

7. The policy should contain an unintentional failure to disclose endorsement.

8. Policy should be endorsed with Notice of Occurrence-CEO, President, CFO, Risk Manager or General Counsel wording.

9. Associated bid number, job number, or project number should be referenced on the certificate of insurance.

10. General liability should be aggregate per location if construction activities are involved.

11. Contractor's subcontractor shall be subject to the same minimum requirements identified above.

Add the following new paragraphs immediately after Paragraph 6.03.C.16 if the Project is funded by WPCLF

12. Coverage should include the collapse or damage to any structure, building or its contents, public or private utility, or pavement during construction and for two (2) years thereafter.

13. Coverage under the policy shall also include all damage to underground utilities or structures during construction and for a period of two (2) years thereafter.

14. Coverage shall include all damages of any kind whatsoever caused by blasting.

Add the following new paragraphs immediately after Paragraph 6.03.D of the General Conditions, which is to read as follows:

15. The policy shall be endorsed to include the following additional insured language: "The Board of County Commissioners of Montgomery County, Ohio, Montgomery County Environmental Services, and [consulting engineer and funding source] shall be named as an additional insured with respect to liability arising out of the activities performed by or on behalf of the Contractor, including automobiles owned, leased, hired, or borrowed by the Contractor."

16. Coverage shall be primary and non-contributory.

17. Contractor's subcontractor shall be subject to the same minimum requirements identified above.

18. Associated bid number, job number, or project number should be referenced on the certificate.

19. The policy should include a notice of occurrence endorsement – CEO, President, CFO, Risk Manager, or General Counsel.

Add the following new paragraphs immediately after Paragraph 6.03.E of the General Conditions, which is to read as follows:

20. The policy shall be endorsed to include the following additional insured language: "The Board of County Commissioners of Montgomery County, Ohio, Montgomery County Environmental Services, and [consulting engineer and funding source] shall be named as an additional insured with respect to liability arising out of the activities performed by or on behalf of the Contractor, including automobiles owned, leased, hired, or borrowed by the Contractor."

Add the following new paragraphs immediately after Paragraph 6.03.I.2 of the General Conditions, which is to read as follows:

a. Contractor's Commercial General Liability Insurance. For the Commercial General Liability Insurance required under Article 6 of the General Conditions, Contractor shall provide coverage with limits of liability not less than those stated below:

For Projects less than $10,000,000

General Aggregate	$2,000,000
Products Completed Operations	$1,000,000
Personal and Advertising Injury	$1,000,000
Each Occurrence	$1,000,000

For Projects from $10,000,000 to $29,999,999.99

General Aggregate	$3,000,000
Products Completed Operations	$3,000,000
Personal and Advertising Injury	$3,000,000
Each Occurrence	$3,000,000

For Projects from $30,000,000 to $49,999,999

General Aggregate	$5,000,000
Products Completed Operations	$5,000,000
Personal and Advertising Injury	$5,000,000
Each Occurrence	$5,000,000

For Projects from $50,000,000 to $100,000,000

General Aggregate	$7,000,000
Products Completed Operations	$7,000,000
Personal and Advertising Injury	$7,000,000
Each Occurrence	$7,000,000

b. Automobile Liability.

Combined Single Limit of	$1,000,000

c. Workers' Compensation and Employers' Liability Insurance:

1) State:	Statutory
2) Applicable Federal (e.g., Longshoreman's):	Statutory

3) Employer's Liability: Contractor shall maintain Workers' Compensation and Employer's Liability Insurance. Employers' Liability Insurance Limits shall not be less than:

Each Accident	$1,000,000
Disease – Each Employee	$1,000,000
Disease – Policy Limit	$1,000,000

Add the following new paragraphs immediately after Paragraph 6.03.L of the General Conditions, which is to read as follows:

M. Railroad Protective Liability Insurance

21. If any of the work under this Contract is on railroad R/W, the Contractor shall at its sole cost and expense procure and provide, for and on behalf of each railroad company:

    Protective Liability Insurance (AARAASHO Form)

    Bodily injury, death and/or property damage

Per Occurrence	$2,000,000
Aggregate per annum	$6,000,000

22. Policy shall name each railroad company as the insured and be issued to the Contractor.

23. Each railroad company shall be provided with a copy of each policy of insurance prior to the commencement of any work.

SC-6.04 Property Insurance:

Replace Paragraph 6.04.A.1 with the following:

24. include the Board of County Commissioners of Montgomery County, Ohio, Montgomery County Environmental Services, [consulting engineer and funding source], Contractor, and all Subcontractors, and any individuals or entities required by the Contract Documents to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.04, Paragraphs 6.05 and 6.06, and any corresponding sections in the Contract Documents, the parties required to be insured shall collectively be referred to as "insureds."

Replace Paragraph 6.04.A.2 with the following:

25. be written on a builder's risk "all risk" policy form, replacement cost basis that shall at least include insurance for physical loss or damage to the Work, soft costs, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Contract Documents. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially

available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

Add the following to the end of Paragraph 6.04.A.7:

Policy shall be endorsed such that the insurance shall not be canceled or lapse because of any partial use or occupancy by the County.

Replace Paragraph 6.04.A.8 with the following:

26. contain a waiver of subrogation in favor of The Board of County Commissioners of Montgomery County, Ohio and [enter the appropriate elected officials, departments and agencies].

Replace Paragraph 6.04.A.13 with the following:

27. be maintained until whichever of the following shall first occur: (1) final payment has been made; or, (2) until no person or entity, other than the Board of County Commissioners of Montgomery County, Ohio, has an insurable interest in the property required to be covered.

Add the following new paragraphs immediately after paragraph 6.04.A.13 of the General Conditions which is to read as follows:

28. include testing coverage that may be required.

29. require Contractor's subcontractor to be subject to the same minimum requirements identified in this section.

Replace Paragraph 6.04.D with the following:

D. *Notice of Cancellation or Change*: All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.04 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured. Policy must provide coverage from the time any covered property becomes the responsibility of the Contractor, and continue without interruption during construction, renovation, or installation, including any time during which the covered property is being transported to the construction installation site, or awaiting installation, whether on or off site.

Replace Paragraph 6.04.E with the following:

E. The Contractor shall pay for costs not covered because of the application of a policy deductible. The deductible shall not exceed $1,000.

SC-6.05 Waiver of Rights

Replace Paragraph 6.05.B with the following:

B. Not used.

SC-6.07 Additional Insurance Requirements

Add the following new paragraphs immediately after paragraph 6.06.C of the General Conditions which is to read as follows:

A. *Additional Insurance Requirements*: On insurance policies where the Board of County Commissioners of Montgomery County, Ohio, Montgomery County Environmental Services, and SPGB Architects, LLC, are named as an additional insured, the Board of County Commissioners of Montgomery County, Ohio, Montgomery County Environmental Services, and SPGB Architects, LLC shall be an additional insured to the full limits of liability purchased by the Contractor even if those limits of liability are in excess of those required by this Contract.

B. The Contractor's insurance coverage shall be primary insurance and non-contributory with respect to all other available sources.

C. *Notice of Cancellation*: Each insurance policy required by the insurance provisions of this Contract shall provide the required coverage and shall not be suspended, voided, or canceled except after sixty (60) days prior written notice has been given to the County, except when cancellation is for non-payment of premium, then ten (10) days prior notice may be given. Such notice shall be sent directly to Montgomery County Environmental Services, 1850 Spaulding Road, Kettering, Ohio 45432, Attn: Dave Hackett.

D. *Acceptability of Insurers*: Insurance is to be placed with insurers duly licensed or authorized to do business with the Board of County Commissioners of Montgomery County, Ohio, Montgomery County Environmental Services, and SPGB Architects, LLC with an "A.M. Best" rating of not less than A-IX. The County in no way warrants that the above-required minimum insurer rating is sufficient to protect the Contractor from potential insurer insolvency.

E. *Verification of Coverage*: Contractor shall furnish the County with three (3) certificates of insurance (ACORD form or equivalent approved by the County) as required by this Contract. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf or, whenever specifically requested the County, three (3) certified copies of the insurance policies themselves and a receipt of evidence of full payment of the premiums.

30. All certificates and any required endorsements are to be received and approved by the County before work commences. Each insurance policy required by this Contract must be in effect at or prior to commencement of work under this Contract and remain in effect for the duration of the project. Failure to maintain the insurance policies as required by this Contract or to provide evidence of renewal is a material breach of contract.

31. All certificates required by this Contract shall be sent directly to Montgomery County Environmental Services, 1850 Spaulding Road, Kettering, Ohio 45432, Attn: [Project Manager's Name]. The County project/contract number and project description shall be noted on the certificate of insurance. The County reserves the right to require complete, certified copies of all insurance policies required by this Contract at any time. DO NOT SEND CERTIFICATES OF INSURANCE TO THE COUNTY'S RISK MANAGEMENT DEPARTMENT.

F. *Subcontractors*: Contractors' certificate(s) shall include all subcontractors as additional insureds under its policies or subcontractors shall maintain separate insurance as determined by the Contractor, however, subcontractor's limits of liability shall not be less than $1,000,000 per occurrence / $2,000,000 aggregate.

G. *Approval*: Any modification or variation from the insurance requirements in this Contract shall be made by the Montgomery County Risk Management Department or the Montgomery

County Prosecutor's Office, whose decision shall be final. Such action will not require a formal Contract amendment but may be made by administrative action.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.06 Concerning Subcontractors, Suppliers and Others:

Add the following new paragraph immediately after Paragraph 7.06.O.2 of the General Conditions, which is to read as follows:

P. Within five (5) days after Bid opening, each apparent Successful Bidder shall submit a list of all major Subcontractors and Suppliers for portions of the Work exceeding $1,000. The list shall be accompanied by an experience statement and other evidence of qualification to perform the Work, a description of the Work to be performed and the approximate dollar amount of the Work for each listed Subcontractor or Supplier.

SC-7.10 Laws and Regulations:

Add the following new paragraphs immediately after Paragraph 7.10.D of the General Conditions, which is to read as follows:

E. The Contractor, at its sole cost, agrees to comply with all applicable federal, state, and local laws in the conduct of work hereunder. The Contractor accepts full responsibility for payment of all unemployment compensation insurance premiums, workers' compensation premiums, benefits as mandated by the Patient Protection and Affordable Care Act (PPACA), all income tax deductions, pension deductions, prevailing wages, if applicable, and any and all other taxes or payroll deductions required for the Contractor and all employees engaged by the Contractor for the performance of the work authorized by this Agreement. The costs of any health insurance benefits required by the PPACA shall be the responsibility of the Contractor and shall not be billed directly to the Owner. The Contractor shall comply with the requirements of the PPACA and any and all associated costs and/or penalties. It shall be the responsibility of the Contractor to report, track and determine employee hours that are eligible to be offered insurance benefits.

F. Submit all required Prevailing Wage reports to:

Montgomery County Environmental Services
1850 Spaulding Road
Kettering, Ohio 45432
Attn: Dave Hackett

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SECTION 00830

PREVAILING RATES OF WAGE

The State of Ohio prevailing wages shall apply to this new construction project per Ohio Revised Code 4115. Copies of these wage rates as of October 14, 2026 are attached to this Section. Current wage rates can be obtained through the Ohio Department of Commerce (http://www.com.ohio.gov/dico/). CONTRACTOR shall post copies of the prevailing wage rate schedule at the project site, and provide any subcontractor with copies of the latest prevailing wage rates.

END OF SECTION

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Prevailing Wage Rate
Skilled Crafts

Name of Union: Asbestos Local 207

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Asbestos Worker	7/8/2026	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, Shefield, Trumbull, Wayne, Williamsfield & Windsor)

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

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

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

Details :

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

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

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

Prevailing Wage Rate
Skilled Crafts

Name of Union: Asbestos Local 50 Heat & Frost Insulators

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Asbestos Worker	7/15/2026	7/15/2026

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

(*)Special Calculation Note :

Ratio :

1 Journeymen to 1 Apprentice
4 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

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

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Boilermaker Local 105

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN02-2013fb	Boilermaker	10/1/2013	10/1/2013

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

(*)Special Calculation Note :

Other is Supplemental Health and Welfare

Ratio :

5 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Bricklayer Local 23 (Dayton Tile Finisher)

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2024ib	Bricklayer	7/1/2024	7/1/2024

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Bricklayer Tile Marble Terrazzo Finisher	$27.78		$3.70	$6.86	$0.49	$0.00	$0.00	$0.00	$0.00	$0.00	$38.83	$52.72
Base Machine	$28.28		$3.70	$6.86	$0.49	$0.00	$0.00	$0.00	$0.00	$0.00	$39.33	$53.47
Apprentice	BHR	Percent										
1st 6 months 0-600 hrs	$16.67	$60.00	$3.70	$0.00	$0.49	$0.00	$0.00	$0.00	$0.00	$0.00	$20.86	$29.19
2nd 6 months 601-1200 hrs	$18.06	$65.00	$3.70	$0.00	$0.49	$0.00	$0.00	$0.00	$0.00	$0.00	$22.25	$31.28
3rd 6 months 1201-1800 hrs	$19.45	$70.00	$3.70	$6.86	$0.49	$0.00	$0.00	$0.00	$0.00	$0.00	$30.50	$40.22
4th 6 months 1801-2400	$20.84	$75.02	$3.70	$6.86	$0.49	$0.00	$0.00	$0.00	$0.00	$0.00	$31.89	$42.31
5th 6 months 2401-3000 hrs	$22.22	$80.00	$3.70	$6.86	$0.49	$0.00	$0.00	$0.00	$0.00	$0.00	$33.27	$44.39
6th 6 months 3001-3600 hrs	$25.00	$90.00	$3.70	$6.86	$0.49	$0.00	$0.00	$0.00	$0.00	$0.00	$36.05	$48.55
TMT Helper - May enter Apprentice Program after 90 day completio nr	$	$	$	$	$	$	$	$	$	$	$	$
First 90 Days	$12.50	$45.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$12.50	$18.75

(*)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. ***Medical Savings Account***: The Medical Savings Account can only be deducted providing employee shows proof voluntary enrollment in the program. Minimum contribution of $1.00 per hourworked with no maximum.

Ratio :

1 Journeyman 1 Apprentice 5 Journeyman 1 Apprentice 10 Journeyman 2 Apprentice 15Journeyman 3 Apprentice 20 Journeyman 4 Apprentice 25 Journeyman 5 Apprentice 8 Employees 1 Helper

Jurisdiction (* denotes special jurisdictional note) :

Auglaize, Champaign, Clark, Clinton, Darke, Greene, Hardin, Highland, Logan, Mercer, Miami, Montgomery, Preble*, Shelby

Special Jurisdictional Note :

In Preble County the following townships are included: (Jackson, Monroe, Harrison, Twin and Washington)

Details :

Tile Layer Finishers shall do mixing of mortars & adhesives,cleaning & grouting of tile,unloading of all trucks,unpacking & handling of all tile & materials such as sand,lime,cement,tile,& all types of tile panels, prefabricated on job site. Marble Setter Finishers shall do all cleaning,waxing & polishing,grouting and pointing.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Bricklayer Local 23 (Dayton Tile Mechanic)

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Bricklayer	7/1/2026	7/1/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Bricklayer Tile Marble Terrazzo Mechanics	$34.81		$10.07	$7.29	$0.68	$0.00	$0.00	$0.00	$0.00	$0.00	$52.85	$70.25
Terrazzo Worker	$30.98		$10.07	$7.29	$0.68	$0.00	$0.00	$0.00	$0.00	$0.00	$49.02	$64.51
Apprentice	BHR	Percent										
1st 6 Months	$20.89	$60.00	$10.07	$7.29	$0.68	$0.00	$0.00	$0.00	$0.00	$0.00	$38.93	$49.38
2nd 6 Months	$22.63	$65.00	$10.07	$7.29	$0.68	$0.00	$0.00	$0.00	$0.00	$0.00	$40.67	$51.98
3rd 6 Months	$24.37	$70.00	$10.07	$7.29	$0.68	$0.00	$0.00	$0.00	$0.00	$0.00	$42.41	$54.59
4th 6 Months	$26.11	$75.00	$10.07	$7.29	$0.68	$0.00	$0.00	$0.00	$0.00	$0.00	$44.15	$57.20
5th 6 months	$27.85	$80.00	$10.07	$7.29	$0.68	$0.00	$0.00	$0.00	$0.00	$0.00	$45.89	$59.82
6th 6 months	$29.59	$85.00	$10.07	$7.29	$0.68	$0.00	$0.00	$0.00	$0.00	$0.00	$47.63	$62.42
7th 6 months	$31.33	$90.00	$10.07	$7.29	$0.68	$0.00	$0.00	$0.00	$0.00	$0.00	$49.37	$65.03
8th 6 months	$33.07	$95.00	$10.07	$7.29	$0.68	$0.00	$0.00	$0.00	$0.00	$0.00	$51.11	$67.65

(*)Special Calculation Note :

Ratio :

5 Journeymen to 1 Apprentice
10 Journeymen to 2 Apprentice
15 Journeymen to 3 Apprentice
20 Journeymen to 4 Apprentice
25 Journeymen to 5 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Champaign, Clark, Clinton, Darke, Greene, Highland, Logan, Miami, Montgomery, Preble*, Shelby

Special Jurisdictional Note :

In Preble County the following townships are included: (Jackson, Jefferson, Monroe, Harrison, Twin and Washington)

Details :

**(Tile layers work)the laying, cutting or setting of all tile where used for floors, walls, ceilings, walks, promenade roofs, stair treads, stair risers, facings, hearths, fireplaces & decorative inserts together with any marble plinths, thresholds or window stools used in connection with any tile work. The building, shaping forming construction or repairing of all fireplace work, whether in connection with a mantel hearth facing or not, & the setting & preparing of all material such as cement, plaster, mortar, brickwork, iron work or other materials necessary for the proper, safe construction & completion of such work: except that a mantel made exclusively of brick, marble or stone shall be conceded to be bricklayers, marble setters or stonemasons' work respectively. **Marble, mosaic, venetian enamel & terrazzo. Cutting and assembling of mosaics. All rolling of terrazzo work. **Caulking of all expansion, perimeter & angle joints shall be the exclusive work of the tile mechanic. **Marble masons shall consist of carving, cutting & setting of all marble, slate (including blackboards) stone, albereen, carrara, sanionyx, vitrolite & similar opaque glass, scagliola, what ever thickness or dimension.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Bricklayer Local 23 (Dayton)

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Bricklayer	6/17/2026	6/17/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Bricklayer Stone Mason Refractory	$35.85		$11.00	$8.09	$0.72	$0.00	$0.50	$0.00	$0.00	$0.00	$56.16	$74.09
Pointer/Caulker/Cleaner	$35.85		$11.00	$8.09	$0.72	$0.00	$0.50	$0.00	$0.00	$0.00	$56.16	$74.09
Improver Apprentices 25 day probationary period then	$		$	$	$	$	$	$	$	$	$	$
1st 6 months	$23.30		$11.00	$0.00	$0.57	$0.00	$0.50	$0.00	$0.00	$0.00	$35.37	$47.02
2nd 6 months	$26.89		$11.00	$0.00	$0.57	$0.00	$0.50	$0.00	$0.00	$0.00	$38.96	$52.41
3rd 6 months	$30.47		$11.00	$6.49	$0.57	$0.00	$0.50	$0.00	$0.00	$0.00	$49.03	$64.27
4th 6 months	$34.06		$11.00	$6.49	$0.57	$0.00	$0.50	$0.00	$0.00	$0.00	$52.62	$69.65
Apprentice	BHR	Percent										
1st 6 months	$25.10	$70.02	$11.00	$0.00	$0.62	$0.00	$0.50	$0.00	$0.00	$0.00	$37.22	$49.77
2nd 6 months	$26.53	$74.00	$11.00	$0.00	$0.62	$0.00	$0.50	$0.00	$0.00	$0.00	$38.65	$51.91
3rd 6 months	$27.96	$78.00	$11.00	$6.79	$0.62	$0.00	$0.50	$0.00	$0.00	$0.00	$46.87	$60.85
4th 6 months	$29.40	$82.00	$11.00	$6.79	$0.62	$0.00	$0.50	$0.00	$0.00	$0.00	$48.31	$63.01
5th 6 months	$30.83	$86.00	$11.00	$6.79	$0.62	$0.00	$0.50	$0.00	$0.00	$0.00	$49.74	$65.16
6th 6 months	$32.27	$90.00	$11.00	$6.79	$0.62	$0.00	$0.50	$0.00	$0.00	$0.00	$51.18	$67.31
7th 6 months	$33.70	$94.00	$11.00	$6.79	$0.62	$0.00	$0.50	$0.00	$0.00	$0.00	$52.61	$69.46
8th 6 months	$35.13	$98.00	$11.00	$6.79	$0.62	$0.00	$0.50	$0.00	$0.00	$0.00	$54.04	$71.61
Mason Trainee 1-90 Days	$16.13	$45.00	$0.00	$0.00	$0.00	$0.00	$0.50	$0.00	$0.00	$0.00	$16.63	$24.70
91-365 Days	$16.13	$45.00	$11.00	$0.00	$0.00	$0.00	$0.50	$0.00	$0.00	$0.00	$27.63	$35.70
2nd Year	$17.93	$50.00	$11.00	$0.00	$0.00	$0.00	$0.50	$0.00	$0.00	$0.00	$29.43	$38.39

(*)Special Calculation Note :

Apprentice and Apprentice Improver - Health and Welfare after 30 days
Mason Trainees - Health and Welfare after 90 days

Ratio :

Bricklayer Stone Mason Refractory Worker:
1-2 Journeymen to 1 Apprentice
3-4 Journeymen to 2 Apprentice
5-6 Journeymen to 2 Apprentice
7-10 Journeymen to 3 Apprentice

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

In order to utilize a Pre-Apprentice, you must have 1 registered apprentice in your employ.
Ratio of Improver Apprentices to Journeymen in no case shall their be no more than 1 Improver Apprentice to 6 Journeymen

Jurisdiction (* denotes special jurisdictional note) :

Champaign, Clark, Clinton, Darke, Greene, Highland, Logan, Miami, Montgomery, Preble*, Shelby

Special Jurisdictional Note :

In Preble County the following townships are included: Jackson, Monroe, Harrison, Twin, Jefferson and Washington

Details :

Apprentice Ratio's covers: Bricklayer, Stone Mason, Refractory worker and Pointer, Cleaner, Caulker

Prevailing Wage Rate
Skilled Crafts

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

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN02-2026ib	Bricklayer	6/10/2026	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, 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: Bricklayer Local 23 Heavy Hwy (B)

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN02-2026ib	Bricklayer	6/10/2026	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 Amusement Parks B	$36.31		$10.71	$10.14	$0.60	$0.00	$1.80	$0.00	$0.00	$0.00	$59.56	$77.72
Apprentice	BHR	Percent										
1st year	$25.42	$70.00	$10.71	$10.14	$0.60	$0.00	$1.80	$0.00	$0.00	$0.00	$48.67	$61.38
2nd year	$29.05	$80.00	$10.71	$10.14	$0.60	$0.00	$1.80	$0.00	$0.00	$0.00	$52.30	$66.83
3rd year	$32.68	$90.00	$10.71	$10.14	$0.60	$0.00	$1.80	$0.00	$0.00	$0.00	$55.93	$72.27

(*)Special Calculation Note :

This rate is not for building construction.

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

Ratio :

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

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

Details :

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

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

Prevailing Wage Rate
Skilled Crafts

Name of Union: Carpenter & Pile Driver SW District HevHwy

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Carpenter	5/1/2026	5/1/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Journeyman	$37.49		$10.31	$6.95	$0.80	$0.00	$6.87	$0.15	$0.00	$0.00	$62.57	$81.31
Apprentice	BHR	Percent										
1st 6 Months	$26.24	$70.00	$10.31	$6.95	$0.80	$0.00	$6.87	$0.15	$0.00	$0.00	$51.32	$64.44
2nd 6 Months	$26.24	$70.00	$10.31	$6.95	$0.80	$0.00	$6.87	$0.15	$0.00	$0.00	$51.32	$64.44
3rd 6 Months	$29.99	$80.00	$10.31	$6.95	$0.80	$0.00	$6.87	$0.15	$0.00	$0.00	$55.07	$70.06
4th 6 Months	$29.99	$80.00	$10.31	$6.95	$0.80	$0.00	$6.87	$0.15	$0.00	$0.00	$55.07	$70.06
5th 6 Months	$33.74	$90.00	$10.31	$6.95	$0.80	$0.00	$6.87	$0.15	$0.00	$0.00	$58.82	$75.69
6th 6 Months	$33.74	$90.00	$10.31	$6.95	$0.80	$0.00	$6.87	$0.15	$0.00	$0.00	$58.82	$75.69
7th 6 Months	$35.62	$95.00	$10.31	$6.95	$0.80	$0.00	$6.87	$0.15	$0.00	$0.00	$60.70	$78.51
8th 6 Months	$35.62	$95.00	$10.31	$6.95	$0.80	$0.00	$6.87	$0.15	$0.00	$0.00	$60.70	$78.51

(*)Special Calculation Note :

Other: UBC National Fund

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

Ratio :

1 Journeymen to 1 Apprentice

An employer shall have the right to employ one (1) Apprentice for one (1) Journeyman Carpenter in its employment for the first Apprentice employed, and 1 (1) Apprentice for two (2) Journeyman Carpenter for additional Apprentices employed. Thereafter, every third additional carpenter hired shall be an apprentice, if available, and if practical for the type of work being performed.

Jurisdiction (* denotes special jurisdictional note) :

Brown, Butler, Champaign, Clark, Clermont, Clinton, Darke, Greene, Hamilton, Logan, Miami, Montgomery, Preble, Shelby, Warren

Special Jurisdictional Note :

Details :

Highway Construction, Airport Construction, Heavy Construction but not limited to: (tunnels, subways, drainage projects, flood control, reservoirs).
Railroad Construction, Sewer Waterworks & Utility Construction but not limited to: (storm sewers, waterlines, gas lines).
Industrial & Building Site, Power Plant, Amusement Park, Athletic Stadium Site, Sewer and Water Plants.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Carpenter & Pile Driver SW Zone 1

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Carpenter	6/10/2026	6/10/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter & Piledriver	$34.59		$10.03	$6.95	$0.80	$0.00	$4.28	$0.17	$0.00	$0.00	$56.82	$74.12
Apprentice	BHR	Percent										
1st 6 Months	$24.21	$70.00	$10.03	$2.00	$0.80	$0.00	$4.28	$0.17	$0.00	$0.00	$41.49	$53.59
2nd 6 Months	$24.21	$70.00	$10.03	$2.00	$0.80	$0.00	$4.28	$0.17	$0.00	$0.00	$41.49	$53.59
3rd 6 Months	$27.67	$80.00	$10.03	$5.56	$0.80	$0.00	$4.28	$0.17	$0.00	$0.00	$48.51	$62.35
4th 6 Months	$27.67	$80.00	$10.03	$5.56	$0.80	$0.00	$4.28	$0.17	$0.00	$0.00	$48.51	$62.35
5th 6 Months	$31.13	$90.00	$10.03	$6.26	$0.80	$0.00	$4.28	$0.17	$0.00	$0.00	$52.67	$68.23
6th 6 Months	$31.13	$90.00	$10.03	$6.26	$0.80	$0.00	$4.28	$0.17	$0.00	$0.00	$52.67	$68.23
7th 6 Months	$32.86	$95.00	$10.03	$6.60	$0.80	$0.00	$4.28	$0.17	$0.00	$0.00	$54.74	$71.17
8th 6 Months	$32.86	$95.00	$10.03	$6.60	$0.80	$0.00	$4.28	$0.17	$0.00	$0.00	$54.74	$71.17

(*)Special Calculation Note :

Other is for UBC National Fund

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Champaign, Clark, Darke, Greene, Logan, Miami, Montgomery, Preble, Shelby

Special Jurisdictional Note :

Details :

Carpenter 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. pile butts is defined as sheeting or scrap piling. Underwater work that may be required in connection with the installation of piling. The diver 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. 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 the 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: Carpenter Locals 2 & 136 Floorlayer SW

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Carpenter

Effective Date:
9/9/2026

Effective Date:
9/9/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter Floorlayer	$32.62		$10.22	$6.95	$0.80	$0.00	$4.04	$0.18	$0.00	$0.00	$54.81	$71.12
Apprentice	BHR	Percent										
1st 6 months	$22.83	$70.00	$10.22	$2.00	$0.80	$0.00	$4.04	$0.18	$0.00	$0.00	$40.07	$51.48
2nd 6 months	$22.83	$70.00	$10.22	$2.00	$0.80	$0.00	$4.04	$0.18	$0.00	$0.00	$40.07	$51.48
3rd 6 months	$26.10	$80.00	$10.22	$5.56	$0.80	$0.00	$4.04	$0.18	$0.00	$0.00	$46.90	$59.95
4th 6 months	$26.10	$80.00	$10.22	$5.56	$0.80	$0.00	$4.04	$0.18	$0.00	$0.00	$46.90	$59.95
5th 6 months	$29.36	$90.00	$10.22	$6.26	$0.80	$0.00	$4.04	$0.18	$0.00	$0.00	$50.86	$65.54
6th 6 months	$29.36	$90.00	$10.22	$6.26	$0.80	$0.00	$4.04	$0.18	$0.00	$0.00	$50.86	$65.54
7th 6 months	$30.99	$95.00	$10.22	$6.60	$0.80	$0.00	$4.04	$0.18	$0.00	$0.00	$52.83	$68.33
8th 6 months	$30.99	$95.00	$10.22	$6.60	$0.80	$0.00	$4.04	$0.18	$0.00	$0.00	$52.83	$68.33

(*)Special Calculation Note :

Other: UBC National Fund and Install

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Brown, Butler, Champaign, Clark, Clermont, Clinton, Darke, Greene, Hamilton, Logan, Miami, Montgomery, Preble, Shelby, Warren

Special Jurisdictional Note :

Details :

Scope of work shall include, but not be limited to: receiving,unloading,handling,distribution and installation of all carpeting materials,carpet padding or matting materials and all resilient materials whether for use on walls, floors,counter, sink,table and all preparation work necessary in connection therewith, including sanding work. the installation of nonstructural under-layment and the work of removing, cleaning waxing of any of the above. Carpeting shall include any floor covering composed of either natural or synthetic fibers that are made in breadths to be sewed, fastened or directly glued to floors or over cushioning sound-proofing materials.Resilient Floors shall consist of and include the laying of all special designs of wood,wood block, wood composition, cork, linoleum, asphalt, mastic, plastic, rubber tile,whether nailed or glued.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Carpenter Millwright Local 1090 SW Zone II

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2025ib	Carpenter	9/10/2025	9/10/2025

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter Millwright	$36.42		$9.18	$6.95	$0.72	$0.00	$8.24	$0.19	$0.00	$0.00	$61.70	$79.91
Apprentice	BHR	Percent										
1st 6 months	$25.49	$70.00	$9.18	$4.87	$0.72	$0.00	$5.77	$0.19	$0.00	$0.00	$46.22	$58.97
2nd 6 months	$25.49	$70.00	$9.18	$4.87	$0.72	$0.00	$5.77	$0.19	$0.00	$0.00	$46.22	$58.97
3rd 6 months	$29.14	$80.00	$9.18	$5.56	$0.72	$0.00	$6.59	$0.19	$0.00	$0.00	$51.38	$65.95
4th 6 months	$29.14	$80.00	$9.18	$5.56	$0.72	$0.00	$6.59	$0.19	$0.00	$0.00	$51.38	$65.95
5th 6 months	$32.78	$90.00	$9.18	$6.26	$0.72	$0.00	$7.42	$0.19	$0.00	$0.00	$56.55	$72.94
6th 6 months	$32.78	$90.00	$9.18	$6.26	$0.72	$0.00	$7.42	$0.19	$0.00	$0.00	$56.55	$72.94
7th 6 months	$34.60	$95.00	$9.18	$6.60	$0.72	$0.00	$7.83	$0.19	$0.00	$0.00	$59.12	$76.42
8th 6 months	$34.60	$95.00	$9.18	$6.60	$0.72	$0.00	$7.83	$0.19	$0.00	$0.00	$59.12	$76.42

(*)Special Calculation Note :

Other ($0.19) $0.14 National Fund and $0.05 for National Millwright Fund.

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Champaign, Clark, Darke, Greene, Logan, Miami, Montgomery, Preble, Shelby

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Cement Mason Local 132 (Dayton)

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Cement Mason

Effective Date:
6/1/2026

Effective Date:
6/1/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Cement Mason	$35.15		$8.95	$7.35	$0.85	$0.00	$2.35	$0.06	$0.00	$0.00	$54.71	$72.28
Apprentice	BHR	Percent										
1st Year	$24.61	$70.02	$8.95	$7.35	$0.85	$0.00	$2.35	$0.06	$0.00	$0.00	$44.17	$56.47
2nd Year	$28.12	$80.00	$8.95	$7.35	$0.85	$0.00	$2.35	$0.06	$0.00	$0.00	$47.68	$61.74
3rd Year	$31.64	$90.02	$8.95	$7.35	$0.85	$0.00	$2.35	$0.06	$0.00	$0.00	$51.20	$67.02

(*)Special Calculation Note :

Other: International Training Fund

Cement Masons on outrigger, swing or hanging scaffolds, manlifts:
$0.75 per hour above scale up to twenty-five (25) feet and $0.75 per hour for each additional twenty-five (25) feet or part of same.

Cement Mason operating a grinder: $0.30 per hour above the journeyman scale.

Ratio :

2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Champaign, Clark, Clinton, Darke, Greene, Miami, Montgomery, Preble, Shelby

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

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

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Cement Mason	5/1/2026	5/1/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Cement Mason	$39.18		$9.30	$7.65	$0.75	$0.00	$2.45	$0.08	$0.00	$0.00	$59.41	$79.00
Apprentice	BHR	Percent										
1st Year	$27.43	$70.00	$9.30	$7.65	$0.75	$0.00	$2.45	$0.08	$0.00	$0.00	$47.66	$61.38
2nd Year	$31.34	$80.00	$9.30	$7.65	$0.75	$0.00	$2.45	$0.08	$0.00	$0.00	$51.57	$67.24
3rd Year	$35.26	$90.00	$9.30	$7.65	$0.75	$0.00	$2.45	$0.08	$0.00	$0.00	$55.49	$73.12

(*)Special Calculation Note :

Other: International Training Fund

Ratio :

1 Journeyman to 1 Apprentice
2 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note) :

Champaign, Clark, Clinton, Darke, Greene, Miami, Montgomery, Preble, Shelby

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 71 DOT Traffic Signal Highway Lighting American Line Builders

Type of Rate: Commercial

Change #: LCN01-2025ib

Craft: Electrical

Effective Date: 6/4/2025

Effective Date: 6/4/2025

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lineman	$46.03		$7.50	$1.38	$0.46	$0.00	$9.20	$0.50	$0.00	$0.00	$65.07	$88.09
Traffic Signal & Lighting Journeyman	$44.43		$7.50	$1.33	$0.44	$0.00	$8.89	$0.50	$0.00	$0.00	$63.09	$85.31
Equipment Operator	$40.44		$7.50	$1.21	$0.40	$0.00	$8.09	$0.50	$0.00	$0.00	$58.14	$78.36
Groundman 0 to 12 months (W/O CDL)	$24.52		$7.50	$0.74	$0.25	$0.00	$4.90	$0.50	$0.00	$0.00	$38.41	$50.67
Groundman 0 to 12 Months (W CDL)	$26.78		$7.50	$0.80	$0.27	$0.00	$5.36	$0.50	$0.00	$0.00	$41.21	$54.60
Groundman greater than 1 year (W CDL)	$29.07		$7.50	$0.87	$0.29	$0.00	$5.81	$0.50	$0.00	$0.00	$44.04	$58.58
Traffic Apprentice	$		$	$	$	$	$	$	$	$	$	$
1st 1000 hrs	$26.66		$7.50	$0.80	$0.27	$0.00	$5.33	$0.50	$0.00	$0.00	$41.06	$54.39
2nd 1000 hrs	$28.88		$7.50	$0.87	$0.29	$0.00	$5.78	$0.50	$0.00	$0.00	$43.82	$58.26
3rd 1000 hrs	$31.10		$7.50	$0.93	$0.31	$0.00	$6.22	$0.50	$0.00	$0.00	$46.56	$62.11
4th 1000 hrs	$33.32		$7.50	$1.00	$0.33	$0.00	$6.66	$0.50	$0.00	$0.00	$49.31	$65.97
5th 1000 hrs	$35.54		$7.50	$1.07	$0.36	$0.00	$7.11	$0.50	$0.00	$0.00	$52.08	$69.85
6th 1000 hrs	$39.99		$7.50	$1.20	$0.40	$0.00	$8.00	$0.50	$0.00	$0.00	$57.59	$77.59
Apprentice	BHR	Percent										
1st 1,000 Hours	$27.62	$60.00	$7.50	$0.83	$0.28	$0.00	$5.52	$0.50	$0.00	$0.00	$42.25	$56.06
2nd 1,000 Hours	$29.92	$65.00	$7.50	$0.90	$0.30	$0.00	$5.98	$0.50	$0.00	$0.00	$45.10	$60.06
3rd 1,000 Hours	$32.22	$70.00	$7.50	$0.97	$0.32	$0.00	$6.44	$0.50	$0.00	$0.00	$47.95	$64.06
4th 1,000 Hours	$34.52	$75.00	$7.50	$1.04	$0.35	$0.00	$6.90	$0.50	$0.00	$0.00	$50.81	$68.07
5th 1,000 Hours	$36.82	$80.00	$7.50	$1.10	$0.37	$0.00	$7.36	$0.50	$0.00	$0.00	$53.65	$72.07

6th 1,000 Hours	$39.13	$85.00	$7.50	$1.17	$0.39	$0.00	$7.82	$0.50	$0.00	$0.00	$56.51	$76.07
7th 1,000 Hours	$41.43	$90.00	$7.50	$1.24	$0.41	$0.00	$8.28	$0.50	$0.00	$0.00	$59.36	$80.07

(*)Special Calculation Note :

Other: Health Reimbursement Account

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Auglaize, Champaign, Clark, Clinton, Darke, Greene, Logan, Mercer, Miami, Montgomery, Preble, Shelby

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. No more than three (3) Groundmen shall work alone. Jobs with more that three Groundmen shall be supervised by a Groundcrew Foreman, Journeyman Lineman, Journeyman Traffic Signal Technician or an Equipment 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
Groundman 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
Groundman 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
Groundman 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
Groundman 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 Technician	$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 then 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 then 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 Electrican	$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 Reimburstment 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: Electrical Local 82 Inside

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2025ib	Electrical	12/10/2025	12/10/2025

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrician	$39.40		$8.35	$10.23	$0.67	$0.00	$4.30	$0.00	$0.00	$0.00	$62.95	$82.65
Apprentice	BHR	Percent										
1st Period 0-1000 hrs	$18.12	$46.00	$4.78	$0.74	$0.31	$0.00	$0.00	$0.00	$0.00	$0.00	$23.95	$33.01
2nd Period 1001-2000 hrs	$18.12	$46.00	$4.78	$0.74	$0.31	$0.00	$0.00	$0.00	$0.00	$0.00	$23.95	$33.01
3rd Period 2001-3500 hrs	$19.70	$50.00	$7.73	$5.12	$0.33	$0.00	$2.15	$0.00	$0.00	$0.00	$35.03	$44.88
4th Period 3501-5000 hrs	$20.49	$52.00	$7.75	$5.32	$0.35	$0.00	$2.24	$0.00	$0.00	$0.00	$36.15	$46.39
5th Period 5001-6500 hrs	$24.43	$62.00	$7.88	$6.34	$0.42	$0.00	$2.67	$0.00	$0.00	$0.00	$41.74	$53.95
6th Period 6501-8000 hrs	$30.34	$77.00	$8.06	$7.88	$0.52	$0.00	$3.31	$0.00	$0.00	$0.00	$50.11	$65.28

(*)Special Calculation Note :

Ratio :

1-3 Journeymen to 4 Apprentices
4-6 Journeymen to 8 Apprentices
7-9 Journeymen to 12 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

Clinton, Darke, Greene, Miami, Montgomery, Preble, Warren*

Special Jurisdictional Note :

The following townships in Warren County are included: Clearcreek, Franklin and Wayne

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 82 Inside Lt Commercial South West

Type of Rate: Commercial

Change #: LCN01-2026ib

Craft: Electrical

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												
Electrician	$39.40		$8.35	$10.23	$0.67	$0.00	$4.30	$0.00	$0.00	$0.00	$62.95	$82.65
CE-3 10,001-12,000	$30.35		$6.99	$0.91	$0.96	$0.00	$0.91	$0.00	$0.00	$0.10	$40.22	$55.40
CE-2 9,001-10,000 Hrs	$24.28		$6.99	$0.73	$0.96	$0.00	$0.73	$0.00	$0.00	$0.10	$33.79	$45.93
CE-1 8,001-9,000 Hrs	$22.25		$6.99	$0.67	$0.96	$0.00	$0.67	$0.00	$0.00	$0.10	$31.64	$42.77
CW-4 6,001-8,000 Hrs	$20.23		$6.99	$0.61	$0.96	$0.00	$0.61	$0.00	$0.00	$0.10	$29.50	$39.61
CW-3 4,001-6,000 Hrs	$18.21		$6.99	$0.55	$0.96	$0.00	$0.55	$0.00	$0.00	$0.10	$27.36	$36.47
CW-2 2,001-4,000 Hrs	$17.20		$6.99	$0.52	$0.96	$0.00	$0.52	$0.00	$0.00	$0.10	$26.29	$34.89
CW-1 0-2,000 Hrs	$16.18		$6.99	$0.49	$0.96	$0.00	$0.49	$0.00	$0.00	$0.10	$25.21	$33.30
Apprentice	BHR	Percent										
1st period 0 - 1000 hrs	$18.12	$46.00	$4.78	$0.74	$0.31	$0.00	$0.00	$0.00	$0.00	$0.00	$23.95	$33.01
2nd period 1001-2000 hrs	$18.12	$46.00	$4.78	$0.74	$0.31	$0.00	$0.00	$0.00	$0.00	$0.00	$23.95	$33.01
3rd period 2001-3500 hrs	$19.70	$50.00	$7.73	$5.12	$0.33	$0.00	$2.15	$0.00	$0.00	$0.00	$35.03	$44.88
4th period 3501-5000 hrs	$20.49	$52.00	$7.75	$5.32	$0.35	$0.00	$2.24	$0.00	$0.00	$0.00	$36.15	$46.39
5th period 5001-6500 hrs	$24.43	$62.00	$7.88	$6.34	$0.42	$0.00	$2.67	$0.00	$0.00	$0.00	$41.74	$53.95
6th period 6501-8000 hrs	$30.34	$77.00	$8.06	$7.88	$0.52	$0.00	$3.31	$0.00	$0.00	$0.00	$50.11	$65.28

(*)Special Calculation Note :

Misc: Administrative Fees

Ratio :

1 to 3 Journeymen to 4 Apprentices
4 to 6 Journeymen to 8 Apprentices

Construction Electrician and Construction Wireman Ratio There shall be a minimum ratio of one inside Journeyman to every (4) employees of different classification 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) :

Clinton, Darke, Greene, Miami, Montgomery, Preble, Warren*

Special Jurisdictional Note :

The following townships in Warren County are included: Clearcreek, Franklin and Wayne.

Details :

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

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 82 Lightning Rod

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2025ib	Electrical	12/10/2025	12/10/2025

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lightning Rod Technician	$37.34		$8.35	$9.05	$0.00	$0.00	$4.05	$0.00	$0.00	$0.00	$58.79	$77.46
Apprentice	BHR	Percent										
	$	$	$	$	$	$	$	$	$	$	$	$

(*)Special Calculation Note :

No Apprentice approved by OSAC.

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

Clinton, Darke, Greene, Miami, Montgomery, Preble, Warren*

Special Jurisdictional Note :

The following townships in Warren County are included: Clearcreek, Franklin and Wayne

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 82 Voice Data Video

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2025ib	Electrical	12/10/2025	12/10/2025

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Installer Technician A	$29.20		$7.60	$9.13	$0.55	$0.00	$0.00	$0.00	$0.00	$0.00	$46.48	$61.08
Cable Puller	$16.06		$4.20	$0.48	$0.31	$0.00	$0.25	$0.00	$0.00	$0.00	$21.30	$29.33
Apprentice	BHR	Percent										
1st 0-1000 hours	$17.52	$60.00	$4.50	$5.48	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$27.83	$36.59
2nd 1001-2000 hours	$17.52	$60.00	$4.50	$5.48	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$27.83	$36.59
3rd 2001-3000 hours	$18.98	$65.00	$7.43	$5.93	$0.36	$0.00	$0.00	$0.00	$0.00	$0.00	$32.70	$42.19
4th 3001-4000 hours	$18.98	$65.00	$7.43	$5.93	$0.36	$0.00	$0.00	$0.00	$0.00	$0.00	$32.70	$42.19
5th 4001-5000 hours	$20.44	$70.00	$7.45	$6.39	$0.39	$0.00	$0.00	$0.00	$0.00	$0.00	$34.67	$44.89
6th 5001-6000 hours	$21.90	$75.00	$7.48	$6.85	$0.42	$0.00	$0.00	$0.00	$0.00	$0.00	$36.65	$47.60
7th 6001-7000 hours	$23.36	$80.00	$7.50	$7.30	$0.44	$0.00	$0.00	$0.00	$0.00	$0.00	$38.60	$50.28
8th 7001 hours	$24.82	$85.00	$7.53	$7.75	$0.47	$0.00	$0.00	$0.00	$0.00	$0.00	$40.57	$52.98

(*)Special Calculation Note :

Ratio :

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

Jurisdiction (* denotes special jurisdictional note) :

Clinton, Darke, Greene, Miami, Montgomery, Preble, Warren*

Special Jurisdictional Note :

The following townships in Warren County are included: Clearcreek, Franklin and Wayne

Details :

Work covered but not limited to: installation which utilize transmission and/or transference of voice, sound, vision or digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multimedia, multiplex, nurse call system, radio page, school intercom, sound and low voltage master clock systems.

Fire Alarm work is excluded on all new construction sites or wherever the fire alarm system is installed in conduit.

All HVAC control work is not covered by this wage rate but by the Inside Electrical wage rate.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Elevator Local 11

Type of Rate: Commercial

Change #: LCN01-2026ib

Craft: Elevator

Effective Date: 3/18/2026

Effective Date: 3/18/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Elevator Mechanic	$59.92		$16.37	$11.06	$0.85	$4.79	$10.70	$2.26	$0.00	$0.00	$105.95	$135.91
Apprentice	BHR	Percent										
Probationary Apprentice	$29.96	$50.00	$0.00	$0.00	$0.00	$1.80	$0.00	$0.00	$0.00	$0.00	$31.76	$46.74
1st year	$32.96	$55.00	$16.37	$11.06	$0.85	$1.98	$10.70	$1.24	$0.00	$0.00	$75.16	$91.64
2nd year	$38.95	$65.00	$16.37	$11.06	$0.85	$2.34	$10.70	$1.47	$0.00	$0.00	$81.74	$101.22
3rd year	$41.94	$70.00	$16.37	$11.06	$0.85	$2.52	$10.70	$1.58	$0.00	$0.00	$85.02	$105.99
4th year	$47.94	$80.00	$16.37	$11.06	$0.85	$2.88	$10.70	$1.80	$0.00	$0.00	$91.60	$115.57
Helper	$41.94	$70.00	$16.37	$11.06	$0.85	$3.36	$10.70	$1.58	$0.00	$0.00	$85.86	$106.83
Assistant Mechanic	$47.94	$80.00	$16.37	$11.06	$0.85	$3.82	$10.70	$1.80	$0.00	$0.00	$92.54	$116.51

(*)Special Calculation Note :

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) :

Adams, Brown, Butler, Clermont, Clinton, Darke, Greene, Hamilton, Highland, Miami, Montgomery, Preble, Scioto, Shelby, Warren

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Glazier Local 387

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2025ib	Glazier	11/19/2025	11/19/2025

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Glazier	$35.85		$6.80	$12.30	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$55.40	$73.33
Apprentice	BHR	Percent										
1st Year	$23.30	$65.00	$6.80	$8.85	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$39.40	$51.05
2nd Year	$26.89	$75.00	$6.80	$9.84	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$43.98	$57.42
3rd Year	$30.47	$85.00	$6.80	$10.82	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$48.54	$63.77
4th Year	$34.06	$95.00	$6.80	$11.81	$0.45	$0.00	$0.00	$0.00	$0.00	$0.00	$53.12	$70.15

(*)Special Calculation Note :

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

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Adams, Brown, Butler, Champaign, Clark, Clermont, Clinton, Darke, Fayette*, Greene, Hamilton, Highland, Miami, Montgomery, Preble, Warren

Special Jurisdictional Note :

Fayette County: Eastern portion of route #41 being the dividing line between locals 372 and 387. Local 387 has jurisdiction of projects built on property which borders route #41 East.

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Ironworker Local 290

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Ironworker	6/1/2026	6/1/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Ironworker	$40.00		$9.80	$9.50	$0.85	$0.00	$5.59	$0.00	$0.00	$0.00	$65.74	$85.74
Structural, Welder, Fence Erector, Reinforcing Rods, Machinery Mover, Sheeter, Metal Building Erector, Rigger & Erector	$40.00		$9.80	$9.50	$0.85	$0.00	$5.59	$0.00	$0.00	$0.00	$65.74	$85.74
Apprentice	BHR	Percent										
1st Year	$25.50	$63.75	$9.80	$9.50	$0.85	$0.00	$4.09	$0.00	$0.00	$0.00	$49.74	$62.49
2nd Year	$29.50	$73.75	$9.80	$9.50	$0.85	$0.00	$4.09	$0.00	$0.00	$0.00	$53.74	$68.49
3rd Year	$33.50	$83.75	$9.80	$9.50	$0.85	$0.00	$4.09	$0.00	$0.00	$0.00	$57.74	$74.49
4th Year	$37.50	$93.75	$9.80	$9.50	$0.85	$0.00	$4.09	$0.00	$0.00	$0.00	$61.74	$80.49

(*)Special Calculation Note :

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Allen*, Auglaize, Butler*, Champaign*, Clark*, Clinton, Darke, Fayette*, Greene, Hardin*, Highland*, Logan*, Madison*, Mercer*, Miami, Montgomery, Preble, Shelby, Van Wert*, Warren*

Special Jurisdictional Note :

Allen County Twps included are: Auglaize, Perry, Shawnee, Amanda, Spencer, Marion, Sugar Creek, American, Bath, Jackson.
Butler County Twps included are: Milford, Wayne, Madison, Lemon.
Champaign County Twps included are: Union, Urbana, Jackson, Concord, Salem, Mad River, Johnson, Harrison, Adams.
Clark County Twps included are: Bethel, German, Green, Mad River, Moorefield, Pike, Springfield and potions of Harmony, Madison, and Pleasant
Fayette County Twps included are: Green, Jasper, Concord, Jefferson.
Hardin County Twps included are: Round Head, Marion, Liberty.
Highland County Twps included are: Fairfield, Penn, Union, Marshall, Liberty, Paint, Brush Creek.
Logan County Twps included are: Richland, Stokes, Bloomfield, Washington, Harrison, McArthur, Lake, Liberty, Pleasant, Miami.
Madison County Twps included are: Stokes.
Mercer County Twps included are: Dublin, Washington, Jefferson, Recovery, Gibson, Union, Liberty, Butler, Granville, Center, Hopewell, Franklin, Marion.
VanWert County Twps included are: Jennings.
Warren County Twps included are: Franklin, Clear Creek, Turtle Creek, Wayne, Massie, Washington, Salem, Union.

Details :

Structural Iron Work but not limited to: field fabrication, all loading to and including the erecting, rigging, assembly, dismantling, placing, temporary and permanent securing by any means of all structural iron, steel, ornamental lead, bronze, brass, copper, aluminum, glass all ferrous and non ferrous metal and composite material, precast prestressed and post-stressed concrete structures. Bridges and bridge rails, bridge viaducts, bucks bulkheads, bumper and bumper post, canopies and unistrut canopies, corrugated ferrous and non ferrous sheets when attached to steel frames, columns, beams, bar-joists, trusses, grinders, roof decking, electrical supports, elevator cars, elevator fronts and enclosures, erection of steel towers, flag poles, gymnasium equipment, stadium and arena seating, jail cell work, jail cell beds, benches, bunks, chairs, tables, mirrors, jail cell access doors, rigging and installation of machinery and equipment(erecting, aligning, anchoring and dismantling, erection and dismantling of tower cranes, derrick monorail systems, Chicago booms, overhead cranes, gantries, material and personnel hoists, tanks, hoppers and conveyors. All pre-engineered metal buildings and their entirety including siding, roofing, gutters, downspouts and erection of all.

Ornamental Iron Work but not limited to: all work in connection with field fabrication, handling including loading/off loading, sorting, cutting, fastening, anchoring, bending, hoisting, placing, burning, welding, and tying, dismantling of all materials used in miscellaneous iron or steel, for stairs, hand railings, rolling doors, rolling gates, rolling shutters, fence, windows, curtain wall, erection and welding of all metal, sash, architectural and ornamental treatments, but not necessarily limited to all sizes and types of ornamental, steel iron, lead, bronze, brass, copper, aluminum, all ferrous and non ferrous metals and composite materials .

Fence Erector Iron Worker but not limited to: All work in connection with the field fabrication and erection of chain link fence, which includes but not limited to the loading and of the fence fabric and posts also the installation of the above.

Reinforcing Iron Worker but not limited to: work in connection with field fabrication, handling, racking, sorting, cutting, bending, hoisting, placing, burning, welding and tying all materials used to reinforce concrete construction, except loading and unloading by hand. Re-aligning of the reinforced iron, wire mesh placing, bricking, pulling and similar reinforcing materials, placing steel dowels, as well as re-fasten. Reinforcing steel and wire mesh in roadways and sidewalks in connection with building construction. Also, erection and fabrication of pre-connection with building construction, also erection and fabrication of pre-stressed and precast joists, beams, columns, slabs; walls, roofs, tanks, manholes, trenches and covers. Handling of "J" or jack bars on slip forms. Metal decking similar to "corruform" when used for floor forms over metal or concrete supports either welded or clipped. Post tension, all loading and unloading, hoisting, placing and tying of all post tensioning cables. Placing and tying of all duct work in bonded post tension. All of the wrecking of cones, wedging of the tendons, stressing, cutting, repairing and grouting of bonded post tension.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Labor HevHwy 3

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Laborer	5/1/2026	5/1/2026

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

(*)Special Calculation Note :

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

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

Ratio :

1 Journeyman to 1 Apprentice
3 Journeymen to 1 Apprentice thereafter

Watchmen have no Apprentices

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

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

Details :

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

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

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

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

Prevailing Wage Rate
Skilled Crafts

Name of Union: Labor Local 1410 Building

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Laborer	5/1/2026	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	$33.40		$9.45	$4.60	$0.40	$0.00	$1.25	$0.00	$0.10	$0.00	$49.20	$65.90
Group 2	$34.00		$9.45	$4.60	$0.40	$0.00	$1.25	$0.00	$0.10	$0.00	$49.80	$66.80
Group 3	$34.50		$9.45	$4.60	$0.40	$0.00	$1.25	$0.00	$0.10	$0.00	$50.30	$67.55
Apprentice	BHR	Percent										
Building Laborer 1-1000 hrs	$26.72	$80.00	$9.45	$4.60	$0.40	$0.00	$1.25	$0.00	$0.10	$0.00	$42.52	$55.88
1001-2000	$28.39	$85.00	$9.45	$4.60	$0.40	$0.00	$1.25	$0.00	$0.10	$0.00	$44.19	$58.38
2001-3000	$30.06	$90.00	$9.45	$4.60	$0.40	$0.00	$1.25	$0.00	$0.10	$0.00	$45.86	$60.89
3001-4000	$31.73	$95.00	$9.45	$4.60	$0.40	$0.00	$1.25	$0.00	$0.10	$0.00	$47.53	$63.39
More than 4000 hrs	$33.40	$100.00	$9.45	$4.60	$0.40	$0.00	$1.25	$0.00	$0.10	$0.00	$49.20	$65.90

(*)Special Calculation Note :

$0.10 LECET is for Labor Management.

Ratio :

1 Journeyman to 1 Apprentice
4 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note) :

Champaign, Clark, Darke, Greene, Logan, Miami, Montgomery, Preble

Special Jurisdictional Note :

Details :

Group 1 Building & Construction Laborer, Railroad Laborer, Asbestos & Hazardous Waste (Levels A,B,C, & D),Concrete Crew, Form Setter, Pipelayer, Bottom Man, Burner (Cutting Torch), Welder Helper, All Machine & Power Driven Tools, Sandblaster Yardman-Landscaping, Sewer Jet, Waterperson, Tool Cage Laborer, Unloading Furniture & Fixtures, Final Clean-Up Watchman, Residential Construction, Signal Men

Group 2 Mason Tender For Bricklayers, Flexcore, Firebrick Tender (Blast Furnaces, Soaking Pits, Stoves & Stacks), Plasterer Tenders & Lathers

Group 3 Tender Operator

Asbestos, Lead and Hazardous Material: The removal, abatement or encapsulation of asbestos, lead and/or toxic and hazardous waste or materials is defined as all work included in the erection, moving servicing and dismantling of all enclosures, scaffolding, barricades, etc. and the operation of all tools and equipment (including generators, compressors and vacuums) normally used in the removal or abatement or asbestos, lead and toxic and hazardous waste or materials; the labeling, bagging, cartoning, crating or otherwise packaging of materials for disposal; as well as the clean-up of the work site and all other work incidental to the removal, abatement or encapsulation of asbestos, lead or toxic and hazardous waste materials. Level A Protective equipment is required when the area has been determined to contain extremely toxic contaminants or contaminants unknown but may be expected to be extremely toxic and/or immediately dangerous to life and health. This ensemble includes a fully encapsulated chemical suit, self contained breathing apparatus (SCBA) or airline fed respirator, and various types and numbers of boots and gloves. Level B Protective equipment includes a chemically resistant splash suit and a SCBA or airline respirator. This ensemble is required when the situation is very hazardous, such as oxygen deficient atmospheres, IDLH atmospheres, or confined space entries. Level C Protective equipment includes a protective suit and an air purifying respirator (APR) with the appropriate filter canisters. Level D To be worn only in established "safe zones" may consist of, from normal work clothes to normal skin protection such as gloves, face shields goggles, coveralls and occasionally respiratory protection.

Prevailing Wage Rate
Skilled Crafts

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

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCR01-2026ib	Operating Engineer	10/14/2026	10/14/2026

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

(*)Special Calculation Note :

Other: Education & Safety
Misc: National Training

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

Ratio :

For every (3) Operating Engineer Journeymen employed by the company there may be employed (1) Registered Apprentice or trainee Engineer through the referral when they are available. An 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

In all the counties within the jurisdiction of this Agreement, crews shall be employed on all truck cranes, power shovels, cranes, rotary drills on caisson work, cableways, draglines, tower derricks, tower cranes, multiple drum pavers, pile driving machines and hoes, standard gauge locomotives, bucket trench machines (over 24" wide) and horizontal directional drills (over 500,000 ft.lbs.thrust). Crews shall consist of an Operating Engineer and an Apprentice/Helper (Oiler) or Signalman on machines, regardless of motive of power, or an Operating Engineer and Fireman on steam machines.

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

Details :

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

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

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

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

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

Master Mechanics - Master Mechanic

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

Prevailing Wage Rate
Skilled Crafts

Name of Union: Operating Engineers - HevHwy Zone II

Type of Rate: Commercial

Change #: LCR01-2026ib

Craft: Operating Engineer

Effective Date: 10/14/2026

Effective Date: 10/14/2026

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

(*)Special Calculation Note :

Other: Education & Safety Fund
Misc: National Training

**Apprentices wilt 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

In all of the counties within the jurisdiction of this Agreement, crews (meaning an Operating Engineer and an Apprentice/Helper (Oiler), or Signalman on gas or diesel machines, or an Operating Engineer and Fireman on steam machines) shall be employed on all truck cranes, power shovels, cranes, rotary drill on caisson work, cableways, draglines, tower derricks, tower cranes, multiple drum pavers, piledriving machines and hoes, standard gauge locomotives and bucket trench machines (over 24" wide).

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

Details :

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

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

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

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

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

Master Mechanic - Master Mechanic

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

Prevailing Wage Rate
Skilled Crafts

Name of Union: Painter Local 249

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Painter	6/24/2026	6/24/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Painter	$30.35		$7.30	$7.14	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$45.12	$60.30
Apprentice	BHR	Percent										
30 Day Probationary	$15.18	$50.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$23.26	$30.85
1st Year	$19.73	$65.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$27.81	$37.67
2nd Year	$22.76	$75.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$30.84	$42.22
3rd Year	$25.80	$85.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$33.88	$46.78
4th Year	$27.32	$90.02	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$35.40	$49.06

(*)Special Calculation Note :

A) $1.50 an hour premium shall be added to any base pay for spraying Coal Tar Products.
B) $ .75 an hour premium shall be added to any base pay for Sandblasting, Water Blasting or Lead Abatement.
C) $ .90 an hour premium shall be added to any base pay for Drywall Finishing.
D) $3.94 an hour premium shall be added to any base pay for Elevated Tanks.
E) $ .95 an hour premium shall be added to any base pay for Steeplejack Work.
F) $.75 premium shall be added to any base pay for lead abatement.

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Clark, Darke, Greene, Miami, Montgomery, Preble

Special Jurisdictional Note :

Details :

Industrial work but not limited to: work done on industrial plants, repair garages, processing plants, storage tanks, warehouses, skeleton structures, bridges, whether new or old construction, office buildings in industrial sites and interior of shopping malls.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Painter Local 249 Drywall

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Painter	6/24/2026	6/24/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Painter Drywall Finisher	$30.35		$7.30	$7.14	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$45.12	$60.30
Apprentice	BHR	Percent										
30 Day Probationary	$15.18	$50.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$23.26	$30.85
1st Year	$19.73	$65.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$27.81	$37.67
2nd Year	$22.76	$75.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$30.84	$42.22
3rd Year	$25.80	$85.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$33.88	$46.78
4th Year	$27.32	$90.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$35.40	$49.06

(*)Special Calculation Note :

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Clark, Darke, Greene, Miami, Montgomery, Preble

Special Jurisdictional Note :

Details :

Industrial work but not limited to: work done on industrial plants, repair garages, processing plants, storage tanks, warehouses, skeleton structures, bridges, whether new or old construction, office buildings in industrial sites and interior of shopping malls.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Painter Local 249 HevHwy

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Painter	6/24/2026	6/24/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Painter Bridge Blaster - Class 1	$42.06		$7.30	$7.14	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$56.83	$77.86
Bridge Painter, Rigger, Containment Builder, Spot Blaster - Class 2	$39.06		$7.30	$7.14	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$53.83	$73.36
Equipment Operator/ Field Mechanic, Grit Reclamation, Paint Mixer, Traffic Control, Boat Person, Driver - Class 3	$37.06		$7.30	$7.14	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$51.83	$70.36
Concrete Sealing, Concrete Blasting/Power Washing/ Etc. - Class 4	$35.06		$7.30	$7.14	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$49.83	$67.36
Quality Control/Quality Assurance, Traffic safety, Competent Person - Class 5	$35.06		$7.30	$7.14	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$49.83	$67.36
Apprentice	BHR	Percent										
30 day Probationary	$21.03	$50.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$29.11	$39.63
1st Year	$27.34	$65.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$35.42	$49.09
2nd Year	$27.34	$65.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$35.42	$49.09
3rd Year	$31.55	$75.02	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$39.63	$55.41
4th Year	$35.75	$85.00	$7.30	$0.45	$0.33	$0.00	$0.00	$0.00	$0.00	$0.00	$43.83	$61.70

(*)Special Calculation Note :

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Clark, Darke, Greene, Miami, Montgomery, Preble

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Painter Local 639 Sign and Display

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2025ib	Painter	6/18/2025	6/18/2025

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

(*)Special Calculation Note :

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

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

Details :

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

Prevailing Wage Rate
Skilled Crafts

Name of Union: Painter Local 639 Zone 2 Sign

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2025ib	Painter	5/28/2025	5/28/2025

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

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

(*)Special Calculation Note :

Other is for paid holidays.

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

Details :

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

Prevailing Wage Rate
Skilled Crafts

Name of Union: Plasterer Local 132 (Dayton)

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Plasterer	5/20/2026	5/20/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Plasterer	$31.68		$8.90	$7.60	$0.70	$0.00	$3.90	$0.07	$0.00	$0.00	$52.85	$68.69
Apprentice	BHR	Percent										
1st 800 Hours	$22.18	$70.00	$8.90	$0.00	$0.70	$0.00	$3.90	$0.07	$0.00	$0.00	$35.75	$46.84
2nd 800 Hours	$23.44	$74.00	$8.90	$0.00	$0.70	$0.00	$3.90	$0.07	$0.00	$0.00	$37.01	$48.73
3rd 800 Hours	$24.71	$78.00	$8.90	$7.60	$0.70	$0.00	$3.90	$0.07	$0.00	$0.00	$45.88	$58.23
4th 800 Hours	$25.98	$82.00	$8.90	$7.60	$0.70	$0.00	$3.90	$0.07	$0.00	$0.00	$47.15	$60.14
5th 800 Hours	$27.24	$86.00	$8.90	$7.60	$0.70	$0.00	$3.90	$0.07	$0.00	$0.00	$48.41	$62.03
6th 800 Hours	$28.51	$90.00	$8.90	$7.60	$0.70	$0.00	$3.90	$0.07	$0.00	$0.00	$49.68	$63.94
7th 800 Hours	$29.78	$94.00	$8.90	$7.60	$0.70	$0.00	$3.90	$0.07	$0.00	$0.00	$50.95	$65.84
8th 800 Hours	$31.05	$98.00	$8.90	$7.60	$0.70	$0.00	$3.90	$0.07	$0.00	$0.00	$52.22	$67.75

(*)Special Calculation Note :

OTHER: International Training Fund

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

Champaign, Clark, Clinton, Darke, Greene, Miami, Montgomery, Preble, Shelby

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Plumber Pipefitter Local 162

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Plumber Pipefitter	7/8/2026	7/8/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Plumber Pipefitter	$50.60		$12.30	$10.87	$1.11	$0.00	$3.35	$0.00	$0.00	$0.00	$78.23	$103.53
Apprentice	BHR	Percent										
1st Year	$25.59	$50.57	$12.30	$3.26	$0.57	$0.00	$0.00	$0.00	$0.00	$0.00	$41.72	$54.52
2nd Year	$28.07	$55.47	$12.30	$5.69	$0.62	$0.00	$0.00	$0.00	$0.00	$0.00	$46.68	$60.72
3rd Year	$30.55	$60.37	$12.30	$8.53	$0.66	$0.00	$0.00	$0.00	$0.00	$0.00	$52.04	$67.31
4th Year	$35.51	$70.17	$12.30	$10.63	$0.76	$0.00	$0.00	$0.00	$0.00	$0.00	$59.20	$76.95
5th Year	$40.48	$80.00	$12.30	$10.87	$0.85	$0.00	$3.35	$0.00	$0.00	$0.00	$67.85	$88.09

(*)Special Calculation Note :

Ratio :

1 Journeyman to 1 Apprentice
2 - 4 Journeymen to 2 Apprentices
5 - 7 Journeymen to 3 Apprentices
8 - 10 Journeymen to 4 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

Champaign, Clark, Clinton, Darke, Fayette, Greene, Miami, Montgomery, Preble

Special Jurisdictional Note :

Details :

Wage rate covers: all plumbing, pipefitting, heating, refrigeration and air conditioning work.

Prevailing Wage Rate
Skilled Crafts

Name of Union: Roofer Local 75

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Roofer	6/24/2026	6/24/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Roofer	$31.95		$8.98	$8.98	$0.58	$0.00	$2.00	$0.00	$0.00	$0.00	$52.49	$68.47
Slate and Tile	$32.17		$8.98	$8.98	$0.58	$0.00	$2.00	$0.00	$0.00	$0.00	$52.71	$68.80
Apprentice	BHR	Percent										
Apprentice Probation 499 hrs	$21.73	$68.00	$2.50	$0.50	$0.58	$0.00	$2.00	$0.00	$0.00	$0.00	$27.31	$38.17
1st Term 1250 hrs	$21.73	$68.00	$8.58	$1.32	$0.58	$0.00	$2.00	$0.00	$0.00	$0.00	$34.21	$45.08
2nd Term 1250 hrs	$23.96	$75.00	$8.58	$2.20	$0.58	$0.00	$2.00	$0.00	$0.00	$0.00	$37.32	$49.30
3rd Term 1250 hrs	$25.56	$80.00	$8.58	$3.07	$0.58	$0.00	$2.00	$0.00	$0.00	$0.00	$39.79	$52.57
4th Term 1250 hrs	$28.75	$90.00	$8.58	$3.95	$0.58	$0.00	$2.00	$0.00	$0.00	$0.00	$43.86	$58.23
Pre-Apprentice	$25.24	$79.00	$5.00	$1.58	$0.58	$0.00	$2.00	$0.00	$0.00	$0.00	$34.40	$47.02

(*)Special Calculation Note :

Ratio :

3 Journeymen to 2 Apprentices
1 Pre-Apprentice to 2 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

Allen, Auglaize, Clark, Clinton, Darke, Greene, Mercer, Miami, Montgomery, Preble, Shelby, Van Wert

Special Jurisdictional Note :

Details :

Pre-Apprentices can do all work of a Journeyman

Prevailing Wage Rate
Skilled Crafts

Name of Union: Sheet Metal Local 24 (Dayton)

Type of Rate: Commercial

Change #:
LCN01-2026ib

Craft:
Sheet Metal Worker

Effective Date:
8/5/2026

Effective Date:
8/5/2026

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Sheet Metal Worker	$36.69		$11.35	$15.71	$1.34	$0.00	$0.00	$0.00	$0.00	$0.00	$65.09	$83.44
Apprentice	BHR	Percent										
1st Year (Probationary Period)	$22.01	$60.00	$10.69	$5.01	$1.34	$0.00	$0.00	$0.00	$0.00	$0.00	$39.05	$50.05
2nd Year	$23.85	$65.00	$10.77	$6.35	$1.34	$0.00	$0.00	$0.00	$0.00	$0.00	$42.31	$54.23
3rd Year	$27.52	$75.02	$10.94	$9.02	$1.34	$0.00	$0.00	$0.00	$0.00	$0.00	$48.82	$62.58
4th Year	$31.19	$85.00	$11.11	$11.69	$1.34	$0.00	$0.00	$0.00	$0.00	$0.00	$55.33	$70.92

(*)Special Calculation Note :

Ratio :

1 Journeyman to 1 Apprentice then,
1 Apprentice for every 2 Journeymen thereafter

Jurisdiction (* denotes special jurisdictional note) :

Allen, Auglaize, Butler, Champaign, Clark, Clinton, Darke, Greene, Hardin, Logan, Mercer, Miami, Montgomery, Preble, Shelby, Van Wert, Warren, Wyandot

Special Jurisdictional Note :

Details :

Prevailing Wage Rate
Skilled Crafts

Name of Union: Sprinkler Fitter Local 669

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCR01-2025ib	Sprinkler Fitter	8/6/2025	8/6/2025

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

(*)Special Calculation Note :

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

Details :

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

Prevailing Wage Rate
Skilled Crafts

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

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Truck Driver	5/1/2026	5/1/2026

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

(*)Special Calculation Note :

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

Details :

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

Prevailing Wage Rate
Skilled Crafts

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

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Truck Driver	5/1/2026	5/1/2026

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

(*)Special Calculation Note :

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

Details :

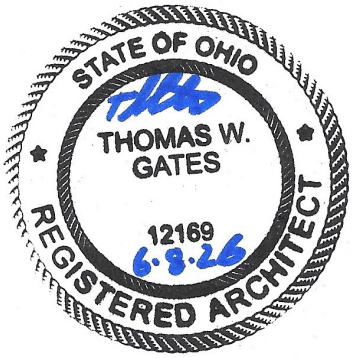
CLASS 2: Drivers on articulated dump trucks; rigid-frame rock trucks; distributor trucks; low boys/drag driver on the construction site only and heavy duty equipment (irrespective of load carried) when used exclusively for transportation on the construction site only.

DOCUMENT 000107

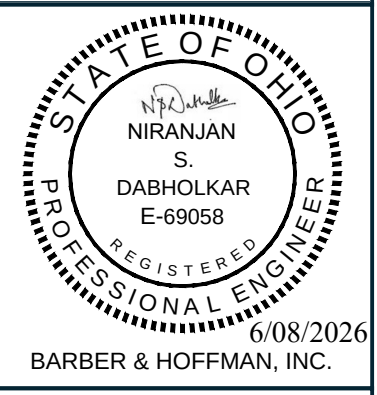
SEALS PAGE

1.1 DESIGN PROFESSIONALS OF RECORD

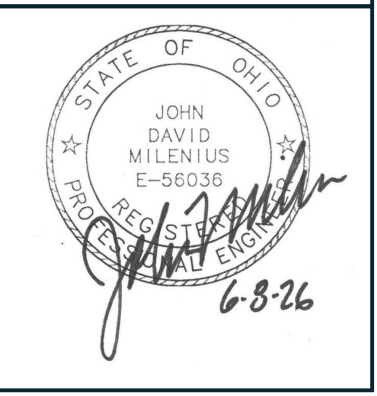
ARCHITECT: **SPGB Architects, LLC**
ARC.9812169, Thomas W. Gates, AIA
Expires 12/31/2027



STRUCTURAL ENGINEER: **Barber Hoffman**
PE.69058, Niranjan S. Dabholkar, PE
Expires 12/31/2027



MECHANICAL ENGINEER: **TEC Engineering**
PE.89501, Dominic Mascia, PE
Expires 12/31/2027



ELECTRICAL ENGINEER: **TEC Engineering**
PE.56036, John D. Milenius, PE
Expires 12/31/2027



END OF DOCUMENT 000107

SECTION 01000

GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 DEFINITIONS

A. The following definitions are provided for use with the Montgomery County Environmental Services Standard Specifications. If a set of Contract Documents directly includes or makes an indirect reference or appeal to the Montgomery County Environmental Services Standard Specifications, the definitions contained in those Contract Definitions shall supersede the definitions contained in this section. Note that capitalization of entire words or individual letters is not intended to convey any information other than the typical meaning of the word or phrase as used throughout the Montgomery County Environmental Services Standard Specifications.

B. Bid Form: The document used to outline payment quantities and methods included with the Contract Documents and signed by the CONTRACTOR.

C. Contract Documents: Documents including all drawings, specifications, bid data, forms, agreements, contract conditions, addenda, etc. governing the terms, conditions and scope of the work and providing the required detail for construction as well as administration of the work and defined in the agreement signed by the CONTRACTOR.

D. Contract Drawings: Information contained, referenced and in any way made a part of the Contract Documents provided in the form of drawings to describe the required work for a specific project.

E. CONTRACTOR: The person, firm or corporation performing work under an agreement with the OWNER or under an agreement with another party (e.g. the Montgomery County Engineer, a township, etc.) and whose work, or any part thereof, must by ordinance, law, or regulation comply with the latest version of the Montgomery County Environmental Services Standard Specifications and the Montgomery County Environmental Services Rules and Regulations.

F. Details: Sketches, figures and tables included in the Montgomery County Environmental Services Standard Specifications. Details may also include sketches and figures shown on the drawings to describe work that is specific to a certain project.

G. Drawings: See Contract Drawings.

H. ENGINEER: The Sanitary Engineer of Montgomery County, Ohio or the OWNER's duly authorized representative.

I. OWNER: The Board of County Commissioners, Montgomery County, Ohio.

J. Specifications: The Montgomery County Environmental Services Standard and Supplemental Specifications. Specifications is further defined as those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the work and certain administrative details applicable thereto. Specifications shall also include written technical

descriptions including detail drawings that are included, referenced and in any way made part of the Contract Documents.

K. Project: An identifying name, title, number or similar description assigned to reference the work.

L. Work: Any work performed by a CONTRACTOR that modifies, expands or otherwise impacts the Montgomery County water supply or sewage collection and treatment facilities and required to be furnished under the Contract Documents.

M. PROVISIONAL APPROVAL: The Sanitary Engineer of Montgomery County or duly authorized designee shall have the authority to grant Provisional Approval for modification of the specifications herein. The Provisional Approval shall be subject to and limited by the conditions contained therein.

1.02 COORDINATION WITH OWNER'S WORKING HOURS

A. All work requiring inspection, attention or presence for any reason of OWNER's personnel shall be performed during Montgomery County Environmental Services regular working hours. Regular working hours are 7:30 a.m. to 4:00 p.m. Monday through Friday.

B. If CONTRACTOR wishes to perform regular Work at times other than regular working hours, CONTRACTOR shall be required to pay the OWNER for the services of the Resident Project Representative and the ENGINEER at established rates on record in the office of Montgomery County Environmental Services.

C. In the event of an emergency or other unplanned event due to the CONTRACTOR's work, negligence or otherwise attributable to the CONTRACTOR, CONTRACTOR shall submit payment for exact hours of overtime worked by OWNER's personnel.

D. The CONTRACTOR shall give a minimum of two (2) weeks' notice of intent to work at times other than regular working hours to the Resident Project Representative and ENGINEER.

E. ENGINEER has the right to deny permission, with due cause, for the CONTRACTOR to work at times other than regular working hours.

F. When working within the existing public right-of-way, the CONTRACTOR shall erect construction signage at limits of work at least ten days in advance of commencement of any work advising of the start date and length of construction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION S-01011

SUMMARY OF WORK

Single Prime Contract

PART 1 GENERAL

1.01 LOCATION AND SCOPE OF WORK

A. The Project consists of one prime contract for construction of a comprehensive renovation of the Solid Waste Transfer & Recycling Facility Old Admin Building. The renovation includes four levels and addresses essential infrastructure including HVAC, plumbing, electrical, elevator, structural improvements, and interior remodeling

B. The Project is located at the Solis Waste Transfer station, 2550 Sandridge Drive, Moraine, Ohio 45439

C. The summary of the Work described in this Section is an overall summary of the responsibilities of the CONTRACTOR and the CONTRACTOR's relationship to the OWNER. It does not supersede the specific requirements of the other Contract Documents.

D. In addition to the standards included in these Contract Documents, all work shall comply with the following:

1. Montgomery County Environmental Services Rules and Regulations, latest revision.

E. CONTRACTOR's attention is directed to the requirements of the Sections of Division 1 - General Requirements. These general requirements complement the related specific work specified in Division 2 through Division 16 although Division 1 Sections are not directly referenced in the Sections of Division 2 through Division 16. All requirements of Division 1 through Division 16 are binding on the CONTRACTOR and are not exclusive of each other. ENGINEER shall resolve all disputes and provide clarifications and interpretations as stated in Article 10 of the General Conditions.

1.02 WORK BY OTHERS

A. OWNER will perform the following work:

1. Operate all utility water system valves.

2. Operate all existing process piping valves and gates.

3. Operate all existing potable water valves.

B. Prior contracts as follows:

1. (Add contracts as appropriate)

C. Future contracts as follows:

1. (Add contracts as appropriate)

1.03 OWNER-FURNISHED PRODUCTS

A. Products furnished by OWNER are as follows:

1. Pre-purchased Equipment:

a. (Add equipment as appropriate.)

2. Pre-purchased Materials:

a. (Add materials as appropriate)

B. CONTRACTOR's Responsibilities:

1. (Describe CONTRACTOR's responsibilities regarding OWNER furnished equipment or materials)

1.04 SEQUENCE OF WORK

A. The Work shall be constructed in accordance with the requirements as outlined in Section 01043. All specific planning for tie-ins to existing facilities and other matters pertaining to coordinating the sequence of construction and maintaining operation of the facilities shall be submitted to the OWNER and ENGINEER for approval.

B. Construct the Work in the following stages:

1. (Describe work sequencing - coordinate with Section 01043)

1.05 CONTRACTOR'S USE OF PREMISES

A. The ENGINEER shall designate the area available for CONTRACTOR's parking and storage when otherwise not designated in Section S-01550.

B. The ENGINEER shall designate all entrance and exit routes to and from the Work site when otherwise not designated in Section S-01550.

C. Limits of the CONTRACTOR's use of the site are as shown on the Drawings or as designated by the ENGINEER and are addressed in Section S-01550.

D. CONTRACTOR must share use of the premises with the other contractors specified in Article 1.02 above.

E. CONTRACTOR shall:

1. Assume full responsibility for protection and safekeeping of products stored on and off premises.

2. Move stored products that interfere with the operations of OWNER or another Contractor.

3. Obtain and pay for all additional storage or work areas required for his operations.

4. Not interfere with the operation of the OWNER or other Contractors.

5. Provide all tools, ladders, equipment, etc. for CONTRACTOR's work and the work of all his subcontractors.

F. CONTRACTOR and all personnel shall be restricted to the designated construction areas, parking areas and meeting areas. All other facilities such as stockrooms, lunchrooms, restrooms and vending areas shall be considered off limits.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01100

SUMMARY

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by Owner/Engineer.
4. Work under separate contracts.
5. Owner/Engineer-furnished products.
6. Access to site.
7. Coordination with occupants.
8. Work restrictions.
9. Specification and drawing conventions.
10. Miscellaneous provisions.
11. Design and Construction Document Management System.

B. Related Requirements:

1. Section 01 5000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Engineer's facilities.

1.3 PROJECT INFORMATION

A. Project Identification: MCES Solid Waste Old Admi Building Renovation.

1. Project Location: 2550 Sandridge Drive, Maraine, Ohio 45439.

B. Owner/Engineer: Montgomery County Environmental Services (MCES).

1. Owner/Engineer’s Purchasing Representative: Barabra Asberry, Montgomery County Purchasing Department; 937-225-6391, AsberryB@mcohio.org
2. Owner/Engineer’s Representative: David Hackett, Montgomery County Environmental Services Utility Project Manager 937-781-2542, HackettD@mcohio.org

C. Design Professionals: Chandra Wilson, SPGB Architects, LLC, 4333-A Tuller Road, Dublin, Ohio 43017. PH: 614-771-8963, cwilson@spgbarch.com. AoR Tom Gates.

D. Design Professionals's Consultants: Design Professional has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. Environmental Consultants: Jordan Merderer, Lawhon Associates, 1441 King Ave., Columbus, Ohio 43212. PH: 614-481-8600, jederer@lawhon-assoc.com

2. Structural Engineer: Niru Dabholkar, Barber & Hoffman, Inc., 200 E. Campus View Blvd., Suite 230, Columbus, Ohio 43235. PH: 614-825-9580, ndabholkar@barberhoffman.com

3. Mechanical and Electrical Engineer: Dominic Mascia, TEC, Inc., 4995 Bradenton Ave, Suite 240, Dublin, Ohio 43017. PH: 614-267-4928, dmascia@tecinceng.com

4. Elevator Consultant: Becky Mauk, Lerch Bates, 4995 Bradenton Ave., 200, Dublin, Ohio 43017. PH: 614-734-4846, becky.mauk@lerchbates.com

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. This Project shells the existing 1-3 floors of the Old Admin building. The 4th floor contains some minor demolition and renovation work. Work on shell floors include: demolition of existing spaces, renovation of existing restroom to be code compliant, update lighting, replace windows, elevator upgrade, replace the mechanical, electrical, and plumbing systems as required to maintain critical operation of the facility and other scope as indicated on the documents.

B. Type of Contract:

1. Project will be constructed as a single prime contract.

1.5 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contractor other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

B. Preceding Work: Owner/Engineer has awarded separate contract(s) for the following construction operations at Project site. Those operations are scheduled to be substantially complete before work under this Contract begins.

1. None.

C. Concurrent Work: Owner/Engineer will award separate contract(s) for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.

1. None.

D. Subsequent Work: Owner/Engineer will award separate contract(s) for the following additional work to be performed at site following Substantial Completion. Completion of that work will depend on successful completion of preparatory work under this Contract.

1. None.

1.6 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.7 CONTACTOR'S USE OF SITE AND PERMISES

A. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Limits on Use of Site: Limit use of Project site to Work in areas as indicated. Do not disturb portions of the Project site beyond areas in which the Work is indicated.

1. Limits on Use of Site: Confine construction operations to as indicated on Drawings.
2. Driveways, Walkways and Entrances: Keep driveway, loading areas, and entrances serving premises clear and available to Owner/Engineer, Owner/Engineer's employees, and emergency vehicles always. Do not use these areas for parking or for storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.8 COORDINATION WITH OCCUPANTS

A. Full/Partial Owner/Engineer Occupancy: Owner/Engineer will occupy the 4th floor of the building and premises during entire construction period, with the exception of areas under construction excluding the corridors, stairs, and window work these areas will be occupied during construction. Cooperate with Owner/Engineer during construction operations to

minimize conflicts and facilitate Owner/Engineer usage. Perform the Work so as not to interfere with Owner/Engineer's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, egress stairs, or other occupied or used facilities without written permission from Owner/Engineer and authorities having jurisdiction.
2. Provide not less than 1 week and 72 hours notice to Owner/Engineer of activities that will affect Owner/Engineer's operations.

1.9 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours as indicated on Section 01000 "General Requirements".

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner/Engineer or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner/Engineer not less than two days in advance of proposed utility interruptions.
2. Obtain Owner/Engineer's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner/Engineer occupancy with Owner/Engineer.

1. Notify Owner/Engineer not less than two days in advance of proposed disruptive operations.
2. Obtain Owner/Engineer's written permission before proceeding with disruptive operations.

E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor-air intakes. Additionally, this policy applies to any vapor-emitting electronic smoking devices, including but not limited to those designed to resemble cigarettes, cigars, cigarillos, and pipes.

F. Controlled Substances: Use of tobacco products and other controlled substances within the existing building is not permitted.

G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times. Badging for access to the Administration Building will be provided on an as-needed basis.

H. Employee Screening: Comply with Owner/Engineer's requirements for drug and background screening of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner/Engineer's representative.

1.10 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.

1.11 DESIGN AND CONSTRUCTION DOCUMENT MANAGEMENT SYSTEM

A. Project files will be transferred electronically.

1.12 MISCELLANEOUS PROVISIONS

A. Coordiation Table: Refer to “Specification Coordination Table” for the coordination of each of the specification trades responsibilities immediately following this specification section.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 011000

SECTION 01043

COORDINATION WITH OWNER'S OPERATIONS

PART 1 GENERAL

1.01 GENERAL

A. The Montgomery County Environmental Services, Engineering, Field, and Water Reclamation Services groups has sole responsibility and authority over the control and operation of all County owned and operated facilities including water mains and services, sewer mains and laterals, pumping stations, water reclamation facilities, valves, meters and other related devices and appurtenances. Operation of existing valves, gates and other items of OWNER's facilities shall only be performed by the OWNER's Engineering, Operations, and Water Reclamation personnel.

B. No work shall be undertaken which would jeopardize the minimum required operations of County facilities.

1. Bypassing of sewage is strictly prohibited.

2. Connection to or contact with the Montgomery County water supply system, other than by permit and through devices approved by Montgomery County, is strictly prohibited.

3. All work shall conform to the Montgomery County Environmental Services Rules and Regulations, latest revision.

C. All work necessary to complete modifications, connections, tie-ins, etc. to existing Montgomery County facilities shall be done in accordance with permits issued by Montgomery County Environmental Services. See additional information in Section 01046.

D. CONTRACTOR shall allow full access for OWNER's personnel to all facilities.

E. All CONTRACTORs shall perform all construction activities so as to avoid interference with operations of the OWNER's facilities and the work of others.

F. OWNER shall have the authority to stop or prohibit Work which would interfere or jeopardize the continuous and reliable operation of OWNER's facilities.

G. Disturbances to Operations:

1. It is required that the existing and new facilities (as they come on line) operate continuously. Scheduled interruptions of any facility's operations, when allowed by permit, shall be coordinated with the Montgomery County Environmental Services, Engineering, Field, and Water Reclamation personnel. Frequency and duration of disturbance to these operations shall be minimized.

2. Unscheduled interruption of operation of OWNER's facilities resulting from construction work under the CONTRACTOR's responsibility are strictly prohibited. If such unscheduled interruption occurs, operation of OWNER's facilities shall be returned at once to normalcy through temporary or permanent means. Temporary corrections shall be made permanent at the next scheduled interruption to operations if practicable, or as soon as practicable. All permanent corrections shall meet applicable requirements of OWNER.

3. Equipment and materials to be used for temporary purposes need not be new but shall be in serviceable condition and installed in a safe manner.

4. Temporary facilities shall be installed so as to minimize interference with construction and to meet OSHA, NEC and any other applicable laws', codes' or regulations' requirements.

5. Relocation of such temporary facilities may be required as construction progresses, the cost of which shall be paid for by the CONTRACTOR.

6. CONTRACTOR shall be liable for all costs and fines resulting from unscheduled interruption of the operation of the OWNER's facilities.

1.02 SEQUENCING AND OPERATIONS

A. General:

1. All new facilities shall be tested and in operating condition before the final tie-ins are made connecting the new facilities to the existing facilities. Comply with the requirements of Section 01046.

1.03 SUBMITTALS

A. Submit detailed schedule of proposed modifications and connections, including proposed bypasses, shutdowns and tie-ins.

B. Submittal shall include the proposed time and date as well as the anticipated duration.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01046

CONNECTIONS TO EXISTING FACILITIES

PART 1 GENERAL

1.01 GENERAL

A. Perform all construction necessary to complete connections and tie-ins to existing facilities.

B. Keep existing facilities in operation unless otherwise specifically permitted by OWNER. Comply with the requirements of Section 01043.

C. All CONTRACTORs shall perform all construction activities so as to avoid interference with operations of OWNER's facilities and the work of others.

D. It is the responsibility of each CONTRACTOR to maintain continuous operation of existing facilities while working in, on or around these facilities. Each CONTRACTOR shall protect the existing facilities by any means required including sheeting, shoring, bracing, patching, temporary piping, etc., however all means shall comply with OWNER's minimum standards.

1.02 BYPASSING

A. All facilities must remain in operation at all times unless otherwise permitted by OWNER. Bypassing of sewage out of the Montgomery County sanitary sewer system is strictly prohibited. All bypasses involving sewage must return sewage to the Montgomery County sanitary sewer system without allowing the sewage to enter the environment. CONTRACTOR shall be liable for all costs and fines resulting from release of sewage out of the Montgomery County sewer system.

B. If a bypass is required to complete certain segments of Work or to make a tie-in, the CONTRACTOR shall be responsible for all methods, means and costs including provision of all necessary labor and materials to perform the operation.

C. Unless otherwise specifically permitted or approved by the OWNER, no interruption in service will be permitted during bypasses or tie-ins.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01220 - UNIT PRICING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for unit prices.

1.3 DEFINITIONS

A. Unit price is a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the Part 3 "Schedule of Unit Prices" Article contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price No. 1: Concrete Wall Repairs

1. Description: This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to repair deteriorated concrete on face of concrete walls per information included on structural drawings.
2. Quantity: 150
3. Unit of Measurement: Per Square Foot

B. Unit Price No. 2: Concrete Crack Repair

1. Description: This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to repair cracks on surface of concrete walls using high strength structural epoxy, per information included on structural drawings and specifications.
2. Quantity: 100
3. Unit of Measurement: Per lineal foot.

C. Unit Price No. 3: CMU Block Replacement

1. Description: This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary for replacement of existing broken / cracked / deteriorated CMU units with new 8" solid CMU. New CMU unit texture and size to match existing CMU blocks. See typical details on structural drawings and specifications for additional information.
2. Quantity: 25
3. Unit of Measurement: Each (per CMU block)

D. Unit Price No. 4: Tuck-pointing Repair

1. Description: This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to perform tuck-pointing repairs per typical detail on structural drawing.
2. Quantity: 200
3. Unit of Measurement: Per lineal foot

E. Unit Price No. 5: Brick Replacement

1. Description: This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary for replacement of existing broken / cracked / deteriorated brick units with new solid face brick. New brick color, texture and size to match existing bricks.
2. Quantity: 50
3. Unit of Measurement: Each (per brick unit).

F. Unit Price No. 6: Stitch Tie Repair
   1. Description: This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to perform stitch tie repairs at locations where stepped cracks occur in mortar joints on CMU wall, per typical detail on structural drawing.
   2. Quantity: 25
   3. Unit of Measurement: Each (per Stitch-Tie)

END OF SECTION 012200

SECTION 01250

SUBSTITUTION PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 01600 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use facsimile of form provided in Project Manual.

2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.

b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Engineer and separate contractors, that will be necessary to accommodate proposed substitution.

c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific

features and requirements indicated. Indicate deviations, if any, from the Work specified.

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.

e. Samples, where applicable or requested.

f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of Design Professionals.

h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

i. Research reports evidencing compliance with building code in effect for Project, from the Ohio Basic Building Code (OBC).

j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

k. Cost information, including a proposal of change, if any, in the Contract Sum.

l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.

m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Design Professional or Engineer Action: If necessary, Design Professional or Engineer will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Design Professional or Engineer will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

   a. Forms of Acceptance: Change Order, Construction Change Directive, or Design Professional or Engineer Supplemental Instructions for minor changes in the Work.

   b. Use product specified if Design Professional or Engineer does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 – PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Design Professional will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Design Professional will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.

b. Substitution request is fully documented and properly submitted.

c. Requested substitution will not adversely affect Contractor's construction schedule.

d. Requested substitution has received necessary approvals of authorities having jurisdiction.

e. Requested substitution is compatible with other portions of the Work.

f. Requested substitution has been coordinated with other portions of the Work.

g. Requested substitution provides specified warranty.

h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed unless otherwise indicated.

PART 3 – EXECUTION (NOT USED)

APPENDIX A

SUBSTITUTION REQUEST FORM

DATE: _____

TIME: _____

REQUEST NO.: _____

PROJECT: Montgomery County – MCES Environmental Lab

PROPOSED SUBSTITUTION: _____

_____

_____

_____

REQUEST AUTHOR: _____REQUIRED REPLY DATE:_____

REPLY: _____

_____

_____

_____

REPLY AUTHOR: _____ REPLY DATE: _____

ATTACHMENTS: _____

ACTION REQUIRED: _____

_____

DISTRIBUTION: _____

_____

END OF SECTION 012500

SECTION 01260

CONTRACT MODIFICATION PROCEDURE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 01250 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Design Professional or Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, as Design Professional or Engineer “Supplemental Instructions."

1.4 PROPOSAL REQUESTS

A. Engineer-Initiated Proposal Requests: Design Professional or Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Design Professional or Engineer are not instructions either to stop work in progress or to execute the proposed change.

2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

c. Include costs of labor and supervision directly attributable to the change.

d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

e. Quotation Form: Use forms acceptable to Design Professional or Engineer.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Design Professional or Engineer.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include costs of labor and supervision directly attributable to the change.

5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

6. Comply with requirements in Section 01 2500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

7. Proposal Request Form: Use form acceptable to Design Professional or Engineer.

1.5 CHANGE ORDER PROCEDURES

A. On Engineer's approval of a Work Changes Proposal Request, Design Professional will issue a Change Order for signatures of Engineer and Contractor.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Design Professional or Engineer may issue a Construction Change Directive. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 012600

SECTION 01310

CONSTRUCTION SCHEDULES

PART 1 GENERAL

1.01 GENERAL

A. Provide construction schedule which conforms to the requirements below, unless otherwise approved by the ENGINEER.

B. Update schedules every one (1) month unless otherwise specified or directed by the ENGINEER.

C. In the preparation of the schedule, the CONTRACTOR shall take into consideration Shop Drawing submittal and approval time, the delivery times of equipment and materials, Subcontractors' work, availability and abilities of workmen, weather conditions, any restrictions in operations at the Work site, and all other items that may affect completion of the Work within the time requirements of the Contract Documents.

1.02 CONTENT

A. Shop Drawing submittal dates and required approval dates.

B. Product delivery dates.

C. Factory and field-testing dates.

D. Dates for beginning and completing each phase of the Work by activity and by trades. Include all milestone dates.

E. Other data as required by the ENGINEER.

1.03 FORMAT

A. Type: Horizontal bar chart.

B. Sheet Size: 24-inches by 36-inches.

C. Time Scale: Indicate first date in each work week.

D. Organization:

1. Show construction work by activity as the major schedule.

2. Indicate critical activities which dictate rate of progress.

3. Indicate Shop Drawing submittal dates by Specification Number.

4. Indicate product delivery period after Shop Drawing approval and critical delivery date (latest date that does not impede the rate of work).

E. Activity Designations: Show title and related Specification Section number.

1.04 SUBMITTALS

A. Submit six (6) copies of initial schedule to the ENGINEER at least twenty (20) days prior to submitting first application for a progress payment but no later than twenty-one (21) days after the effective date of the Notice to Proceed.

B. Submit six (6) copies of updated schedules at progress meetings. If a schedule remains unchanged from one period to the next, submit a written notice to that effect.

C. Attach a letter of transmittal to each submittal and include the following information in the letter:

1. A listing of items which have changed since the last submittal.

2. Discussion of problems causing delays, anticipated length of delays, and proposed countermeasures.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01311

PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. Requests for Information (RFIs).
4. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Requirements:

1. Section 01310 "Construction Schedule" for preparing and submitting Contractor's construction schedule.
2. Section 01730 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Section 01771 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Engineer, Design Professional, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.

3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.

4. Coordinate installation of above ceiling items to account for the limited above ceiling clearance.

C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Engineer and separate contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.

2. Preparation of the schedule of values.

3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Design Professional will return RFIs submitted to Design Professional by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Design Professional.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: AIA Document G716, or similar.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Design Professional's Action: Design Professional will review each RFI, determine action required, and respond. Allow seven working days for Design Professional's response for each RFI. RFIs received by Design Professional after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:

a. Requests for approval of submittals.

b. Requests for approval of substitutions.

c. Requests for approval of Contractor's means and methods.

d. Requests for coordination information already indicated in the Contract Documents.

e. Requests for adjustments in the Contract Time or the Contract Sum.

f. Requests for interpretation of Design Professional's actions on submittals.

g. Incomplete RFIs or inaccurately prepared RFIs.

2. Design Professional's action may include a request for additional information, in which case Design Professional's time for response will date from time of receipt of additional information.

3. Design Professional's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01260 "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Design Professional in writing within 10 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.

2. Name and address of Contractor.

3. Name and address of Design Professional.

4. RFI number including RFIs that were returned without action or withdrawn.

5. RFI description.

6. Date the RFI was submitted.

7. Date Design Professional's response was received.

F. On receipt of Design Professional's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Design Professional within seven days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Engineer and Design Professional of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Engineer and Design Professional, within three days of the meeting.

B. Preconstruction Conference: The County will schedule and the Design Professional will conduct a preconstruction conference before starting construction.

1. Attendees: Authorized representatives of the County, Design Professional, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that could affect progress, including the following:

a. Tentative construction schedule.

b. Critical work sequencing and long-lead items.

c. Designation of key personnel and their duties.

d. Lines of communications.

e. Procedures for processing field decisions and Change Orders.

f. Procedures for RFIs.

g. Procedures for testing and inspecting.

h. Procedures for processing Applications for Payment.

i. Submittal procedures.

j. Preparation of record documents.

k. Use of the premises and existing building.

l. Work restrictions.

m. Working hours.

n. Engineer's occupancy requirements.

o. Responsibility for temporary facilities and controls.

p. Procedures for disruptions and shutdowns.

q. Construction waste management.

r. Parking availability.

s. Office, work, and storage areas.

t. Equipment deliveries and priorities.

u. First aid.

v. Security.

w. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Project Coordinator will conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Design Professional, of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

a. Contract Documents.

b. Options.

c. Related RFIs.

d. Related Change Orders.

e. Purchases.

f. Deliveries.

g. Submittals.

h. Possible conflicts.

i. Compatibility requirements.

j. Time schedules.

k. Manufacturer's written instructions.

l. Warranty requirements.

m. Compatibility of materials.

n. Acceptability of substrates.

o. Temporary facilities and controls.

p. Space and access limitations.

q. Regulations of authorities having jurisdiction.

r. Testing and inspecting requirements.

s. Installation procedures.

t. Coordination with other work.

u. Required performance results.

v. Protection of adjacent work.

w. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.

4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Project Closeout Conference: Project Coordinator will schedule and conduct a project closeout conference, at a time convenient to Engineer and Design Professional, but no later than 90 days prior to the scheduled date of Substantial Completion, or as requested by Engineer.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.

2. Attendees: Authorized representatives of the County, Design Professional, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

a. Preparation of record documents.

b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.

c. Submittal of written warranties.

d. Requirements for preparing operations and maintenance data.

e. Requirements for delivery of material samples, attic stock, and spare parts.

f. Requirements for demonstration and training.

g. Preparation of Contractor's punch list.

h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.

i. Submittal procedures.

j. Coordination of separate contracts.

k. Installation of Engineer's furniture, fixtures, and equipment.

l. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

E. Progress Meetings: The Project Coordinator will conduct progress meetings at weekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.

2. Attendees: In addition to representatives of the County, and Design Professional, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

(1) Review schedule for next period.

b. Review present and future needs of each entity present, including the following:

(1) Temporary facilities and controls.

(2) Progress cleaning.

(3) Quality and work standards.

(4) Status of correction of deficient items.

(5) Field observations.

(6) Status of RFIs.

(7) Status of proposal requests.

(8) Pending changes.

(9) Status of Change Orders.

(10) Pending claims and disputes.

(11) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

   a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

F. Coordination Meetings: Project Coordinator will conduct Project coordination meetings at weekly intervals, as needed. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of the County, and Design Professional, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

   a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

   b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.

   c. Review present and future needs of each contractor present, including the following:

      (1) Interface requirements.

      (2) Sequence of operations.

      (3) Status of submittals.

      (4) Deliveries.

      (5) Temporary facilities and controls.

      (6) Work hours.

      (7) Hazards and risks.

      (8) Progress cleaning.

      (9) Quality and work standards.

(10) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 013100

SECTION 01323

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.

2. Periodic construction photographs.

B. Related Requirements:

1. Section 01771 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.

2. Section 01790 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Engineer's personnel.

3. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.

1.3 INFORMATIONAL SUBMITTALS

A. Digital Photographs: Submit image files within three days of taking photographs.

1. Submit photos on CD-ROM or thumb-drive. Include copy of key plan indicating each photograph's location and direction.

2. Identification: Provide the following information with each image description in file metadata tag:

a. Name of Project.

b. Name and contact information for photographer.

c. Name of Design Professional.

d. Name of Contractor.

e. Date photograph was taken.

f. Description of location, vantage point, and direction.

g. Unique sequential identifier keyed to accompanying key plan.

B. Video Recordings: Submit video recordings within seven days of recording.

1. Submit video recordings on a thumb drive. Include copy of key plan indicating each video's location and direction.
2. Identification: With each submittal, provide the following information in file metadata tag:
    a. Name of Project.
    b. Name and address of photographer.
    c. Name of Design Professional.
    d. Name of Contractor.
    e. Date video recording was recorded.
    f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
3. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in three-ring binders. Provide label on front and spine. Include a cover sheet with label information. Include name of Project and date of video recording on each page.

1.4 FORMATS AND MEDIA

A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.

B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

C. File Names: Name media files with date and sequential numbering suffix.

1.5 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs with maximum depth of field and in focus.
1. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Design Professional.
1. Take 50 photographs of existing buildings either on or adjoining property, to accurately record physical conditions at start of construction.
2. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.

2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 01310 "Construction Schedule" for submitting schedules and reports, including Contractor's construction schedule.

2. Section 01323 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and Final Completion construction photographs.

3. Section 01400 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.

4. Section 01720 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

5. Section 01771 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.

6. Section 01782 "Operation and Maintenance Data" for submitting operation and maintenance manuals.

7. Section 01790 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Engineer's personnel.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Design Professional's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Design Professional’s responsive action. Submittals may be rejected for not complying

with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Design Professional and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.

2. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

3. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.

    b. Specification Section number and title.

    c. Submittal Category: Action; informational.

    d. Name of subcontractor.

    e. Description of the Work covered.

    f. Scheduled date for Design Professional’s final release or approval.

    g. Scheduled dates for purchasing.

    h. Scheduled date of fabrication.

    i. Scheduled dates for installation.

    j. Activity or event number.

1.5 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.

2. Date.

3. Name of Design Professional.

4. Name of Contractor.
5. Name of firm or entity that prepared submittal.
6. Names of subcontractor, manufacturer, and supplier.
7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.
8. Category and type of submittal.
9. Submittal purpose and description.
10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
11. Drawing number and detail references, as appropriate.
12. Indication of full or partial submittal.
13. Location(s) where product is to be installed, as appropriate.
14. Other necessary identification.
15. Remarks.
16. Signature of transmitter.

B. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Design Professional on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

C. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

1.6 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

a. Design Professional will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Design Professional the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Design Professional’s receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.

2. Note date and content of revision in label or title block, and clearly indicate extent of revision.

3. Resubmit submittals until they are marked with approval notation from Design Professional's action stamp.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Design Professional's action stamp.

1.7 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts.

    b. Manufacturer's product specifications.

    c. Standard color charts.

    d. Statement of compliance with specified referenced standards.

    e. Testing by recognized testing agency.

    f. Application of testing agency labels and seals.

    g. Notation of coordination requirements.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams that show factory-installed wiring.

b. Printed performance curves.

c. Operational range diagrams.

d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.

b. Schedules.

c. Compliance with specified standards.

d. Notation of coordination requirements.

e. Notation of dimensions established by field measurement.

f. Relationship and attachment to adjoining construction clearly indicated.

g. Seal and signature of professional engineer if specified.

C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.

2. Identification: Permanently attach label on unexposed side of Samples that includes the following:

a. Project name and submittal number.

b. Generic description of Sample.

c. Product name and name of manufacturer.

d. Sample source.

e. Number and title of applicable Specification Section.

f. Specification paragraph number and generic name of each item.

3. Paper Transmittal: Include paper transmittal, including complete submittal information indicated.

4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples not incorporated into the Work, or otherwise designated as Engineer's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Design Professional will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit three sets of Samples. Design Professional retain one Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.

2. Manufacturer and product name, and model number if applicable.

3. Number and name of room or space.

4. Location within room or space.

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Design Professionals and Engineers, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of

assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.

2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.

5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.

6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.

2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

    a. Name of evaluation organization.

    b. Date of evaluation.

    c. Time period when report is in effect.

    d. Product and manufacturers' names.

    e. Description of product.

    f. Test procedures and results.

    g. Limitations of use.

1.8 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Design Professional.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.9 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Design Professional.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Design Professional will not review submittals received from Contractor that do not have Contractor's review and approval.

1.10 DESIGN PROFESSIONAL'S REVIEW

A. Action Submittals: Design Professional will review each submittal, indicate corrections or revisions required, and return.

1. PDF Submittals: Design Professional will indicate, via markup on each submittal, the appropriate action.

B. Informational Submittals: Design Professional will review each submittal and will not return it, or will return it if it does not comply with requirements. Design Professional will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Design Professional.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Design Professional will return without review submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Design Professional without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

CONTRACTOR SUBMITTAL COVER SHEET

Montgomery County Environmental Services

Name of Project

To:
Montgomery County Environmental Services
1850 Spaulding Road
Kettering, Ohio 45432

From:

- ☐ Plans
- ☐ Procedures
- ☐ Shop Drawings
- ☐ Schedules
- ☐ Supplier's Data
- ☐ Samples
- ☐ Other:

Submittal No.
Spec Section — Sequence No.
Rev.

Date:

☐ New Submittal ☐ Resubmittal

Project No.:

Contract No.:

No. of Copies	Spec and Paragraph No.	Drawing Brochure No.	TITLE/DESCRIPTION (Use a separate cover sheet for each submittal)

Items are transmitted as checked below:
☐ For information only ☐ For review & comment ☐ Other:

Contractor's Remark/Comments:

This certifies that all items submitted herewith have been checked by the Contractor, and are in conformance with the Contract Documents. Additionally, review of this submittal does not relieve the Contractor from responsibility of compliance with all requirements of the Contract Documents.

Signature: _____ Title: _____

Company: _____

Deviations/Variations/(if yes attach additional comments to explain) ☐ Yes ☐ No

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

Consultant Recommended Action Code

- ☐ No Exceptions Taken
- ☐ Furnish as Corrected
- ☐ Revise & Resubmit
- ☐ Rejected
- ☐ Information Only

Signature: _____

Printed Name: _____

Date: _____

Montgomery County Environmental Services Action Code

- ☐ No Exceptions Taken
- ☐ Furnish as Corrected
- ☐ Revise & Resubmit
- ☐ Rejected
- ☐ Information Only

Signature: _____

Printed Name: _____

Date: _____

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SECTION 01351

ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes special procedures for alteration work.

1.2 DEFINITIONS

A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.

B. Consolidate: To strengthen loose or deteriorated materials in place.

C. Design Reference Sample: A sample that represents the Design Professional's prebid selection of work to be matched; it may be existing work or work specially produced for the Project.

D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Design Professional.

F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.

G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.

K. Retain: To keep an element or detail secure and intact.

L. Strip: To remove existing finish down to base material unless otherwise indicated.

1.3 COORDINATION

A. Alteration Work Subschedule: A construction schedule coordinating the sequencing and scheduling of alteration work for entire Project, including each activity to be performed, and

based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for alteration work.

1. Schedule construction operations in sequence required to obtain best Work results.
2. Coordinate sequence of alteration work activities to accommodate the following:
    a. Engineer's continuing occupancy of portions of existing building.
    b. Engineer's partial occupancy of completed Work.
    c. Other known work in progress.
    d. Tests and inspections.
3. Detail sequence of alteration work, with start and end dates.
4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
5. Use of elevator and stairs.
6. Equipment Data: List gross loaded weight, axle-load distribution, and wheel-base dimension data for mobile and heavy equipment proposed for use in existing structure. Do not use such equipment without certification from Contractor's professional engineer that the structure can support the imposed loadings without damage.

1.4 PROJECT MEETINGS FOR ALTERATION WORK

A. Preliminary Conference for Alteration Work: Before starting alteration work, conduct conference at Project site.
    1. Attendees: In addition to representatives of Engineer, Design Professional, and Contractor, testing service representative, specialists, and chemical-cleaner manufacturer(s) shall be represented at the meeting.
    2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:
        a. Alteration Work Subschedule: Discuss and finalize; verify availability of materials, specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
        b. Fire-prevention plan.
        c. Governing regulations.
        d. Areas where existing construction is to remain and the required protection.
        e. Hauling routes.
        f. Sequence of alteration work operations.
        g. Storage, protection, and accounting for salvaged and specially fabricated items.
        h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.

i. Qualifications of personnel assigned to alteration work and assigned duties.

j. Requirements for extent and quality of work, tolerances, and required clearances.

k. Embedded work such as flashings and lintels, special details, collection of waste, protection of occupants and the public, and condition of other construction that affects the Work or will affect the work.

3. Reporting: Record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.

1.5 INFORMATIONAL SUBMITTALS

A. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements that are to remain, including finish surfaces, that might be misconstrued as damage caused by Contractor's alteration work operations.

B. Alteration Work Program: Submit 15 days before work begins.

C. Fire-Prevention Plan: Submit 15 days before work begins.

1.6 QUALITY ASSURANCE

A. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a "Lead-Safe Certified Firm" according to 40 CFR 745, Subpart E, and use only workers that are trained in lead-safe work practices.

B. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.

1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.

2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.

C. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with Engineer's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.

D. Safety and Health Standard: Comply with ANSI/ASSP A10.6.

1.7 STORAGE AND HANDLING OF SALVAGED MATERIALS

A. Salvaged Materials for Reinstallation:

1. Repair and clean items for reuse as indicated.

2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.

3. Protect items from damage during transport and storage.

4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.

B. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Design Professional, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.

C. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.

1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.

2. Secure stored materials to protect from theft.

3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F or more above the dew point.

1.8 FIELD CONDITIONS

A. Survey of Existing Conditions: Record existing conditions that affect the Work by use of measured drawings and preconstruction photographs.

1. Comply with requirements specified in Section 013233 "Photographic Documentation."

B. Discrepancies: Notify Design Professional of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.

C. Size Limitations in Existing Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within existing spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration work.

1. Use only proven protection methods, appropriate to each area and surface being protected.
2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
3. Erect temporary barriers to form and maintain fire-egress routes.
4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration work.
5. Contain dust and debris generated by alteration work and prevent it from reaching the public or adjacent surfaces.
6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.

B. Temporary Protection of Materials to Remain:

1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.

C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

D. Utility and Communications Services:

1. Notify Engineer, Design Professional, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration work before commencing operations.
2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.
3. Maintain existing services unless otherwise indicated; keep in service and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Design Professional immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.

1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

F. Existing Roofing: Prior to the start of work in an area, install roofing protection.

3.2 PROTECTION FROM FIRE

A. General: Follow fire-prevention plan and the following:

1. Comply with NFPA 241 requirements unless otherwise indicated. Perform duties titled "Engineer's Responsibility for Fire Protection."

2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.

a. If combustible material cannot be removed, provide fire blankets to cover such materials.

B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:

1. Obtain Engineer's approval for operations involving use of welding or other high-heat equipment. Use of open-flame equipment is not permitted. Notify Engineer at least 72 hours before each occurrence, indicating location of such work.

2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.

3. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.

4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.

5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.

6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:

a. Train each fire watch in the proper operation of fire-control equipment and alarms.

b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.

c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.

d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than 1 hour after conclusion of work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.

e. Maintain fire-watch personnel at each area of Project site until two hours after conclusion of daily work.

C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.

D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.

1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is complete.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

A. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.

B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.

C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.

D. Neutralize alkaline and acid wastes and legally dispose of off Engineer's property.

E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL ALTERATION WORK

A. Have specialty work performed only by qualified specialists.

B. Ensure that supervisory personnel are present when work begins and during its progress.

C. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation photographs. Comply with requirements in Section 013233 "Photographic Documentation."

D. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.

E. Notify Design Professional of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.

1. Do not proceed with the work in question until directed by Design Professional.

END OF SECTION 013516

SECTION 01400

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.

1.3 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).

D. Mockups: Physical assemblies of portions of the Work constructed to establish the standard by which the Work will be judged. Mockups are not Samples.

1. Mockups are used for one or more of the following:

a. Verify selections made under Sample submittals.

b. Demonstrate aesthetic effects.

c. Demonstrate the qualities of products and workmanship.

d. Demonstrate successful installation of interfaces between components and systems.

e. Perform preconstruction testing to determine system performance.

2. Product Mockups: Mockups that may include multiple products, materials, or systems specified in a single Section.

3. In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" has the same meaning as the term "testing agency."

I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Design Professional.

1.4 DELEGATED DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Design Professional.

B. Delegated Design Services Statement: Submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.5 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Design Professional regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Design Professional for clarification before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified is the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Design Professional for a decision before proceeding.

1.6 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:

1. Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

F. Reports: Prepare and submit certified written reports and documents as specified.

G. Permits, Licenses, and Certificates: For Engineer's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed. Submit in format acceptable to Design Professional. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities and to coordinate Engineer's quality-assurance and quality-control activities. Coordinate with Contractor's Construction Schedule.

B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections, including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.

2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.

3. Engineer-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring the Work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports, including log of approved and rejected results. Include Work Design Professional has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming Work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement of whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

4. Statement of whether conditions, products, and installation will affect warranty.

5. Other required items indicated in individual Specification Sections.

1.9 QUALITY ASSURANCE

A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists will satisfy qualification requirements indicated and engage in the activities indicated.

1. Requirements of authorities having jurisdiction supersede requirements for specialists.

G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and

perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following Contractor's responsibilities, including the following:

1. Provide test specimens representative of proposed products and construction.
2. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
3. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
4. When testing is complete, remove test specimens and test assemblies; do not reuse products on Project.
5. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Design Professional with copy to Contractor. Interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups of size indicated.
2. Build mockups in location indicated or, if not indicated, as directed by Design Professional.
3. Notify Design Professional seven days in advance of dates and times when mockups will be constructed.
4. Employ supervisory personnel who will oversee mockup construction. Employ workers who will be employed to perform same tasks during the construction at Project.
5. Demonstrate the proposed range of aesthetic effects and workmanship.
6. Obtain Design Professional's approval of mockups before starting corresponding Work, fabrication, or construction.
    a. Allow seven days for initial review and each re-review of each mockup.
7. Promptly correct unsatisfactory conditions noted by Design Professional's preliminary review, to the satisfaction of the Design Professional, before completion of final mockup.
8. Approval of mockups by the Design Professional does not constitute approval of deviations from the Contract Documents contained in mockups unless Design Professional specifically approves such deviations in writing.
9. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

10. Demolish and remove mockups when directed unless otherwise indicated.

1.10 QUALITY CONTROL

A. Engineer Responsibilities: Where quality-control services are indicated as Engineer's responsibility, Engineer will engage a qualified testing agency to perform these services.

1. Engineer will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.

2. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Engineer are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

2. Engage a qualified testing agency to perform quality-control services.

a. Contractor will not employ same entity engaged by Engineer, unless agreed to in writing by Engineer.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.

4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Design Professional and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Design Professional and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct and interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from requirements.

4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspection equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.

1. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor- and Engineer-retained services, commissioning activities, and other Project-required services paid for by other entities.
2. Distribution: Distribute schedule to Engineer, Design Professional, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.11 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Engineer will engage a qualified special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Engineer as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures, and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Design Professional and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Design Professional with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections, and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Design Professional.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Design Professional's and authorities' having jurisdiction reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 01420

REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Design Professional's action on Contractor's submittals, applications, and requests, "approved" is limited to Design Professional's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Design Professional. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

1. For standards referenced by applicable building codes, comply with dates of standards as listed in building codes.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

1. AABC - Associated Air Balance Council; www.aabc.com.
2. AAMA - American Architectural Manufacturers Association; (See FGIA).
3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
7. ABMA - American Boiler Manufacturers Association; www.abma.com.
8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
11. AF&PA - American Forest & Paper Association; www.afandpa.org.
12. AGA - American Gas Association; www.aga.org.
13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
15. AI - Asphalt Institute; www.asphaltinstitute.org.
16. AIA - American Institute of Architects (The); www.aia.org.
17. AISC - American Institute of Steel Construction; www.aisc.org.
18. AISI - American Iron and Steel Institute; www.steel.org.
19. AITC - American Institute of Timber Construction; www.plib.org.
20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
21. ANSI - American National Standards Institute; www.ansi.org.
22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
23. APA - APA - The Engineered Wood Association; www.apawood.org.
24. APA - Architectural Precast Association; www.archprecast.org.
25. API - American Petroleum Institute; www.api.org.
26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).

31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
34. ASSP - American Society of Safety Professionals (The); www.assp.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AVIXA - Audiovisual and Integrated Experience Association; (Formerly: Infocomm International); www.avixa.org.
38. AWEA - American Wind Energy Association; www.awea.org.
39. AWI - Architectural Woodwork Institute; www.awinet.org.
40. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
41. AWPA - American Wood Protection Association; www.awpa.com.
42. AWS - American Welding Society; www.aws.org.
43. AWWA - American Water Works Association; www.awwa.org.
44. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
45. BIA - Brick Industry Association (The); www.gobrick.com.
46. BICSI - BICSI, Inc.; www.bicsi.org.
47. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
48. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
49. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
50. CDA - Copper Development Association; www.copper.org.
51. CE - Conformite Europeenne; www.ec.europa.eu/growth/single-market/ce-marking.
52. CEA - Canadian Electricity Association; www.electricity.ca.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.

58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.compositepanel.org.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - CSA Group; www.csa-group.org.
65. CSI - Cast Stone Institute; www.caststone.org.
66. CSI - Construction Specifications Institute (The); www.csiresources.org.
67. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
68. CTA - Consumer Technology Association; www.cta.tech.
69. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.coolingtechnology.org.
70. CWC - Composite Wood Council; (See CPA).
71. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
72. DHA - Decorative Hardwoods Association; (Formerly: Hardwood Plywood & Veneer Association); www.decorativehardwoods.org.
73. DHI - Door and Hardware Institute; www.dhi.org.
74. ECA - Electronic Components Association; (See ECIA).
75. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
76. ECIA - Electronic Components Industry Association; www.ecianow.org.
77. EIA - Electronic Industries Alliance; (See TIA).
78. EIMA - EIFS Industry Members Association; www.eima.com.
79. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
80. EOS/ESD Association; (Electrostatic Discharge Association); www.esda.org.
81. ESTA - Entertainment Services and Technology Association; (See PLASA).
82. ETL - Intertek (See Intertek); www.intertek.com.
83. EVO - Efficiency Valuation Organization; www.evo-world.org.
84. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
85. FGIA - Fenestration and Glazing Industry Alliance; https://fgiaonline.org.
86. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.

87. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
88. FM Approvals - FM Approvals LLC; www.fmapprovals.com.
89. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
90. FRSA - Florida Roofing, Sheet Metal Contractors Association, Inc.; www.floridaroof.com.
91. FSA - Fluid Sealing Association; www.fluidsealing.com.
92. FSC - Forest Stewardship Council U.S.; www.fscus.org.
93. GA - Gypsum Association; www.gypsum.org.
94. GANA - Glass Association of North America; (See NGA).
95. GS - Green Seal; www.greenseal.org.
96. HI - Hydraulic Institute; www.pumps.org.
97. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
98. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
99. HPVA - Hardwood Plywood & Veneer Association; (See DHA).
100. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
101. IAS - International Accreditation Service; www.iasonline.org.
102. ICBO - International Conference of Building Officials; (See ICC).
103. ICC - International Code Council; www.iccsafe.org.
104. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
105. ICPA - International Cast Polymer Association; www.theicpa.com.
106. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
107. IEC - International Electrotechnical Commission; www.iec.ch.
108. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
109. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
110. IESNA - Illuminating Engineering Society of North America; (See IES).
111. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
112. IGMA - Insulating Glass Manufacturers Alliance; (See FGIA).
113. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.org.
114. II - Infocomm International; (See AVIXA).
115. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.

116. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
117. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
118. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
119. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
120. ISO - International Organization for Standardization; www.iso.org.
121. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
122. ITU - International Telecommunication Union; www.itu.int.
123. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
124. LMA - Laminating Materials Association; (See CPA).
125. LPI - Lightning Protection Institute; www.lightning.org.
126. MBMA - Metal Building Manufacturers Association; www.mbma.com.
127. MCA - Metal Construction Association; www.metalconstruction.org.
128. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
129. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
130. MHI - Material Handling Industry; www.mhi.org.
131. MIA - Marble Institute of America; (See NSI).
132. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
133. MPI - Master Painters Institute; www.paintinfo.com.
134. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
135. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
136. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
137. NADCA - National Air Duct Cleaners Association; www.nadca.com.
138. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
139. NALP - National Association of Landscape Professionals; www.landscapeprofessionals.org.
140. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
141. NBI - New Buildings Institute; www.newbuildings.org.
142. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.

143. NCMA - National Concrete Masonry Association; www.ncma.org.
144. NEBB - National Environmental Balancing Bureau; www.nebb.org.
145. NECA - National Electrical Contractors Association; www.necanet.org.
146. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
147. NEMA - National Electrical Manufacturers Association; www.nema.org.
148. NETA - InterNational Electrical Testing Association; www.netaworld.org.
149. NFHS - National Federation of State High School Associations; www.nfhs.org.
150. NFPA - National Fire Protection Association; www.nfpa.org.
151. NFPA - NFPA International; (See NFPA).
152. NFRC - National Fenestration Rating Council; www.nfrc.org.
153. NGA - National Glass Association (The); (Formerly: Glass Association of North America); www.glass.org.
154. NHLA - National Hardwood Lumber Association; www.nhla.com.
155. NLGA - National Lumber Grades Authority; www.nlga.org.
156. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
157. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
158. NRCA - National Roofing Contractors Association; www.nrca.net.
159. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
160. NSF - NSF International; www.nsf.org.
161. NSI - National Stone Institute; (Formerly: Marble Institute of America); www.naturalstoneinstitute.org.
162. NSPE - National Society of Professional Engineers; www.nspe.org.
163. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
164. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
165. NWFA - National Wood Flooring Association; www.nwfa.org.
166. NWRA - National Waste & Recycling Association; www.wasterecycling.org
167. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
168. PDI - Plumbing & Drainage Institute; www.pdionline.org.
169. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
170. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
171. RFCI - Resilient Floor Covering Institute; www.rfci.com.

172. RIS - Redwood Inspection Service; www.redwoodinspection.com.
173. SAE - SAE International; www.sae.org.
174. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
175. SDI - Steel Deck Institute; www.sdi.org.
176. SDI - Steel Door Institute; www.steeldoor.org.
177. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
178. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
179. SIA - Security Industry Association; www.siaonline.org.
180. SJI - Steel Joist Institute; www.steeljoist.org.
181. SMA - Screen Manufacturers Association; www.smainfo.org.
182. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
183. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
184. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
185. SPIB - Southern Pine Inspection Bureau; www.spib.org.
186. SPRI - Single Ply Roofing Industry; www.spri.org.
187. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
188. SSINA - Specialty Steel Industry of North America; www.ssina.com.
189. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
190. STI - Steel Tank Institute; www.steeltank.com.
191. SWI - Steel Window Institute; www.steelwindows.com.
192. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
193. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
194. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
195. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
196. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
197. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
198. TMS - The Masonry Society; www.masonrysociety.org.
199. TPI - Truss Plate Institute; www.tpinst.org.

200. TPI - Turfgrass Producers International; www.turfgrasssod.org.
201. TRI - Tile Roofing Institute; www.tileroofing.org.
202. UL - Underwriters Laboratories Inc.; www.ul.com.
203. UL LLC - UL LLC; www.ul.com.
204. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
205. USAV - USA Volleyball; www.usavolleyball.org.
206. USGBC - U.S. Green Building Council; www.usgbc.org.
207. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
208. WA - Wallcoverings Association; www.wallcoverings.org.
209. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
210. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
211. WDMA - Window & Door Manufacturers Association; www.wdma.com.
212. WI - Woodwork Institute; www.wicnet.org.
213. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
214. WWPA - Western Wood Products Association; www.wwpa.org.

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.
5. OBC - Ohio Building Code

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOE - Department of Energy; www.energy.gov.
5. EPA - Environmental Protection Agency; www.epa.gov.

6. FAA - Federal Aviation Administration; www.faa.gov.
7. FG - Federal Government Publications; www.gpo.gov/fdsys.
8. GSA - General Services Administration; www.gsa.gov.
9. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
10. OSHA - Occupational Safety & Health Administration; www.osha.gov.
11. USPS - United States Postal Service; www.usps.com.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, testing agencies, and authorities having jurisdiction.

B. Sewer Service: Engineer will pay sewer-service use charges for sewer usage by all entities for construction operations.

C. Water Service: Engineer will pay water-service use charges for water used by all entities for construction operations.

D. Electric Power Service: Engineer will pay electric-power-service use charges for electricity used by all entities for construction operations.

E. Water and Sewer Service from Existing System: Water from Engineer's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

F. Electric Power Service from Existing System: Electric power from Engineer's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.

C. Project Identification and Temporary Signs: Not required. Contractor may display their own Project Identification Sign at Contractor's cost and as approved by the Engineer.

D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

E. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
3. Indicate methods to be used to avoid trapping water in finished work.

F. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust-and HVAC-control measures proposed for use, proposed locations and proposed time frame for their operation. Include the following:

1. Location of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste-handling procedures.
5. Other dust-control measures.

G. Noise and Vibration Control Plan: Identify construction activities that may impact the occupancy and use of existing spaces within the building or adjacent existing buildings, whether occupied by others, or occupied by Engineer. Include the following:

1. Methods used to meet the goals and requirements of Engineer.
2. Concrete cutting method(s) to be used.
3. Location of construction devices on the site.
4. Show compliance with the use and maintenance of quieted construction devices for the duration of the Project.
5. Indicate activities that may disturb building occupants and that are planned to be performed during non-standard working hours as coordinated with Engineer.
6. Indicate locations of sensitive equipment areas or other areas requiring special attention as identified by Engineer. Indicate means for complying with Engineer's requirements.

1.5 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in ICC/ANSI A117.1.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Engineer's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top and bottom rails. Provide concrete bases for supporting posts.

B. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil (0.25-mm) minimum thickness, with flame-spread rating of 15 or less in accordance with ASTM E84 and passing NFPA 701 Test Method 2.

C. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats, minimum 36 by 60 inches.

D. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Engineer, Design Professional, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

1. Furniture required for Project-site documents, including file cabinets, plan tables, plan racks, and bookcases.
2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack and marker boards.

3. Drinking water and private toilet.
4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
5. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Engineer authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.

2. Heating, Cooling, and Dehumidifying Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

3. Permanent HVAC System: If Engineer authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Section 017700 "Closeout Procedures."

C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Engineer's property.

3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

C. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

1. Prior to commencing work, isolate the HVAC system in area where work is to be performed according to coordination drawings.

a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.

b. Maintain negative air pressure within work area, using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.

2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.

3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Engineer, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

D. Water Service: Connect to Engineer's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Engineer. At Substantial Completion, restore these facilities to condition existing before initial use.

E. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

1. Use of Permanent Toilets: Use of Engineer's existing or new toilet facilities will not be permitted.

F. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.

G. Electric Power Service: Connect to Engineer's existing electric power service. Maintain equipment in a condition acceptable to Engineer.

H. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

1. Install electric power service underground unless otherwise indicated.

2. Connect temporary service to Engineer's existing power source, as directed by Engineer.

I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

J. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel.

1. At each telephone, post a list of important telephone numbers.

a. Police and fire departments.

b. Ambulance service.

c. Contractor's home office.

d. Contractor's emergency after-hours telephone number.

e. Design Professional's office.

f. Engineers' offices.

g. Engineer's office.

h. Principal subcontractors' field and home offices.

K. Electronic Communication Service: Provide secure WiFi wireless connection to internet with provisions for access by Design Professional and Engineer.

3.4 SUPPORT FACILITIES INSTALLATION

A. Comply with the following:

1. Provide construction for temporary field offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible in accordance with ASTM E136. Comply with NFPA 241.

2. Maintain support facilities until Design Professional schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Engineer.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain, including curbs, pavement, and utilities.

2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Use designated areas of Engineer's existing parking areas for construction personnel.

D. Storage and Staging: Use designated areas of Project site for storage and staging needs.

E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs as indicated on Drawings.

2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

a. Provide temporary, directional signs for construction personnel and visitors.

3. Maintain and touch up signs, so they are legible at all times.

F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

H. Existing Elevator Use: Use of Engineer's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Engineer. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.

1. Do not load elevators beyond their rated weight capacity.
2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work, so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.

I. Existing Stair Usage: Use of Engineer's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Engineer. At Substantial Completion, restore stairs to condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas, so no evidence remains of correction work.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property Engineer to access property for that purpose.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 011000 "Summary."

C. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals, so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.

D. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

F. Temporary Egress: Provide temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction. Provide signage directing occupants to temporary egress.

G. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.

1. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
2. Paint and maintain appearance of walkway for duration of the Work.

H. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

I. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Engineer from fumes and noise.

1. Construct dustproof partitions with gypsum wallboard, with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
2. Insulate partitions to control noise transmission to occupied areas.
3. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
4. Protect air-handling equipment.
5. Provide walk-off mats at each entrance through temporary partition.

J. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition in accordance with requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign, stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

A. Moisture and Mold Protection: Protect stored materials and installed Work in accordance with Moisture and Mold Protection Plan.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.
2. Protect stored and installed material from flowing or standing water.
3. Keep porous and organic materials from coming into prolonged contact with concrete.
4. Remove standing water from decks.
5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
2. Keep interior spaces reasonably clean and protected from water damage.
3. Periodically collect and remove waste containing cellulose or other organic matter.
4. Discard or replace water-damaged material.

5. Do not install material that is wet.

6. Discard and replace stored or installed material that begins to grow mold.

7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.

D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.

2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.

3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective and require replacing.

b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Design Professional.

c. Remove and replace materials that cannot be completely restored to their manufactured moisture level within 48 hours.

3.7 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Engineer reserves right to take possession of Project identification signs.

2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove

soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 01560

TEMPORARY CONTROLS AND REGULATORY
REQUIREMENTS FOR ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.01 GENERAL

A. Each CONTRACTOR shall provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site and adjacent areas. Remove physical evidence of temporary facilities at completion of Work.

B. Each CONTRACTOR shall adhere to all federal, state, and local laws, permits, and regulations concerning environmental pollution and its control and all other controls required by this Section and the Contract Documents.

C. CONTRACTOR shall cease operations determined by ENGINEER to be in noncompliance with the requirements of this Section. The CONTRACTOR shall make every effort to take corrective action promptly. The ENGINEER shall issue an order to stop all or part of the Work should the CONTRACTOR fail to comply promptly. No part of time loss due to such stoppage shall be used for claims for extension of time and additional monetary compensation.

D. Disposals: Construction wastes, excess excavated material, unsalvageable materials, devices, and equipment not required to be turned over to OWNER shall not be allowed to remain on construction site except for clean fill dirt. Construction waste to be disposed of shall include, but is not limited to, wood, wallboard, support steel, packing, roofings, floorings, oils, pesticides, herbicides, paints, thinners, cleaners, etc. Comply with the disposal requirements stated in Section 01710, Cleaning.

1.02 NOISE CONTROL

A. CONTRACTOR's vehicles and equipment shall be operated and maintained to minimize noise to the greatest degree practicable. Noise levels shall conform to the latest OSHA standards and shall not exceed maximum permitted levels established by local codes, ordinances, standards and regulations. In no case will noise levels be permitted which interfere with the work of the OWNER or others.

B. Motorized equipment shall be equipped with intake silencers and mufflers.

1.03 DUST CONTROL

A. Each CONTRACTOR shall maintain work areas free from dust which would contribute to air pollution or otherwise be objectionable or a nuisance. Approved temporary methods of stabilization consisting of water sprinkling or similar methods will be permitted to control dust. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the CONTRACTOR must have sufficient competent equipment on the job to accomplish this task. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

1. Do not use calcium chloride on paved surfaces.

1.04 PEST AND RODENT CONTROL

A. Each prime CONTRACTOR shall provide rodent and pest control as necessary to prevent infestation of construction or storage area.

1. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.

2. Comply with all Ohio EPA and federal regulations.

1.05 POLLUTION CONTROL

A. Provide methods, means and facilities required to prevent pollution of soil, groundwater, surface water or atmosphere with fuels, oils, bitumens, calcium chloride, construction wastes, and other harmful substances from construction operations.

1. Pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; or unfavorably affect other species of importance.

B. Spills, Discharges and Releases:

1. Provide necessary equipment and personnel and perform emergency measures required to contain any spillages, discharges and releases and to remove contaminated soils or liquids.

2. Excavate and dispose of any contaminated earth offsite and replace with suitable compacted fill and topsoil.

3. Take all action necessary to prevent harmful substances from entering surface waters or groundwater. Prevent release of soil, sediment, wastes, effluents, chemicals, and other such substances adjacent to and in streams, sanitary sewers and storm sewers.

4. CONTRACTOR shall report all fuel/chemical spills, discharges and releases that occur to the appropriate regulatory agency regardless of who is responsible. The spills, discharges and releases shall also be reported to the ENGINEER with the report made immediately following awareness of the incident.

5. The CONTRACTOR shall clean up all spills, discharges and releases caused by the CONTRACTOR's negligence of faulty equipment. The cleanup methods shall be as required by or acceptable to the ENGINEER.

6. The CONTRACTOR shall reimburse the OWNER for all materials and assistance provided by the OWNER and used in containment or cleanup of those spills, discharges and releases caused by the CONTRACTOR's negligence or faulty equipment.

C. Provide systems for control of atmospheric pollutants.

1. Prevent toxic concentrations of chemicals.

2. Prevent harmful dispersal of pollutants into the atmosphere.

D. Burning. No open burning of any construction waste and/or unsalvageable materials shall be allowed.

E. Litter. Litter shall be controlled and containerized at all times. Care will be exercised to ensure that no litter is lost from any vehicle while in transit to and from the construction site.

F. All CONTRACTOR's equipment used during construction shall conform to all current federal, state and local laws and regulations.

1.06 EROSION CONTROL

A. CONTRACTOR shall comply with all requirements of local, state and federal storm water regulations.

B. CONTRACTOR shall comply with all requirements of Ohio EPA Permit number OHC000004 - "Authorization for Storm Water Discharges Associated with Construction Activity under the National Pollutant Discharge Elimination System".

C. CONTRACTOR shall obtain permit coverage from the Ohio Environmental Protection Agency under permit OHC000004. CONTRACTOR shall submit to the Ohio EPA a Notice of Intent (NOI), a site map (8 1/2" x 11"), a permit fee (expected fee between $200 and $500), prepare a Storm Water Pollution Prevention Plan, and perform and submit all other items necessary to achieve coverage under the permit. See Miscellaneous Forms for the NOI form and instructions.

D. CONTRACTOR shall avoid, to the greatest extent possible and in accordance with the Contract Documents and the Storm Water Pollution Prevention Plan, disturbance to the stream bank and streambed and prevent erosion and sediment runoff.

E. Each CONTRACTOR shall plan and execute construction and earth work by methods to control surface water drainage from the entire construction site including from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation in compliance with the approved Storm Water Pollution Prevention Plan and as follows:

1. Reduce by the greatest extent practicable the area and duration of exposure of readily erodible soils.

2. Protect the soils by use of temporary vegetation, or seeding and mulch, or by accelerating the establishment of permanent vegetation. Complete and protect segments of work as rapidly as is consistent with approved construction schedules.

3. Provide temporary measures such as berms, dikes, erosion control fences, silt barriers, geotextiles, drains, etc. to protect storm sewers, streams, and all water conveying systems from water-borne sediment and to control surface water drainage.

4. Control fill, grading and ditching to direct surface water drainage away from excavations, pits, tunnels and other construction areas; and to direct drainage to proper runoff courses so as to prevent any erosion, damage or nuisance.

5. Trap sediment resulting from the construction site and control disposal of surface water drainage.

6. Provide temporary measures for the control of erosion in the event construction operations are suspended for any appreciable length of time.

7. Provide protection against discharge of pollutants such as chemicals, fuel, lubricants, sewage, etc. into any stream, sewer and water drainage course.

8. For slopes greater than 2 to 1 (two feet of horizontal distance to one foot of vertical rise), provide water diversion berms, sod or jute or excelsior blankets at a minimum.

F. Provide, operate and maintain equipment and facilities of adequate size to control surface water drainage.

G. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas and in conformance with all environmental requirements.

H. Construct fills and waste areas by selective placement to eliminate surface silts or clays which will erode.

I. Periodically inspect earthwork to detect any evidence of the start of erosion and apply corrective measures as required to control erosion.

1.07 STREAM CROSSING/ RIPARIAN ZONE CONSTRUCTION

A. CONTRACTOR shall take all action necessary to minimize damage to vegetation and trees in the riparian zone adjacent to streams.

1. Definitions: The latest definition of similar terms or concepts by the Ohio Environmental Protection Agency shall supersede the definitions following:

a. Riparian zone is defined to extend a minimum distance of two and one-half times the stream width, from top of bank to top of bank, on each side of the stream.

b. Streams are defined as any water course draining an area equal to one half square mile or greater.

B. General CONTRACTOR shall prepare a detailed work plan including but not limited to the following information:

1. Locations of haul roads, stockpile sites, and staging areas.

2. Protection of existing vegetation.

3. Types of erosion control measures to be employed.

4. Places where erosion control measures will be used.

5. Methods to be used for stream crossing work.

6. Types of temporary bridges, culverts, etc. proposed to be used for haul roads crossing streams.

7. Restoration of disturbed areas in stages to match work progress and minimize impacts.

C. General CONTRACTOR shall present the work plan in draft form at the pre-construction conference. Final work plan incorporating review comments shall be submitted to ENGINEER prior to the start of construction in impacted areas.

D. As directed by ENGINEER, General CONTRACTOR shall prepare and submit a videotape record of pre-construction condition of stream crossing and riparian zone construction areas.

E. Each CONTRACTOR's practices during construction in stream crossings and riparian zones shall include but not be limited to the following:

1. Limit clearing and grubbing activities within easements to only that needed for actual construction.

2. Perform clearing and grubbing work (and site restoration) in stages to limit soil exposure and sediment runoff.

3. Properly install and maintain erosion control devices along the limits of construction and wherever required by work plan. Maintain erosion control devices until permanent vegetative cover has been established.

4. Place all dredged material at an upland site in such a way that sediment runoff to the waterway is controlled and minimized.

5. Restrict any stream crossing work to low flow periods.

6. Preserve all streambank vegetation at crossing sites, except that necessary for actual excavation and equipment passage, to help maintain bank stability. Protect as many trees as possible from construction activity. Do not stockpile any material within tree driplines.

7. Ensure bank stability at all times, including, but not limited to, placement of riprap or bank seeding.

8. Divert stream flow around the work site during stream crossing work to minimize bank erosion.

    a. Flow Diversion: Divert flows so as to prevent discharge of any spoil materials, sediment, construction debris and excavated materials into the stream waters.

9. Employ extreme care throughout the course of work to avoid the creation of unnecessary sediment or debris in the water which may degrade water quality or adversely affect aquatic life outside the work area.

10. Discharge any dewatering flows in such a manner so as to avoid causing soil erosion or stream siltation.

    a. Direct discharge of dewatering flows is strictly prohibited. Sediment shall be removed from dewatering flows by use of siltation basins or filters.

    b. After sediment has been removed, dewatering flows can be discharged to stable sites such as streams or storm sewers, however, they shall not be discharged to exposed soils, stream banks, or any other site where flows could cause erosion.

11. Repair immediately any damages to the immediate environment caused by construction or hauling equipment.

12. Do not alter natural stream courses.

F. The completed stream crossing shall not impede the flow of water or create an impoundment of water upstream except as allowed by appropriate permits.

G. Indiscriminate, arbitrary or capricious operation of any equipment in a stream corridor, wetland, or surface water is strictly prohibited.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01600

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for requests for substitutions.
2. Section 014200 "References" for applicable industry standards for products specified.
3. Section 01770 "Closeout Procedures" for submitting warranties.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products, unless indicated otherwise.
3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in Part 2 "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.

1. Evaluation of Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.

D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:

1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.

2. Data indicating compliance with the requirements specified in Part 2 "Comparable Products" Article.

E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 013300 "Submittal Procedures."

F. Substitution: Refer to Section 012500 "Substitution Procedures" for definition and limitations on substitutions.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. If dispute arise between contractors over concurrently selectable but incompatible products, Design Professional will determine which product shall be used.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.

2. Equipment Nameplates: Provide a permanent nameplate on each item of service- or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:

a. Name of product and manufacturer.

b. Model and serial number.

c. Capacity.

d. Speed.

e. Ratings.

3. See individual identification Sections in Divisions 21, 22, 23, and 26 for additional equipment identification requirements.

1.5 COORDINATION

A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to determine compliance with the Contract Documents and that products are undamaged and properly protected.

C. Storage:

1. Provide a secure location and enclosure at Project site for storage of materials and equipment.

2. Store products to allow for inspection and measurement of quantity or counting of units.

3. Store materials in a manner that will not endanger Project structure.

4. Store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.

5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.

6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

7. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of the Engineer or endorsed by manufacturer to Engineer.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Engineer and issued in the name of the Engineer or endorsed by manufacturer to Engineer.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.

2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.

3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.

3. Engineer reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.

4. Where products are accompanied by the term "as selected," Design Professional will make selection.

5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

6. Or Equal: For products specified by name and accompanied by the term "or equal," "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

    a. Submit additional documentation required by Design Professional in order to establish equivalency of proposed products. Unless otherwise indicated, evaluation of "or equal" product status is by the Design Professional, whose determination is final.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole product may be indicated by the phrase "Subject to compliance with requirements, provide the following."

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole manufacturer/source may be indicated by the phrase "Subject to compliance with requirements, provide products by the following."

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."

4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed or an unnamed product that complies with requirements.

    a. Non-limited list of products is indicated by the phrase "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following."

    b. Provision of an unnamed product is not considered a substitution, if the product complies with requirements.

5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."

6. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require the phrase "match Design Professional's sample," provide a product that complies with requirements and matches Design Professional's sample. Design Professional's decision will be final on whether a proposed product matches.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Design Professional from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Design Professional will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Design Professional will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Design Professional may return requests without action, except to record noncompliance with the following requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.

2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes, such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.

3. Evidence that proposed product provides specified warranty.

4. List of similar installations for completed projects, with project names and addresses and names and addresses of Design Professionals and Engineers, if requested.

5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 01710

CLEANING

PART 1 GENERAL

1.01 GENERAL

A. Each prime CONTRACTOR shall execute cleaning during progress of the Work, at completion of the Work, and as required by the General Conditions.

B. Requirements of Regulatory Agencies:

1. In addition to the requirements herein, maintain the cleanliness of the Project site, the construction area, the surrounding premises, all temporary storage yards and staging areas so as to comply with federal, state, and local fire and safety laws, ordinances, codes and regulations.

2. Comply with all federal, state and local anti-pollution laws, ordinances, codes and regulations when disposing of any material, waste materials, debris and rubbish.

C. Waste Disposal:

1. Dispose of all waste materials, surplus materials, debris and rubbish off the project site.

2. Do not burn or bury rubbish and waste materials on the project site.

3. Do not dispose of volatile compounds or hazardous wastes such as fuels, cleaning agents, mineral spirits, oil, paint thinner, etc. in storm drains, sanitary sewers, streams, waterways and any other conveyance system.

4. Do not discharge wastes into streams or waterways.

5. Do not discharge wastes into plant drains or process units. In no case can wastes be allowed to enter County operated systems.

D. Cleaning Materials:

1. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

2. Use each type of cleaning product on only those surfaces recommended by the cleaning product manufacturer.

3. Use only materials which will not create hazards to health or property.

1.02 SCHEDULING

A. Scheduling of Cleaning and Disposal Operations:

1. Schedule such operations so that dust, wash water or other contaminants generated during such operations do not damage or mar painted or finished surfaces.

2. Schedule such operations to prevent accumulation of dust, dirt, debris, rubbish and waste materials on or within the Work or on the premises surrounding the Work.

B. Cleaning and disposal operations shall be performed once a day at a minimum and as required to accomplish the requirements of this Section:

1. During Construction:

   a. Keep the Project site, the construction area, the surrounding premises, all temporary storage yards and staging areas and surrounding premises free of accumulations of dirt, dust, waste materials, debris and rubbish.

   b. Keep dust generating areas wetted down. The requirements for dust control is further defined in Section 01560.

   c. Provide suitable containers for storage of waste materials, debris and rubbish until time of disposal.

   d. Dispose of waste, debris and rubbish off site at legal disposal areas.

2. When Project is Completed:

   a. Remove and dispose of all excess or waste materials, debris, rubbish, and temporary facilities from the site, structures and all facilities.

   b. Remove spatter, grease, stains, fingerprints, dirt, dust, labels, tags, packing materials and other foreign items or substances from interior and exterior surfaces, equipment, signs and lettering.

   c. Repair, patch and touch up chipped, scratched, dented or otherwise marred surfaces to match specified finish.

   d. Remove paint, clean and restore all equipment and material nameplates, labels and other identification markings.

   e. Wash and shine mirrors, glazing and polished surfaces.

   f. Clean all floors, slabs, pavements, and ground surfaces.

   g. Maintain cleaning until acceptance and occupation by OWNER.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01720

RECORD DOCUMENTS

PART 1 GENERAL

1.01 GENERAL

A. CONTRACTOR shall maintain and provide record documents as specified in paragraph 7.11 of the General Conditions and herein, except where otherwise specified or modified in Divisions 2-16. The General CONTRACTOR shall have the responsibility of ensuring that each of the other prime CONTRACTORs maintains the record documents specified herein.

B. Maintenance of Documents:

1. Maintain in each prime CONTRACTOR's field office in clean, dry, legible condition complete sets of the following: Drawings, Specifications, Addenda, approved Shop Drawings, Samples, photographs, Change Orders, other modifications of Contract Documents, test records, survey data, Field Orders, and all other documents pertinent to CONTRACTOR's Work.

2. Provide files and racks for proper storage and easy access. File in accordance with filing format of Construction Specification Institute (CSI), unless otherwise approved by the ENGINEER.

3. Make documents available at all times for inspection by the ENGINEER, and OWNER.

4. Record Documents shall not be used for any other purpose and shall not be removed from the CONTRACTOR's office without ENGINEER's approval.

C. Marking System: Provide colored pencils or felt tipped pens for marking changes, revisions, additions and deletions, to the record set of Drawings.

1. Use following color code for all structures and systems except underground utilities, unless otherwise approved by the ENGINEER.

a. Process and Mechanical: Red.

b. Architectural: Blue.

c. Structural: Purple.

d. Plumbing: Brown.

e. HVAC: Green.

f. Electrical: Orange.

g. Other Printed Notations: Black.

2. For underground utilities use the Montgomery County Standard Underground Protection Service color coding system.

Sanitary Sewer - Green Phone - Orange

Storm Sewer - Green	CATV - Orange
Electric - Red	Water - Blue
Gas - Yellow	

D. Recording

1. Label each document "PROJECT RECORD" in 2-inch high printed letters.

2. Keep record documents current.

3. Do not permanently conceal any Work until required information has been recorded.

4. CONTRACTOR shall utilize dimensional measurements, state plane coordinates, and elevations to provide survey accurate data for all sanitary sewer and water appurtenances and facilities installed for this project. This information shall be incorporated into the as-built drawings of the Work. Any point that will be covered, such as lateral wyes/tees, ends of casings, and deflection points for water mains, shall be located prior to being covered by three horizontal reference points approximately 120 degrees apart. The points shall be nails, stakes, or other fixed points that will enable the reestablishment of the horizontal location of the point after the item is covered. Elevations of each point shall be determined prior to covering the point.

1.02 DRAWINGS

A. Comply with the Montgomery County Environmental Services Rules and Regulations and legibly mark to record actual construction including but not limited to:

1. Depths of various elements of foundation/construction in relation to NAD 83 datum.

2. Horizontal location of all underground utilities and appurtenances referenced to permanent surface improvements.

3. Horizontal locations referenced to the State Plane Coordinate System.

4. Prepare additional drawings as necessary.

5. Information to be recorded shall include but not be limited to:

6. Physical location of manholes, bends, hydrants, and valves by horizontal control to two permanent surface objects and by State Plane Coordinates,

7. Angles between lines,

8. Lengths of spans, and

9. Elevations of all pipe inverts and tops of manholes.

10. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.

11. Field changes of dimensions and details.

12. Changes made by Amendment or Field Order.

13. Material description of each pipe installed.

14. Details not on original Drawings.

15. All sanitary manholes, lampholes and water valves shall be located with a minimum of two (2) horizontal dimensions. The two (2) dimensions shall not be on the same line to the appurtenance or on the same line on either side of the appurtenance. The angles between dimension lines should be between 20 and 160 degrees.

16. All record location dimensions shall be measured in feet and tenths of a foot and shall not exceed 100 feet in length.

    a. The character height of numbers shall be between 0.125 inches minimum and 0.5 inches maximum.

    b. Dimension lines shall be shown on each drawing except where they would add substantial confusion in interpreting the drawing. In those cases, a detail shall be included on the same plan sheet. The detail shall include the dimensions and an arrow pointing to the area of the drawing represented by the detail.

    c. Dimensions shall be from centerline to centerline of each object except for house corners and catch basins (see paragraph 6 below).

17. Dimensions shall be level distances unless noted under special conditions.

18. The following shall be required on all record drawings:

    a. Measured distance between valves within each intersection and at each tee and cross. These dimensions shall be in addition to the two (2) required dimension locations.

    b. Measured distance between fire hydrants and fire hydrant valves.

    c. Measured distances between sanitary manholes, and between a sanitary sewer and a lamphole, shall be shown on the plan. Length of span, grade size of pipe, pipe material and invert elevations shall be shown in the profile.

    d. The plan view of pipe length and location on the plan and profile drawing shall be changed for any constructed span length or horizontal location that differs more than five (5) feet from the design. The span length on both the plan and profile shall labeled with the constructed length.

    e. The profile view on the plan and profile drawing shall be changed for any constructed sanitary or storm sewer invert elevation that differs more than 0.5 feet from the design elevation. The invert elevations shall be labeled with the constructed invert elevations.

    f. The plan view of a constructed water main shall be changed for any horizontal location that differs more than five (5) feet from the design location.

19. The following is a list of objects that are acceptable for as-built dimension references, in order of preference:

    a. Fire Hydrant.

b. Curb. All curb dimensions shall be to the back of the curb and shall not be to any curb or extended curb lines with a radius.

c. Catch basins. Dimensions shall be to the nearest corner of the street edge on the street side. The street name and reference corner on the catch basin shall be indicated.

d. Sanitary Manhole may be used for valve locations.

e. Permanent Utility Pole (pole number shall be included).

f. House Corner. The house street address shall be indicated when a dimension to a house corner is used. Show the entire outline of the house and designate the reference corner for the measured dimension.

g. Corner of a drive. The house street address shall be indicated when a dimension to a driveway corner is used.

20. MCES will possess copies of all vendor and CONTRACTOR Electronic drawing files at the end of the project. The Electronic drawing files shall be provided in AutoCAD® 2018. This includes but is not limited to: PLC control panels, motor control centers, motor starters, switchgear, automatic and manual transfer switches, panels and switchboards, mobile and permanent generators, and any other equipment provided for this project.

1.03 SPECIFICATIONS AND ADDENDA

A. Legibly mark up each Section to record:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.

2. Changes made by Amendment or Field Order.

3. Other matters not originally specified.

1.04 DATABASE

A. See Section S-01050, Field Engineering/Surveying for additional requirements related to database submission.

1.05 GRADE CERTIFICATION

A. Grade Certification: Grade certifications shall be prepared, signed, dated and sealed by a State of Ohio Registered Surveyor or Engineer. The certifications shall be in a tabular format. Rows shall be manhole numbers. Columns shall include:

1. Upstream Manhole Number

2. Inlet Pipe diameter (inches)

3. Invert elevation (feet)

4. Elevation difference (feet)

5. Span length (feet)

6. Grade (%)

7. Top of Casting elevation (feet)

8. Northing (state plane coordinate)

9. Easting (state plane coordinate)

10. Comments

PART 2 PRODUCTS

2.01 SUBMITTAL

A. Upon Substantial Completion of the Work, deliver Record Documents to the ENGINEER. Final payment will not be made until satisfactory Record Documents are received by the ENGINEER. Record Documents shall include the following:

1. One marked paper copy of the design drawings with as-built information.

2. One (1) original signed copy of the grade certification.

3. One database table as specified in Section S-01050.

B. Accompany submittal with transmittal letter containing:

1. Date.

2. Project title and number.

3. CONTRACTOR's name and address.

4. Title and number of each record document.

5. Certification that each document as submitted is complete and accurate.

6. Signature of CONTRACTOR, or his authorized representative.

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01730

EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of Engineer's portion of the Work.
6. Coordination of Engineer-installed products.
7. Progress cleaning.
8. Starting and adjusting.
9. Protection of installed construction.
10. Correction of the Work.

B. Related Requirements:

1. Section 01100 "Summary" for coordination of Engineer-performed work , Engineer's separate contracts, and limits on use of Project site.
2. Section 01771 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Engineer-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
3. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.
4. Section 078413 "Penetration Firestopping" for patching penetrations in fire-rated construction.

1.2 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.3 PREINSTALLATION MEETINGS

A. Cutting and Patching Conference: Conduct conference at Project site.

1. Prior to commencing work requiring cutting and patching, review extent of cutting and patching anticipated and examine procedures for ensuring satisfactory result from cutting and patching work. Inform Design Professional of scheduled meeting. Require representatives of each entity directly concerned with cutting and patching to attend, including the following:

a. Contractor's superintendent.
b. Trade supervisor responsible for cutting operations.
c. Trade supervisor(s) responsible for patching of each type of substrate.
d. Mechanical, electrical, and utilities subcontractors' supervisors, to the extent each trade is affected by cutting and patching operations.

2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.4 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

A. Professional Engineer Qualifications: Refer to Section 01400 "Quality Requirements."

B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Design Professional of locations and details of cutting and await directions from Design Professional before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

    a. Water, moisture, or vapor barriers.
    b. Membranes and flashings.
    c. Sprayed fire-resistive material.
    d. Equipment supports.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Design Professional's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Design Professional for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.

C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to Engineer that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Design Professional in accordance with requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks and existing conditions. If discrepancies are discovered, notify Design Professional promptly.

B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

C. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Design Professional.

3.4 INSTALLATION

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb, and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces, unless otherwise indicated on Drawings.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure satisfactory results as judged by Design Professional. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations, so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.

F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Design Professional.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Design Professional. Fit exposed connections together to form hairline joints.

3.5 CUTTING AND PATCHING

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of Work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements in Section 01100 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Design Professional. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.

b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

   a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 COORDINATION OF ENGINEER'S PORTION OF THE WORK

A. Site Access: Provide access to Project site for Engineer's construction personnel and Engineer's separate contractors.

1. Provide temporary facilities required for Engineer-furnished, Engineer-installed products.
2. Refer to Section 01100 "Summary" for other requirements for Engineer-furnished, Engineer-installed products.

B. Coordination: Coordinate construction and operations of the Work with work performed by Engineer's construction personnel and Engineer's separate contractors.

1. Construction Schedule: Inform Engineer of Contractor's preferred construction schedule for Engineer's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Engineer if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Engineer's construction personnel and Engineer's separate contractors at preinstallation conferences covering portions of the Work that are to receive Engineer's work. Attend preinstallation conferences conducted by Engineer's construction personnel if portions of the Work depend on Engineer's construction.

3.7 PROGRESS CLEANING

A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

    a. Use containers intended for holding waste materials of type to be stored.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

A. Repair or remove and replace damaged, defective, or nonconforming Work. Restore damaged substrates and finishes.

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.

C. Restore permanent facilities used during construction to their specified condition.

D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

SECTION 01739

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Ohio Revised Code (ORC) Chapter 3745-273 - Management Standards for Universal Waste.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous construction waste.
2. Recycling nonhazardous construction & demolition (C&D) waste.
3. Disposing of nonhazardous construction & demolition (C&D) waste.
4. Disposing of Universal Waste & Municipal Solid waste (MSW).

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Universal Waste: Specific building materials resulting from demolition or selective demolition operations including: Batteries, Mercury-Containing Equipment and Lamps.

D. Disposal: Removal off-site of demolition and construction waste and subsequent sale of, recycling of, reuse of, or depositing in landfill or incinerator acceptable to authorities having jurisdiction.

E. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

F. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

1.4 PERFORMANCE REQUIREMENTS

A. General: Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials.

B. Proper Universal Waste handling, transporting and processing meeting the requirements of these specifications and the ORC will protect the environment from mercury and other toxic heavy metals that may pose risks to human health and the environment.

1.5 INFORMATIONAL SUBMITTALS

A. Recycling and Processing Facility Records: Indicate receipt and acceptance of Recyclable and Universal Waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

B. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

C. Qualification Data: For refrigerant recovery technician.

D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract. Disposal and recycling is available at the project site.

1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."

2. Montgomery County Solid Waste facility charges a rate of $60/ton for C&D waste.

3. Montgomery County Solid Waste facility charges a rate of $38.25/ton for C&D waste.

3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

A. General: Recycling facilities are available at Montgomery County Solid Waste facility fpr hollow metal (HM), metal pipe, concrete and concrete masonry units (CMU).

B. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Inspect containers and bins for contamination and remove contaminated materials if found.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Engineer's property and transport to recycling receiver or processor.

3.3 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. All hollow metal and metal pipe shall be separated from construction debris and recycled on site by contractor.

C. All concrete & CMU shall be separated from construction debris and recycled on site by contractor.

D. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

3.4 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them at the Montgomery County Solid Waste facility or another waste facility acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Do not Uses Engineers dumpsters for disposal unless directed by the Engineer’s Project Manager.
4. Engineer reserves the right to salvage any item deemed of value to the County to re-purpose.

B. Burning: Do not burn waste materials.

C. Batteries:
1. Remove Lead-Acid batteries from fixtures or appliances and place in a closed, structurally sound container compatible with the contents of the battery.
2. Containers shall prevent any universal waste components from leaking or spilling into the environment.
3. Provide labeling with the phrase “Universal Waste – Batteries”.

D. Mercury-Containing Equipment:

1. Remove Lamps, light fixture ballasts and thermostats from ceilings and walls and place in closed, structurally sound containers compatible with the contents of the mercury-containing device.
2. Containers shall prevent any universal waste components from leaking or spilling into the environment.
3. Provide separate containers for each type of mercury-containing device.
4. Provide labeling using the following phrases:

    a. “Universal Waste – Lamps”
    b. “Universal Waste – Mercury Ballasts”
    c. “Universal Waste – Mercury Thermostats”

E. Prepare Cleanup Plan for broken lamps and spilled mercury.

1. Do not use a vacuum cleaner to collect broken lamps or mercury.
2. Turn off air handling equipment.
3. Scoop glass, powder materials and mercury into a separate container.
4. Collect remaining debris with sticky side of duct tape.
5. Wipe clean with disposable wipe.
6. Place tape and wipes into container with broken glass.

F. Disposal: Remove waste materials from Engineer's property and legally dispose of them using qualified transporters and destination facilities, including Montgomery County Solid Waste facility.

END OF SECTION 017419

SECTION 01740

WARRANTIES AND BONDS

PART 1 GENERAL

1.01 GENERAL

A. Each CONTRACTOR shall provide warranties and bonds required by the Contract Documents, including manufacturers' standard warranties on products and special warranties.

1. Refer to paragraphs 7.17 of Article 7 of the General Conditions for the CONTRACTOR's General Warranty and Guarantee.

2. Refer to paragraph 6.01 of Article 6 of the General Conditions for the CONTRACTOR's Performance/Payment Bond.

3. General closeout requirements are included in Section 01770, Project Closeout.

4. Specific requirements for warranties for the Work and products and installations that are specified to be warranted are included in the individual Sections of Division 2 through 16. If not specifically specified otherwise, all equipment and products specified in Sections of Division 2 through 16 shall be provided with the CONTRACTOR's General Warranty and Guarantee.

5. Certifications and other commitments and agreements for continuing services to OWNER shall be as specified elsewhere in the Contract Documents.

B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the CONTRACTOR of the warranty on the products nor on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the CONTRACTOR.

1.02 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The CONTRACTOR shall be responsible for the cost of replacing or rebuilding defective Work regardless of whether the OWNER has benefitted from use of the Work through a portion of its anticipated useful service life.

D. OWNER's Recourse: Written warranties made to the OWNER are in addition to implied warranties and shall not limit the duties, obligations, rights and remedies otherwise available, nor shall warranty periods be interpreted as limitations on time in which the OWNER can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The OWNER reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

E. The OWNER reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments have done so.

1.03 SUBMITTALS

A. Submit written warranties to the ENGINEER as required to receive approval of equipment or material and as required to be approved prior to Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the work, or a designated portion of the Work, submit written warranties upon request of the ENGINEER.

1. When a designated portion of the Work is completed and occupied or used by the OWNER, by separate agreement with the CONTRACTOR during the construction period, submit properly executed warranties to the ENGINEER within fifteen days of completion of that designated portion of the Work.

B. When a special warranty is required to be executed by the CONTRACTOR, or the CONTRACTOR and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the OWNER through the ENGINEER for approval prior to final execution.

1. Refer to individual Sections of Division 2 through 16 for specific content requirements for warranties or bonds.

C. Form of Submittal: At Project Closeout, compile two (2) copies of each required warranty and bond properly executed by the CONTRACTOR or by the CONTRACTOR, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Contract Documents.

D. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.

1. Provide heavy paper dividers with celluloid covered tubs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.

2. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS", the Project title or name, and the name of the CONTRACTOR.

3. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual. See Section S-01730, Operation and Maintenance Data.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01770

PROJECT CLOSEOUT

PART 1 GENERAL

1.01 GENERAL

A. Administrative and procedural requirements for project closeout include but are not limited to:

1. Substantial completion.

2. Final inspection, payment and acceptance.

1.02 SUBSTANTIAL COMPLETION

A. In addition to the requirements of Article 15 of the General Conditions, CONTRACTOR shall comply with following paragraphs and notify ENGINEER of any exceptions.

B. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following:

1. Application for Payment that coincides with, or first follows, date Substantial Completion is claimed. Include supporting documentation for completion as indicated in these Contract Documents and statement showing accounting of changes to Contract Amount, if any.

2. Where Substantial Completion has not been attained, include list of incomplete items, value of incomplete construction, and reasons Work is not complete.

3. Advise OWNER of pending insurance change over requirements.

4. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, inspections by authorities (building, electrical, plumbing, boilers, fire marshal, elevators and similar items) and similar documents. Refer to Section 01740, Warranties and Bonds, if that Section is included in the Contract Documents.

5. Obtain and submit releases enabling OWNER unrestricted use of Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.

6. Submit record drawings, maintenance manuals, final project photographs and negatives, damage or settlement survey, property survey, and similar final record information. CONTRACTOR shall also comply with the requirements of the following Sections if the Section is included in the Contract Documents:

a. Section 01720, Record Documents.

b. Section S-01380, Construction Photographs.

c. Section S-01730, Operation and Maintenance Data.

7. Deliver tools, spare parts, extra stock, and similar items. CONTRACTOR shall also comply with the requirements of the following Sections if the Section is included in the Contract Documents:

    a. Section S-01760, Spare Parts and Maintenance Materials.

8. Make final changeover of permanent locks and transmit keys to OWNER. Advise OWNER's personnel of change over in security provisions.

9. Complete start up testing of systems, and instruction of OWNER's operating and maintenance personnel. CONTRACTOR shall also comply with the requirements of the following Sections if the Section is included in the Contract Documents:

    a. Section S-01661, Field Tests of Equipment.

    b. Section S-01662, Instruction of Operation and Maintenance Personnel.

    c. Section S-01663, Starting and Placing Equipment in Operation.

10. Discontinue or change over and remove temporary facilities from site, along with construction tools, mock-ups, and similar elements.

11. Complete final clean up requirements, including touch-up painting. Provide touch-up painting and otherwise repair and restore marred exposed finishes. CONTRACTOR shall also comply with the requirements of the following Sections if the Section is included in the Contract Documents:

    a. Section 01710, Cleaning.

    b. Section S-09900, Painting.

C. Inspection procedures: On receipt of request for certification, ENGINEER will inspect to determine the status of completion as described in Article 15.03 of the General Conditions.

1.03 FINAL INSPECTION, PAYMENT AND ACCEPTANCE

A. In addition to the requirements of Article 15 of the General Conditions, CONTRACTOR shall comply with the following paragraphs and notify ENGINEER of any exceptions.

B. Preliminary Procedures: Before submitting a Final Application for Payment, CONTRACTOR shall request a Final Inspection as described in Article 15 of the General conditions, paragraph 15.05. After all corrections are complete, CONTRACTOR shall submit final application for payment.

C. In addition to the requirements of Article 15 of the General Conditions, Paragraph 15.06, CONTRACTOR shall include the following with the Final Application for Payment:

1. Submit releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

2. Submit updated final statement, accounting for final additional changes to Contract Amount, if any.

3. Submit certified list of items to be completed or corrected, developed during certification of Substantial Completion and amended as necessary.

4. Submit final meter readings for utilities, measured record of stored fuel, and similar data as of date of Substantial Completion or when OWNER took possession of and responsibility for corresponding portions of Work.

5. Submit consent of surety to final payment and Contractor's Affidavit of Payment.

6. Submit final liquidated damages settlement statement, if any.

7. Submit evidence of final, continuing insurance coverage complying with insurance requirements of Article 6 of the General Conditions. This shall include as a minimum, but not be limited to:

    a. Status of CONTRACTOR's liability insurance.

    b. Status of CONTRACTOR's property insurance.

    c. Status of CONTRACTOR's Performance/Payment Bond.

    d. Status of CONTRACTOR's maintenance agreements and similar continuing commitments required by the Contract Documents.

D. ENGINEER will recommend Final Payment and Acceptance in accordance with Article 15 of the General Conditions, paragraph 15.06.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01771

CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Warranties.
2. Final cleaning.
3. Repair of the Work.

B. Related Requirements:

1. Section 01730 "Execution" for progress cleaning of Project site.
2. Sectin 01770 “Project Cloesout” for additional closeout requirements.
3. Section 01782 "Operation and Maintenance Data" for operation and maintenance manual requirements.
4. Section 01770 "Project Closeout" for submitting record Drawings, record Specifications, and record Product Data.

1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order.

2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

3. Include the following information at the top of each page:

a. Project name.

b. Date.

c. Name of Design Professional.

d. Name of Contractor.

e. Page number.

4. Submit list of incomplete items in the following format:

a. PDF electronic file. Design Professional will return annotated file.

1.7 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Design Professional for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Engineer's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 – EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

c. Remove tools, construction equipment, machinery, and surplus material from Project site.

d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

f. Sweep concrete floors broom clean in unoccupied spaces.

g. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.

h. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.

i. Remove labels that are not permanent.

j. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

k. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

l. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

m. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.

(1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.

n. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.

o. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 5000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.

2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

SECTION 01782

OPERATION AND MAINTENANCE DATA

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation manuals for systems, subsystems, and equipment.

2. Product maintenance manuals.

3. Systems and equipment maintenance manuals.

B. Related Requirements:

1. Section 01 3300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Design Professional will comment on whether content of operations and maintenance submittals are acceptable.

2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Design Professional.
    a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
    b. Enable inserted reviewer Comments on draft submittals.

C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Design Professional will return copy with comments.
    1. Correct or revise each manual to comply with Design Professional's comments. Submit copies of each corrected manual within 15 days of receipt of Design Professional's comments and prior to commencing demonstration and training.

PART 2 – PRODUCTS

2.1 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
    1. Title page.
    2. Table of contents.
    3. Manual contents.

B. Title Page: Include the following information:
    1. Subject matter included in manual.
    2. Name and address of Project.
    3. Name and address of Engineer.
    4. Date of submittal.
    5. Name and contact information for Contractor.
    6. Name and contact information for Design Professional.
    7. Names and contact information for major consultants to the Design Professional that designed the systems contained in the manuals.
    8. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.

2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

2.2 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.

2. Performance and design criteria if Contractor has delegated design responsibility.

3. Operating standards.

4. Operating procedures.

5. Operating logs.

6. Wiring diagrams.

7. Control diagrams.

8. Piped system diagrams.

9. Precautions against improper use.

10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.

2. Manufacturer's name.

3. Equipment identification with serial number of each component.

4. Equipment function.

5. Operating characteristics.

6. Limiting conditions.

7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.3 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and crossreference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.

4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 – EXECUTION

3.1 MANUAL PREPARATION

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Engineer's operating personnel.

C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

   1. Do not use original project record documents as part of operation and maintenance manuals.

   2. Comply with requirements of newly prepared record Drawings in Section 01 7839 "Project Record Documents."

E. Comply with Section 01 7700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

SECTION 01790

DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for instructing Engineer's personnel, including the following:

1. Instruction in operation and maintenance of systems, subsystems, and equipment.
2. Demonstration and training video recordings.

1.3 INFORMATIONAL SUBMITTALS

A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

B. Qualification Data: For facilitator.

C. Attendance Record: For each training module, submit list of participants and length of instruction time.

D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.4 CLOSEOUT SUBMITTALS

A. Demonstration and Training Video Recordings: Submit one copies within seven of end of each training module.

1. Identification: On each copy, provide an applied label with the following information:

a. Name of Project.
b. Name and address of videographer.
c. Name of Design Professional.
d. Name of Construction Manager.
e. Name of Contractor.
f. Date of video recording.

2. At completion of training, submit complete training manual(s) for Engineer's use prepared in same paper and PDF file format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data."

1.5 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.

D. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:

1. Inspect and discuss locations and other facilities required for instruction.
2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
3. Review required content of instruction.
4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.6 COORDINATION

A. Coordinate instruction schedule with Engineer's operations. Adjust schedule as required to minimize disrupting Engineer's operations and to ensure availability of Engineer's personnel.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Design Professional.

1.7 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

    a. System, subsystem, and equipment descriptions.
    b. Performance and design criteria if Contractor is delegated design responsibility.
    c. Operating standards.
    d. Regulatory requirements.
    e. Equipment function.
    f. Operating characteristics.
    g. Limiting conditions.
    h. Performance curves.

2. Documentation: Review the following items in detail:

    a. Emergency manuals.
    b. Systems and equipment operation manuals.
    c. Systems and equipment maintenance manuals.
    d. Product maintenance manuals.
    e. Project Record Documents.
    f. Identification systems.
    g. Warranties and bonds.
    h. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:

    a. Instructions on meaning of warnings, trouble indications, and error messages.
    b. Instructions on stopping.
    c. Shutdown instructions for each type of emergency.
    d. Operating instructions for conditions outside of normal operating limits.
    e. Sequences for electric or electronic systems.
    f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

    a. Startup procedures.
    b. Equipment or system break-in procedures.
    c. Routine and normal operating instructions.
    d. Regulation and control procedures.
    e. Control sequences.

f. Safety procedures.
g. Instructions on stopping.
h. Normal shutdown instructions.
i. Operating procedures for emergencies.
j. Operating procedures for system, subsystem, or equipment failure.
k. Seasonal and weekend operating instructions.
l. Required sequences for electric or electronic systems.
m. Special operating instructions and procedures.

5. Adjustments: Include the following:

a. Alignments.
b. Checking adjustments.
c. Noise and vibration adjustments.
d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:

a. Diagnostic instructions.
b. Test and inspection procedures.

7. Maintenance: Include the following:

a. Inspection procedures.
b. Types of cleaning agents to be used and methods of cleaning.
c. List of cleaning agents and methods of cleaning detrimental to product.
d. Procedures for routine cleaning.
e. Procedures for preventive maintenance.
f. Procedures for routine maintenance.
g. Instruction on use of special tools.

8. Repairs: Include the following:

a. Diagnosis instructions.
b. Repair instructions.
c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
d. Instructions for identifying parts and components.
e. Review of spare parts needed for operation and maintenance.

1.8 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."

B. Set up instructional equipment at instruction location.

1.9 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Engineer for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct Engineer's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Design Professional will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
2. Engineer will furnish an instructor to describe Engineer's operational philosophy.
3. Engineer will furnish Contractor with names and positions of participants.

C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with Engineer with at least seven days' advance notice.

D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of **a** demonstration performance-based test.

F. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.10 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of each training module, record each chart containing learning objective and lesson outline.

B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode.

1. Submit video recordings on CD-ROM or thumb drive.
2. File Hierarchy: Organize folder structure and file locations according to Project Manual table of contents. Provide complete screen-based menu.
3. File Names: Utilize file names based on name of equipment generally described in video segment, as identified in Project specifications.

4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the equipment demonstration and training recording that describes the following for each Contractor involved on the Project, arranged according to Project Manual table of contents:

    a. Name of Contractor/Installer.
    b. Business address.
    c. Business phone number.
    d. Point of contact.
    e. Email address.

C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.

1. Film training session(s) in segments not to exceed 15 minutes.

    a. Produce segments to present a single significant piece of equipment per segment.
    b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
    c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.

D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.

1. Furnish additional portable lighting as required.

E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.

F. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017900

TECHNICAL SPECIFICATIONS

SECTION 01000

GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 DEFINITIONS

A. The following definitions are provided for use with the Montgomery County Environmental Services Standard Specifications. If a set of Contract Documents directly includes or makes an indirect reference or appeal to the Montgomery County Environmental Services Standard Specifications, the definitions contained in those Contract Definitions shall supersede the definitions contained in this section. Note that capitalization of entire words or individual letters is not intended to convey any information other than the typical meaning of the word or phrase as used throughout the Montgomery County Environmental Services Standard Specifications.

B. Bid Form: The document used to outline payment quantities and methods included with the Contract Documents and signed by the CONTRACTOR.

C. Contract Documents: Documents including all drawings, specifications, bid data, forms, agreements, contract conditions, addenda, etc. governing the terms, conditions and scope of the work and providing the required detail for construction as well as administration of the work and defined in the agreement signed by the CONTRACTOR.

D. Contract Drawings: Information contained, referenced and in any way made a part of the Contract Documents provided in the form of drawings to describe the required work for a specific project.

E. CONTRACTOR: The person, firm or corporation performing work under an agreement with the OWNER or under an agreement with another party (e.g. the Montgomery County Engineer, a township, etc.) and whose work, or any part thereof, must by ordinance, law, or regulation comply with the latest version of the Montgomery County Environmental Services Standard Specifications and the Montgomery County Environmental Services Rules and Regulations.

F. Details: Sketches, figures and tables included in the Montgomery County Environmental Services Standard Specifications. Details may also include sketches and figures shown on the drawings to describe work that is specific to a certain project.

G. Drawings: See Contract Drawings.

H. ENGINEER: The Sanitary Engineer of Montgomery County, Ohio or the OWNER's duly authorized representative.

I. OWNER: The Board of County Commissioners, Montgomery County, Ohio.

J. Specifications: The Montgomery County Environmental Services Standard and Supplemental Specifications. Specifications is further defined as those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the work and certain administrative details applicable thereto. Specifications shall also include written technical

descriptions including detail drawings that are included, referenced and in any way made part of the Contract Documents.

K. Project: An identifying name, title, number or similar description assigned to reference the work.

L. Work: Any work performed by a CONTRACTOR that modifies, expands or otherwise impacts the Montgomery County water supply or sewage collection and treatment facilities and required to be furnished under the Contract Documents.

M. PROVISIONAL APPROVAL: The Sanitary Engineer of Montgomery County or duly authorized designee shall have the authority to grant Provisional Approval for modification of the specifications herein. The Provisional Approval shall be subject to and limited by the conditions contained therein.

1.02 COORDINATION WITH OWNER'S WORKING HOURS

A. All work requiring inspection, attention or presence for any reason of OWNER's personnel shall be performed during Montgomery County Environmental Services regular working hours. Regular working hours are 7:30 a.m. to 4:00 p.m. Monday through Friday.

B. If CONTRACTOR wishes to perform regular Work at times other than regular working hours, CONTRACTOR shall be required to pay the OWNER for the services of the Resident Project Representative and the ENGINEER at established rates on record in the office of Montgomery County Environmental Services.

C. In the event of an emergency or other unplanned event due to the CONTRACTOR's work, negligence or otherwise attributable to the CONTRACTOR, CONTRACTOR shall submit payment for exact hours of overtime worked by OWNER's personnel.

D. The CONTRACTOR shall give a minimum of two (2) weeks' notice of intent to work at times other than regular working hours to the Resident Project Representative and ENGINEER.

E. ENGINEER has the right to deny permission, with due cause, for the CONTRACTOR to work at times other than regular working hours.

F. When working within the existing public right-of-way, the CONTRACTOR shall erect construction signage at limits of work at least ten days in advance of commencement of any work advising of the start date and length of construction.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01100

SUMMARY

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by Owner/Engineer.
4. Work under separate contracts.
5. Owner/Engineer-furnished products.
6. Access to site.
7. Coordination with occupants.
8. Work restrictions.
9. Specification and drawing conventions.
10. Miscellaneous provisions.
11. Design and Construction Document Management System.

B. Related Requirements:

1. Section 01 5000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Engineer's facilities.

1.3 PROJECT INFORMATION

A. Project Identification: MCES Solid Waste Old Admi Building Renovation.

1. Project Location: 2550 Sandridge Drive, Maraine, Ohio 45439.

B. Owner/Engineer: Montgomery County Environmental Services (MCES).

1. Owner/Engineer’s Purchasing Representative: Barabra Asberry, Montgomery County Purchasing Department; 937-225-6391, AsberryB@mcohio.org
2. Owner/Engineer’s Representative: David Hackett, Montgomery County Environmental Services Utility Project Manager 937-781-2542, HackettD@mcohio.org

C. Design Professionals: Chandra Wilson, SPGB Architects, LLC, 4333-A Tuller Road, Dublin, Ohio 43017. PH: 614-771-8963, cwilson@spgbarch.com. AoR Tom Gates.

D. Design Professionals's Consultants: Design Professional has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. Environmental Consultants: Jordan Merderer, Lawhon Associates, 1441 King Ave., Columbus, Ohio 43212. PH: 614-481-8600, jederer@lawhon-assoc.com

2. Structural Engineer: Niru Dabholkar, Barber & Hoffman, Inc., 200 E. Campus View Blvd., Suite 230, Columbus, Ohio 43235. PH: 614-825-9580, ndabholkar@barberhoffman.com

3. Mechanical and Electrical Engineer: Dominic Mascia, TEC, Inc., 4995 Bradenton Ave, Suite 240, Dublin, Ohio 43017. PH: 614-267-4928, dmascia@tecinceng.com

4. Elevator Consultant: Becky Mauk, Lerch Bates, 4995 Bradenton Ave., 200, Dublin, Ohio 43017. PH: 614-734-4846, becky.mauk@lerchbates.com

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. This Project shells the existing 1-3 floors of the Old Admin building. The 4th floor contains some minor demolition and renovation work. Work on shell floors include: demolition of existing spaces, renovation of existing restroom to be code compliant, update lighting, replace windows, elevator upgrade, replace the mechanical, electrical, and plumbing systems as required to maintain critical operation of the facility and other scope as indicated on the documents.

B. Type of Contract:

1. Project will be constructed as a single prime contract.

1.5 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contractor other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

B. Preceding Work: Owner/Engineer has awarded separate contract(s) for the following construction operations at Project site. Those operations are scheduled to be substantially complete before work under this Contract begins.

1. None.

C. Concurrent Work: Owner/Engineer will award separate contract(s) for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.

1. None.

D. Subsequent Work: Owner/Engineer will award separate contract(s) for the following additional work to be performed at site following Substantial Completion. Completion of that work will depend on successful completion of preparatory work under this Contract.

1. None.

1.6 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.7 CONTACTOR'S USE OF SITE AND PERMISES

A. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Limits on Use of Site: Limit use of Project site to Work in areas as indicated. Do not disturb portions of the Project site beyond areas in which the Work is indicated.

1. Limits on Use of Site: Confine construction operations to as indicated on Drawings.
2. Driveways, Walkways and Entrances: Keep driveway, loading areas, and entrances serving premises clear and available to Owner/Engineer, Owner/Engineer's employees, and emergency vehicles always. Do not use these areas for parking or for storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.8 COORDINATION WITH OCCUPANTS

A. Full/Partial Owner/Engineer Occupancy: Owner/Engineer will occupy the 4th floor of the building and premises during entire construction period, with the exception of areas under construction excluding the corridors, stairs, and window work these areas will be occupied during construction. Cooperate with Owner/Engineer during construction operations to

minimize conflicts and facilitate Owner/Engineer usage. Perform the Work so as not to interfere with Owner/Engineer's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, egress stairs, or other occupied or used facilities without written permission from Owner/Engineer and authorities having jurisdiction.
2. Provide not less than 1 week and 72 hours notice to Owner/Engineer of activities that will affect Owner/Engineer's operations.

1.9 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours as indicated on Section 01000 "General Requirements".

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner/Engineer or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner/Engineer not less than two days in advance of proposed utility interruptions.
2. Obtain Owner/Engineer's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner/Engineer occupancy with Owner/Engineer.

1. Notify Owner/Engineer not less than two days in advance of proposed disruptive operations.
2. Obtain Owner/Engineer's written permission before proceeding with disruptive operations.

E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor-air intakes. Additionally, this policy applies to any vapor-emitting electronic smoking devices, including but not limited to those designed to resemble cigarettes, cigars, cigarillos, and pipes.

F. Controlled Substances: Use of tobacco products and other controlled substances within the existing building is not permitted.

G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times. Badging for access to the Administration Building will be provided on an as-needed basis.

H. Employee Screening: Comply with Owner/Engineer's requirements for drug and background screening of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner/Engineer's representative.

1.10 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.

1.11 DESIGN AND CONSTRUCTION DOCUMENT MANAGEMENT SYSTEM

A. Project files will be transferred electronically.

1.12 MISCELLANEOUS PROVISIONS

A. Coordiation Table: Refer to “Specification Coordination Table” for the coordination of each of the specification trades responsibilities immediately following this specification section.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 011000

SECTION 01043

COORDINATION WITH OWNER'S OPERATIONS

PART 1 GENERAL

1.01 GENERAL

A. The Montgomery County Environmental Services, Engineering, Field, and Water Reclamation Services groups has sole responsibility and authority over the control and operation of all County owned and operated facilities including water mains and services, sewer mains and laterals, pumping stations, water reclamation facilities, valves, meters and other related devices and appurtenances. Operation of existing valves, gates and other items of OWNER's facilities shall only be performed by the OWNER's Engineering, Operations, and Water Reclamation personnel.

B. No work shall be undertaken which would jeopardize the minimum required operations of County facilities.

1. Bypassing of sewage is strictly prohibited.

2. Connection to or contact with the Montgomery County water supply system, other than by permit and through devices approved by Montgomery County, is strictly prohibited.

3. All work shall conform to the Montgomery County Environmental Services Rules and Regulations, latest revision.

C. All work necessary to complete modifications, connections, tie-ins, etc. to existing Montgomery County facilities shall be done in accordance with permits issued by Montgomery County Environmental Services. See additional information in Section 01046.

D. CONTRACTOR shall allow full access for OWNER's personnel to all facilities.

E. All CONTRACTORs shall perform all construction activities so as to avoid interference with operations of the OWNER's facilities and the work of others.

F. OWNER shall have the authority to stop or prohibit Work which would interfere or jeopardize the continuous and reliable operation of OWNER's facilities.

G. Disturbances to Operations:

1. It is required that the existing and new facilities (as they come on line) operate continuously. Scheduled interruptions of any facility's operations, when allowed by permit, shall be coordinated with the Montgomery County Environmental Services, Engineering, Field, and Water Reclamation personnel. Frequency and duration of disturbance to these operations shall be minimized.

2. Unscheduled interruption of operation of OWNER's facilities resulting from construction work under the CONTRACTOR's responsibility are strictly prohibited. If such unscheduled interruption occurs, operation of OWNER's facilities shall be returned at once to normalcy through temporary or permanent means. Temporary corrections shall be made permanent at the next scheduled interruption to operations if practicable, or as soon as practicable. All permanent corrections shall meet applicable requirements of OWNER.

3. Equipment and materials to be used for temporary purposes need not be new but shall be in serviceable condition and installed in a safe manner.

4. Temporary facilities shall be installed so as to minimize interference with construction and to meet OSHA, NEC and any other applicable laws', codes' or regulations' requirements.

5. Relocation of such temporary facilities may be required as construction progresses, the cost of which shall be paid for by the CONTRACTOR.

6. CONTRACTOR shall be liable for all costs and fines resulting from unscheduled interruption of the operation of the OWNER's facilities.

1.02 SEQUENCING AND OPERATIONS

A. General:

1. All new facilities shall be tested and in operating condition before the final tie-ins are made connecting the new facilities to the existing facilities. Comply with the requirements of Section 01046.

1.03 SUBMITTALS

A. Submit detailed schedule of proposed modifications and connections, including proposed bypasses, shutdowns and tie-ins.

B. Submittal shall include the proposed time and date as well as the anticipated duration.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01046

CONNECTIONS TO EXISTING FACILITIES

PART 1 GENERAL

1.01 GENERAL

A. Perform all construction necessary to complete connections and tie-ins to existing facilities.

B. Keep existing facilities in operation unless otherwise specifically permitted by OWNER. Comply with the requirements of Section 01043.

C. All CONTRACTORs shall perform all construction activities so as to avoid interference with operations of OWNER's facilities and the work of others.

D. It is the responsibility of each CONTRACTOR to maintain continuous operation of existing facilities while working in, on or around these facilities. Each CONTRACTOR shall protect the existing facilities by any means required including sheeting, shoring, bracing, patching, temporary piping, etc., however all means shall comply with OWNER's minimum standards.

1.02 BYPASSING

A. All facilities must remain in operation at all times unless otherwise permitted by OWNER. Bypassing of sewage out of the Montgomery County sanitary sewer system is strictly prohibited. All bypasses involving sewage must return sewage to the Montgomery County sanitary sewer system without allowing the sewage to enter the environment. CONTRACTOR shall be liable for all costs and fines resulting from release of sewage out of the Montgomery County sewer system.

B. If a bypass is required to complete certain segments of Work or to make a tie-in, the CONTRACTOR shall be responsible for all methods, means and costs including provision of all necessary labor and materials to perform the operation.

C. Unless otherwise specifically permitted or approved by the OWNER, no interruption in service will be permitted during bypasses or tie-ins.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01250

SUBSTITUTION PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 01600 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use facsimile of form provided in Project Manual.

2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.

b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Engineer and separate contractors, that will be necessary to accommodate proposed substitution.

c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific

features and requirements indicated. Indicate deviations, if any, from the Work specified.

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.

e. Samples, where applicable or requested.

f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of Design Professionals.

h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

i. Research reports evidencing compliance with building code in effect for Project, from the Ohio Basic Building Code (OBC).

j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

k. Cost information, including a proposal of change, if any, in the Contract Sum.

l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.

m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Design Professional or Engineer Action: If necessary, Design Professional or Engineer will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Design Professional or Engineer will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

   a. Forms of Acceptance: Change Order, Construction Change Directive, or Design Professional or Engineer Supplemental Instructions for minor changes in the Work.

   b. Use product specified if Design Professional or Engineer does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 – PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Design Professional will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Design Professional will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.

b. Substitution request is fully documented and properly submitted.

c. Requested substitution will not adversely affect Contractor's construction schedule.

d. Requested substitution has received necessary approvals of authorities having jurisdiction.

e. Requested substitution is compatible with other portions of the Work.

f. Requested substitution has been coordinated with other portions of the Work.

g. Requested substitution provides specified warranty.

h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed unless otherwise indicated.

PART 3 – EXECUTION (NOT USED)

APPENDIX A

SUBSTITUTION REQUEST FORM

DATE: _____

TIME: _____

REQUEST NO.: _____

PROJECT: Montgomery County – MCES Environmental Lab

PROPOSED SUBSTITUTION: _____

_____

_____

_____

REQUEST AUTHOR: _____REQUIRED REPLY DATE:_____

REPLY: _____

_____

_____

_____

REPLY AUTHOR: _____ REPLY DATE: _____

ATTACHMENTS: _____

ACTION REQUIRED: _____

_____

DISTRIBUTION: _____

_____

END OF SECTION 012500

SECTION 01260

CONTRACT MODIFICATION PROCEDURE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 01250 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Design Professional or Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, as Design Professional or Engineer “Supplemental Instructions."

1.4 PROPOSAL REQUESTS

A. Engineer-Initiated Proposal Requests: Design Professional or Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Design Professional or Engineer are not instructions either to stop work in progress or to execute the proposed change.

2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

c. Include costs of labor and supervision directly attributable to the change.

d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

e. Quotation Form: Use forms acceptable to Design Professional or Engineer.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Design Professional or Engineer.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.

2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

4. Include costs of labor and supervision directly attributable to the change.

5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

6. Comply with requirements in Section 01 2500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

7. Proposal Request Form: Use form acceptable to Design Professional or Engineer.

1.5 CHANGE ORDER PROCEDURES

A. On Engineer's approval of a Work Changes Proposal Request, Design Professional will issue a Change Order for signatures of Engineer and Contractor.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Design Professional or Engineer may issue a Construction Change Directive. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 012600

SECTION 01310

CONSTRUCTION SCHEDULES

PART 1 GENERAL

1.01 GENERAL

A. Provide construction schedule which conforms to the requirements below, unless otherwise approved by the ENGINEER.

B. Update schedules every one (1) month unless otherwise specified or directed by the ENGINEER.

C. In the preparation of the schedule, the CONTRACTOR shall take into consideration Shop Drawing submittal and approval time, the delivery times of equipment and materials, Subcontractors' work, availability and abilities of workmen, weather conditions, any restrictions in operations at the Work site, and all other items that may affect completion of the Work within the time requirements of the Contract Documents.

1.02 CONTENT

A. Shop Drawing submittal dates and required approval dates.

B. Product delivery dates.

C. Factory and field-testing dates.

D. Dates for beginning and completing each phase of the Work by activity and by trades. Include all milestone dates.

E. Other data as required by the ENGINEER.

1.03 FORMAT

A. Type: Horizontal bar chart.

B. Sheet Size: 24-inches by 36-inches.

C. Time Scale: Indicate first date in each work week.

D. Organization:

1. Show construction work by activity as the major schedule.

2. Indicate critical activities which dictate rate of progress.

3. Indicate Shop Drawing submittal dates by Specification Number.

4. Indicate product delivery period after Shop Drawing approval and critical delivery date (latest date that does not impede the rate of work).

E. Activity Designations: Show title and related Specification Section number.

1.04 SUBMITTALS

A. Submit six (6) copies of initial schedule to the ENGINEER at least twenty (20) days prior to submitting first application for a progress payment but no later than twenty-one (21) days after the effective date of the Notice to Proceed.

B. Submit six (6) copies of updated schedules at progress meetings. If a schedule remains unchanged from one period to the next, submit a written notice to that effect.

C. Attach a letter of transmittal to each submittal and include the following information in the letter:

1. A listing of items which have changed since the last submittal.

2. Discussion of problems causing delays, anticipated length of delays, and proposed countermeasures.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01311

PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. Requests for Information (RFIs).
4. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Requirements:

1. Section 01310 "Construction Schedule" for preparing and submitting Contractor's construction schedule.
2. Section 01730 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Section 01771 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Engineer, Design Professional, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.

3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.

2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.

4. Coordinate installation of above ceiling items to account for the limited above ceiling clearance.

C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Engineer and separate contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.

2. Preparation of the schedule of values.

3. Installation and removal of temporary facilities and controls.

4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Design Professional will return RFIs submitted to Design Professional by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Design Professional.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: AIA Document G716, or similar.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Design Professional's Action: Design Professional will review each RFI, determine action required, and respond. Allow seven working days for Design Professional's response for each RFI. RFIs received by Design Professional after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:

a. Requests for approval of submittals.

b. Requests for approval of substitutions.

c. Requests for approval of Contractor's means and methods.

d. Requests for coordination information already indicated in the Contract Documents.

e. Requests for adjustments in the Contract Time or the Contract Sum.

f. Requests for interpretation of Design Professional's actions on submittals.

g. Incomplete RFIs or inaccurately prepared RFIs.

2. Design Professional's action may include a request for additional information, in which case Design Professional's time for response will date from time of receipt of additional information.

3. Design Professional's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01260 "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Design Professional in writing within 10 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.

2. Name and address of Contractor.

3. Name and address of Design Professional.

4. RFI number including RFIs that were returned without action or withdrawn.

5. RFI description.

6. Date the RFI was submitted.

7. Date Design Professional's response was received.

F. On receipt of Design Professional's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Design Professional within seven days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Engineer and Design Professional of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Engineer and Design Professional, within three days of the meeting.

B. Preconstruction Conference: The County will schedule and the Design Professional will conduct a preconstruction conference before starting construction.

1. Attendees: Authorized representatives of the County, Design Professional, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that could affect progress, including the following:

a. Tentative construction schedule.

b. Critical work sequencing and long-lead items.

c. Designation of key personnel and their duties.

d. Lines of communications.

e. Procedures for processing field decisions and Change Orders.

f. Procedures for RFIs.

g. Procedures for testing and inspecting.

h. Procedures for processing Applications for Payment.

i. Submittal procedures.

j. Preparation of record documents.

k. Use of the premises and existing building.

l. Work restrictions.

m. Working hours.

n. Engineer's occupancy requirements.

o. Responsibility for temporary facilities and controls.

p. Procedures for disruptions and shutdowns.

q. Construction waste management.

r. Parking availability.

s. Office, work, and storage areas.

t. Equipment deliveries and priorities.

u. First aid.

v. Security.

w. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Project Coordinator will conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Design Professional, of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

a. Contract Documents.

b. Options.

c. Related RFIs.

d. Related Change Orders.

e. Purchases.

f. Deliveries.

g. Submittals.

h. Possible conflicts.

i. Compatibility requirements.

j. Time schedules.

k. Manufacturer's written instructions.

l. Warranty requirements.

m. Compatibility of materials.

n. Acceptability of substrates.

o. Temporary facilities and controls.

p. Space and access limitations.

q. Regulations of authorities having jurisdiction.

r. Testing and inspecting requirements.

s. Installation procedures.

t. Coordination with other work.

u. Required performance results.

v. Protection of adjacent work.

w. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.

4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Project Closeout Conference: Project Coordinator will schedule and conduct a project closeout conference, at a time convenient to Engineer and Design Professional, but no later than 90 days prior to the scheduled date of Substantial Completion, or as requested by Engineer.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.

2. Attendees: Authorized representatives of the County, Design Professional, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

a. Preparation of record documents.

b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.

c. Submittal of written warranties.

d. Requirements for preparing operations and maintenance data.

e. Requirements for delivery of material samples, attic stock, and spare parts.

f. Requirements for demonstration and training.

g. Preparation of Contractor's punch list.

h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.

i. Submittal procedures.

j. Coordination of separate contracts.

k. Installation of Engineer's furniture, fixtures, and equipment.

l. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

E. Progress Meetings: The Project Coordinator will conduct progress meetings at weekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.

2. Attendees: In addition to representatives of the County, and Design Professional, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

(1) Review schedule for next period.

b. Review present and future needs of each entity present, including the following:

(1) Temporary facilities and controls.

(2) Progress cleaning.

(3) Quality and work standards.

(4) Status of correction of deficient items.

(5) Field observations.

(6) Status of RFIs.

(7) Status of proposal requests.

(8) Pending changes.

(9) Status of Change Orders.

(10) Pending claims and disputes.

(11) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

   a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

F. Coordination Meetings: Project Coordinator will conduct Project coordination meetings at weekly intervals, as needed. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of the County, and Design Professional, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

   a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

   b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.

   c. Review present and future needs of each contractor present, including the following:

      (1) Interface requirements.

      (2) Sequence of operations.

      (3) Status of submittals.

      (4) Deliveries.

      (5) Temporary facilities and controls.

      (6) Work hours.

      (7) Hazards and risks.

      (8) Progress cleaning.

      (9) Quality and work standards.

(10) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 013100

SECTION 01323

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.

2. Periodic construction photographs.

B. Related Requirements:

1. Section 01771 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.

2. Section 01790 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Engineer's personnel.

3. Section 024119 "Selective Demolition" for photographic documentation before selective demolition operations commence.

1.3 INFORMATIONAL SUBMITTALS

A. Digital Photographs: Submit image files within three days of taking photographs.

1. Submit photos on CD-ROM or thumb-drive. Include copy of key plan indicating each photograph's location and direction.

2. Identification: Provide the following information with each image description in file metadata tag:

a. Name of Project.

b. Name and contact information for photographer.

c. Name of Design Professional.

d. Name of Contractor.

e. Date photograph was taken.

f. Description of location, vantage point, and direction.

g. Unique sequential identifier keyed to accompanying key plan.

B. Video Recordings: Submit video recordings within seven days of recording.

1. Submit video recordings on a thumb drive. Include copy of key plan indicating each video's location and direction.
2. Identification: With each submittal, provide the following information in file metadata tag:
    a. Name of Project.
    b. Name and address of photographer.
    c. Name of Design Professional.
    d. Name of Contractor.
    e. Date video recording was recorded.
    f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
3. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in three-ring binders. Provide label on front and spine. Include a cover sheet with label information. Include name of Project and date of video recording on each page.

1.4 FORMATS AND MEDIA

A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.

B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

C. File Names: Name media files with date and sequential numbering suffix.

1.5 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs with maximum depth of field and in focus.
1. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Design Professional.
1. Take 50 photographs of existing buildings either on or adjoining property, to accurately record physical conditions at start of construction.
2. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.

2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 01310 "Construction Schedule" for submitting schedules and reports, including Contractor's construction schedule.

2. Section 01323 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and Final Completion construction photographs.

3. Section 01400 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.

4. Section 01720 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

5. Section 01771 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.

6. Section 01782 "Operation and Maintenance Data" for submitting operation and maintenance manuals.

7. Section 01790 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Engineer's personnel.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Design Professional's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Design Professional’s responsive action. Submittals may be rejected for not complying

with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Design Professional and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.

2. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

3. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.

    b. Specification Section number and title.

    c. Submittal Category: Action; informational.

    d. Name of subcontractor.

    e. Description of the Work covered.

    f. Scheduled date for Design Professional’s final release or approval.

    g. Scheduled dates for purchasing.

    h. Scheduled date of fabrication.

    i. Scheduled dates for installation.

    j. Activity or event number.

1.5 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.

2. Date.

3. Name of Design Professional.

4. Name of Contractor.
5. Name of firm or entity that prepared submittal.
6. Names of subcontractor, manufacturer, and supplier.
7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.
8. Category and type of submittal.
9. Submittal purpose and description.
10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
11. Drawing number and detail references, as appropriate.
12. Indication of full or partial submittal.
13. Location(s) where product is to be installed, as appropriate.
14. Other necessary identification.
15. Remarks.
16. Signature of transmitter.

B. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Design Professional on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

C. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

1.6 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

a. Design Professional will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.

4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Design Professional the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Design Professional’s receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.

2. Note date and content of revision in label or title block, and clearly indicate extent of revision.

3. Resubmit submittals until they are marked with approval notation from Design Professional's action stamp.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Design Professional's action stamp.

1.7 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts.

    b. Manufacturer's product specifications.

    c. Standard color charts.

    d. Statement of compliance with specified referenced standards.

    e. Testing by recognized testing agency.

    f. Application of testing agency labels and seals.

    g. Notation of coordination requirements.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams that show factory-installed wiring.

b. Printed performance curves.

c. Operational range diagrams.

d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.

b. Schedules.

c. Compliance with specified standards.

d. Notation of coordination requirements.

e. Notation of dimensions established by field measurement.

f. Relationship and attachment to adjoining construction clearly indicated.

g. Seal and signature of professional engineer if specified.

C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.

2. Identification: Permanently attach label on unexposed side of Samples that includes the following:

a. Project name and submittal number.

b. Generic description of Sample.

c. Product name and name of manufacturer.

d. Sample source.

e. Number and title of applicable Specification Section.

f. Specification paragraph number and generic name of each item.

3. Paper Transmittal: Include paper transmittal, including complete submittal information indicated.

4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples not incorporated into the Work, or otherwise designated as Engineer's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Design Professional will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit three sets of Samples. Design Professional retain one Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.

2. Manufacturer and product name, and model number if applicable.

3. Number and name of room or space.

4. Location within room or space.

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Design Professionals and Engineers, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of

assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.

2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.

5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.

6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.

2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

    a. Name of evaluation organization.

    b. Date of evaluation.

    c. Time period when report is in effect.

    d. Product and manufacturers' names.

    e. Description of product.

    f. Test procedures and results.

    g. Limitations of use.

1.8 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Design Professional.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.9 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Design Professional.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Design Professional will not review submittals received from Contractor that do not have Contractor's review and approval.

1.10 DESIGN PROFESSIONAL'S REVIEW

A. Action Submittals: Design Professional will review each submittal, indicate corrections or revisions required, and return.

1. PDF Submittals: Design Professional will indicate, via markup on each submittal, the appropriate action.

B. Informational Submittals: Design Professional will review each submittal and will not return it, or will return it if it does not comply with requirements. Design Professional will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Design Professional.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Design Professional will return without review submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Design Professional without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

CONTRACTOR SUBMITTAL COVER SHEET

Montgomery County Environmental Services

Name of Project

To:
Montgomery County Environmental Services
1850 Spaulding Road
Kettering, Ohio 45432

From:

- ☐ Plans
- ☐ Procedures
- ☐ Shop Drawings
- ☐ Schedules
- ☐ Supplier's Data
- ☐ Samples
- ☐ Other:

Submittal No.
Spec Section — Sequence No.
Rev.

Date:

☐ New Submittal ☐ Resubmittal

Project No.:

Contract No.:

No. of Copies	Spec and Paragraph No.	Drawing Brochure No.	TITLE/DESCRIPTION (Use a separate cover sheet for each submittal)

Items are transmitted as checked below:
☐ For information only ☐ For review & comment ☐ Other:

Contractor's Remark/Comments:

This certifies that all items submitted herewith have been checked by the Contractor, and are in conformance with the Contract Documents. Additionally, review of this submittal does not relieve the Contractor from responsibility of compliance with all requirements of the Contract Documents.

Signature: _____ Title: _____

Company: _____

Deviations/Variations/(if yes attach additional comments to explain) ☐ Yes ☐ No

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

Consultant Recommended Action Code

- ☐ No Exceptions Taken
- ☐ Furnish as Corrected
- ☐ Revise & Resubmit
- ☐ Rejected
- ☐ Information Only

Signature: _____

Printed Name: _____

Date: _____

Montgomery County Environmental Services Action Code

- ☐ No Exceptions Taken
- ☐ Furnish as Corrected
- ☐ Revise & Resubmit
- ☐ Rejected
- ☐ Information Only

Signature: _____

Printed Name: _____

Date: _____

SECTION 01351

ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes special procedures for alteration work.

1.2 DEFINITIONS

A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.

B. Consolidate: To strengthen loose or deteriorated materials in place.

C. Design Reference Sample: A sample that represents the Design Professional's prebid selection of work to be matched; it may be existing work or work specially produced for the Project.

D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Design Professional.

F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.

G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.

K. Retain: To keep an element or detail secure and intact.

L. Strip: To remove existing finish down to base material unless otherwise indicated.

1.3 COORDINATION

A. Alteration Work Subschedule: A construction schedule coordinating the sequencing and scheduling of alteration work for entire Project, including each activity to be performed, and

based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for alteration work.

1. Schedule construction operations in sequence required to obtain best Work results.
2. Coordinate sequence of alteration work activities to accommodate the following:
    a. Engineer's continuing occupancy of portions of existing building.
    b. Engineer's partial occupancy of completed Work.
    c. Other known work in progress.
    d. Tests and inspections.
3. Detail sequence of alteration work, with start and end dates.
4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
5. Use of elevator and stairs.
6. Equipment Data: List gross loaded weight, axle-load distribution, and wheel-base dimension data for mobile and heavy equipment proposed for use in existing structure. Do not use such equipment without certification from Contractor's professional engineer that the structure can support the imposed loadings without damage.

1.4 PROJECT MEETINGS FOR ALTERATION WORK

A. Preliminary Conference for Alteration Work: Before starting alteration work, conduct conference at Project site.
    1. Attendees: In addition to representatives of Engineer, Design Professional, and Contractor, testing service representative, specialists, and chemical-cleaner manufacturer(s) shall be represented at the meeting.
    2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:
        a. Alteration Work Subschedule: Discuss and finalize; verify availability of materials, specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
        b. Fire-prevention plan.
        c. Governing regulations.
        d. Areas where existing construction is to remain and the required protection.
        e. Hauling routes.
        f. Sequence of alteration work operations.
        g. Storage, protection, and accounting for salvaged and specially fabricated items.
        h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.

i. Qualifications of personnel assigned to alteration work and assigned duties.

j. Requirements for extent and quality of work, tolerances, and required clearances.

k. Embedded work such as flashings and lintels, special details, collection of waste, protection of occupants and the public, and condition of other construction that affects the Work or will affect the work.

3. Reporting: Record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.

1.5 INFORMATIONAL SUBMITTALS

A. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements that are to remain, including finish surfaces, that might be misconstrued as damage caused by Contractor's alteration work operations.

B. Alteration Work Program: Submit 15 days before work begins.

C. Fire-Prevention Plan: Submit 15 days before work begins.

1.6 QUALITY ASSURANCE

A. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a "Lead-Safe Certified Firm" according to 40 CFR 745, Subpart E, and use only workers that are trained in lead-safe work practices.

B. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.

1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.

2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.

C. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with Engineer's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.

D. Safety and Health Standard: Comply with ANSI/ASSP A10.6.

1.7 STORAGE AND HANDLING OF SALVAGED MATERIALS

A. Salvaged Materials for Reinstallation:

1. Repair and clean items for reuse as indicated.

2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.

3. Protect items from damage during transport and storage.

4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.

B. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Design Professional, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.

C. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.

1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.

2. Secure stored materials to protect from theft.

3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F or more above the dew point.

1.8 FIELD CONDITIONS

A. Survey of Existing Conditions: Record existing conditions that affect the Work by use of measured drawings and preconstruction photographs.

1. Comply with requirements specified in Section 013233 "Photographic Documentation."

B. Discrepancies: Notify Design Professional of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.

C. Size Limitations in Existing Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within existing spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration work.

1. Use only proven protection methods, appropriate to each area and surface being protected.
2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
3. Erect temporary barriers to form and maintain fire-egress routes.
4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration work.
5. Contain dust and debris generated by alteration work and prevent it from reaching the public or adjacent surfaces.
6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.

B. Temporary Protection of Materials to Remain:

1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.

C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

D. Utility and Communications Services:

1. Notify Engineer, Design Professional, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration work before commencing operations.
2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.
3. Maintain existing services unless otherwise indicated; keep in service and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Design Professional immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.

1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

F. Existing Roofing: Prior to the start of work in an area, install roofing protection.

3.2 PROTECTION FROM FIRE

A. General: Follow fire-prevention plan and the following:

1. Comply with NFPA 241 requirements unless otherwise indicated. Perform duties titled "Engineer's Responsibility for Fire Protection."

2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.

a. If combustible material cannot be removed, provide fire blankets to cover such materials.

B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:

1. Obtain Engineer's approval for operations involving use of welding or other high-heat equipment. Use of open-flame equipment is not permitted. Notify Engineer at least 72 hours before each occurrence, indicating location of such work.

2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.

3. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.

4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.

5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.

6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:

a. Train each fire watch in the proper operation of fire-control equipment and alarms.

b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.

c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.

d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than 1 hour after conclusion of work in each area to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.

e. Maintain fire-watch personnel at each area of Project site until two hours after conclusion of daily work.

C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.

D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.

1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is complete.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

A. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.

B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.

C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.

D. Neutralize alkaline and acid wastes and legally dispose of off Engineer's property.

E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL ALTERATION WORK

A. Have specialty work performed only by qualified specialists.

B. Ensure that supervisory personnel are present when work begins and during its progress.

C. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation photographs. Comply with requirements in Section 013233 "Photographic Documentation."

D. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.

E. Notify Design Professional of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.

1. Do not proceed with the work in question until directed by Design Professional.

END OF SECTION 013516

SECTION 01400

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.

1.3 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).

D. Mockups: Physical assemblies of portions of the Work constructed to establish the standard by which the Work will be judged. Mockups are not Samples.

1. Mockups are used for one or more of the following:

a. Verify selections made under Sample submittals.

b. Demonstrate aesthetic effects.

c. Demonstrate the qualities of products and workmanship.

d. Demonstrate successful installation of interfaces between components and systems.

e. Perform preconstruction testing to determine system performance.

2. Product Mockups: Mockups that may include multiple products, materials, or systems specified in a single Section.

3. In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" has the same meaning as the term "testing agency."

I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Design Professional.

1.4 DELEGATED DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Design Professional.

B. Delegated Design Services Statement: Submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.5 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Design Professional regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Design Professional for clarification before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified is the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Design Professional for a decision before proceeding.

1.6 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:

1. Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

F. Reports: Prepare and submit certified written reports and documents as specified.

G. Permits, Licenses, and Certificates: For Engineer's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed. Submit in format acceptable to Design Professional. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities and to coordinate Engineer's quality-assurance and quality-control activities. Coordinate with Contractor's Construction Schedule.

B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections, including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.

2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.

3. Engineer-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring the Work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports, including log of approved and rejected results. Include Work Design Professional has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming Work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement of whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

4. Statement of whether conditions, products, and installation will affect warranty.

5. Other required items indicated in individual Specification Sections.

1.9 QUALITY ASSURANCE

A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists will satisfy qualification requirements indicated and engage in the activities indicated.

1. Requirements of authorities having jurisdiction supersede requirements for specialists.

G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and

perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following Contractor's responsibilities, including the following:

1. Provide test specimens representative of proposed products and construction.
2. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
3. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
4. When testing is complete, remove test specimens and test assemblies; do not reuse products on Project.
5. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Design Professional with copy to Contractor. Interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups of size indicated.
2. Build mockups in location indicated or, if not indicated, as directed by Design Professional.
3. Notify Design Professional seven days in advance of dates and times when mockups will be constructed.
4. Employ supervisory personnel who will oversee mockup construction. Employ workers who will be employed to perform same tasks during the construction at Project.
5. Demonstrate the proposed range of aesthetic effects and workmanship.
6. Obtain Design Professional's approval of mockups before starting corresponding Work, fabrication, or construction.
    a. Allow seven days for initial review and each re-review of each mockup.
7. Promptly correct unsatisfactory conditions noted by Design Professional's preliminary review, to the satisfaction of the Design Professional, before completion of final mockup.
8. Approval of mockups by the Design Professional does not constitute approval of deviations from the Contract Documents contained in mockups unless Design Professional specifically approves such deviations in writing.
9. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

10. Demolish and remove mockups when directed unless otherwise indicated.

1.10 QUALITY CONTROL

A. Engineer Responsibilities: Where quality-control services are indicated as Engineer's responsibility, Engineer will engage a qualified testing agency to perform these services.

1. Engineer will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.

2. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Engineer are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

2. Engage a qualified testing agency to perform quality-control services.

a. Contractor will not employ same entity engaged by Engineer, unless agreed to in writing by Engineer.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.

4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Design Professional and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Design Professional and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct and interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from requirements.

4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspection equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.

1. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor- and Engineer-retained services, commissioning activities, and other Project-required services paid for by other entities.
2. Distribution: Distribute schedule to Engineer, Design Professional, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.11 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Engineer will engage a qualified special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Engineer as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures, and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Design Professional and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Design Professional with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections, and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Design Professional.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Design Professional's and authorities' having jurisdiction reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 01420

REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Design Professional's action on Contractor's submittals, applications, and requests, "approved" is limited to Design Professional's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Design Professional. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

1. For standards referenced by applicable building codes, comply with dates of standards as listed in building codes.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

1. AABC - Associated Air Balance Council; www.aabc.com.
2. AAMA - American Architectural Manufacturers Association; (See FGIA).
3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
7. ABMA - American Boiler Manufacturers Association; www.abma.com.
8. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
11. AF&PA - American Forest & Paper Association; www.afandpa.org.
12. AGA - American Gas Association; www.aga.org.
13. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
14. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
15. AI - Asphalt Institute; www.asphaltinstitute.org.
16. AIA - American Institute of Architects (The); www.aia.org.
17. AISC - American Institute of Steel Construction; www.aisc.org.
18. AISI - American Iron and Steel Institute; www.steel.org.
19. AITC - American Institute of Timber Construction; www.plib.org.
20. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
21. ANSI - American National Standards Institute; www.ansi.org.
22. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
23. APA - APA - The Engineered Wood Association; www.apawood.org.
24. APA - Architectural Precast Association; www.archprecast.org.
25. API - American Petroleum Institute; www.api.org.
26. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
27. ARI - American Refrigeration Institute; (See AHRI).
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASCE - American Society of Civil Engineers; www.asce.org.
30. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).

31. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
32. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
33. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
34. ASSP - American Society of Safety Professionals (The); www.assp.org.
35. ASTM - ASTM International; www.astm.org.
36. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
37. AVIXA - Audiovisual and Integrated Experience Association; (Formerly: Infocomm International); www.avixa.org.
38. AWEA - American Wind Energy Association; www.awea.org.
39. AWI - Architectural Woodwork Institute; www.awinet.org.
40. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
41. AWPA - American Wood Protection Association; www.awpa.com.
42. AWS - American Welding Society; www.aws.org.
43. AWWA - American Water Works Association; www.awwa.org.
44. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
45. BIA - Brick Industry Association (The); www.gobrick.com.
46. BICSI - BICSI, Inc.; www.bicsi.org.
47. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
48. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
49. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
50. CDA - Copper Development Association; www.copper.org.
51. CE - Conformite Europeenne; www.ec.europa.eu/growth/single-market/ce-marking.
52. CEA - Canadian Electricity Association; www.electricity.ca.
53. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
54. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
55. CGA - Compressed Gas Association; www.cganet.com.
56. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
57. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.

58. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
59. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
60. CPA - Composite Panel Association; www.compositepanel.org.
61. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
62. CRRC - Cool Roof Rating Council; www.coolroofs.org.
63. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
64. CSA - CSA Group; www.csa-group.org.
65. CSI - Cast Stone Institute; www.caststone.org.
66. CSI - Construction Specifications Institute (The); www.csiresources.org.
67. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
68. CTA - Consumer Technology Association; www.cta.tech.
69. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.coolingtechnology.org.
70. CWC - Composite Wood Council; (See CPA).
71. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
72. DHA - Decorative Hardwoods Association; (Formerly: Hardwood Plywood & Veneer Association); www.decorativehardwoods.org.
73. DHI - Door and Hardware Institute; www.dhi.org.
74. ECA - Electronic Components Association; (See ECIA).
75. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
76. ECIA - Electronic Components Industry Association; www.ecianow.org.
77. EIA - Electronic Industries Alliance; (See TIA).
78. EIMA - EIFS Industry Members Association; www.eima.com.
79. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
80. EOS/ESD Association; (Electrostatic Discharge Association); www.esda.org.
81. ESTA - Entertainment Services and Technology Association; (See PLASA).
82. ETL - Intertek (See Intertek); www.intertek.com.
83. EVO - Efficiency Valuation Organization; www.evo-world.org.
84. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
85. FGIA - Fenestration and Glazing Industry Alliance; https://fgiaonline.org.
86. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.

87. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
88. FM Approvals - FM Approvals LLC; www.fmapprovals.com.
89. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
90. FRSA - Florida Roofing, Sheet Metal Contractors Association, Inc.; www.floridaroof.com.
91. FSA - Fluid Sealing Association; www.fluidsealing.com.
92. FSC - Forest Stewardship Council U.S.; www.fscus.org.
93. GA - Gypsum Association; www.gypsum.org.
94. GANA - Glass Association of North America; (See NGA).
95. GS - Green Seal; www.greenseal.org.
96. HI - Hydraulic Institute; www.pumps.org.
97. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
98. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
99. HPVA - Hardwood Plywood & Veneer Association; (See DHA).
100. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
101. IAS - International Accreditation Service; www.iasonline.org.
102. ICBO - International Conference of Building Officials; (See ICC).
103. ICC - International Code Council; www.iccsafe.org.
104. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
105. ICPA - International Cast Polymer Association; www.theicpa.com.
106. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
107. IEC - International Electrotechnical Commission; www.iec.ch.
108. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
109. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
110. IESNA - Illuminating Engineering Society of North America; (See IES).
111. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
112. IGMA - Insulating Glass Manufacturers Alliance; (See FGIA).
113. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.org.
114. II - Infocomm International; (See AVIXA).
115. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.

116. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
117. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
118. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
119. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
120. ISO - International Organization for Standardization; www.iso.org.
121. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
122. ITU - International Telecommunication Union; www.itu.int.
123. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
124. LMA - Laminating Materials Association; (See CPA).
125. LPI - Lightning Protection Institute; www.lightning.org.
126. MBMA - Metal Building Manufacturers Association; www.mbma.com.
127. MCA - Metal Construction Association; www.metalconstruction.org.
128. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
129. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
130. MHI - Material Handling Industry; www.mhi.org.
131. MIA - Marble Institute of America; (See NSI).
132. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
133. MPI - Master Painters Institute; www.paintinfo.com.
134. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
135. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
136. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
137. NADCA - National Air Duct Cleaners Association; www.nadca.com.
138. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
139. NALP - National Association of Landscape Professionals; www.landscapeprofessionals.org.
140. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
141. NBI - New Buildings Institute; www.newbuildings.org.
142. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.

143. NCMA - National Concrete Masonry Association; www.ncma.org.
144. NEBB - National Environmental Balancing Bureau; www.nebb.org.
145. NECA - National Electrical Contractors Association; www.necanet.org.
146. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
147. NEMA - National Electrical Manufacturers Association; www.nema.org.
148. NETA - InterNational Electrical Testing Association; www.netaworld.org.
149. NFHS - National Federation of State High School Associations; www.nfhs.org.
150. NFPA - National Fire Protection Association; www.nfpa.org.
151. NFPA - NFPA International; (See NFPA).
152. NFRC - National Fenestration Rating Council; www.nfrc.org.
153. NGA - National Glass Association (The); (Formerly: Glass Association of North America); www.glass.org.
154. NHLA - National Hardwood Lumber Association; www.nhla.com.
155. NLGA - National Lumber Grades Authority; www.nlga.org.
156. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
157. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
158. NRCA - National Roofing Contractors Association; www.nrca.net.
159. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
160. NSF - NSF International; www.nsf.org.
161. NSI - National Stone Institute; (Formerly: Marble Institute of America); www.naturalstoneinstitute.org.
162. NSPE - National Society of Professional Engineers; www.nspe.org.
163. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
164. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
165. NWFA - National Wood Flooring Association; www.nwfa.org.
166. NWRA - National Waste & Recycling Association; www.wasterecycling.org
167. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
168. PDI - Plumbing & Drainage Institute; www.pdionline.org.
169. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
170. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
171. RFCI - Resilient Floor Covering Institute; www.rfci.com.

172. RIS - Redwood Inspection Service; www.redwoodinspection.com.
173. SAE - SAE International; www.sae.org.
174. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
175. SDI - Steel Deck Institute; www.sdi.org.
176. SDI - Steel Door Institute; www.steeldoor.org.
177. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
178. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
179. SIA - Security Industry Association; www.siaonline.org.
180. SJI - Steel Joist Institute; www.steeljoist.org.
181. SMA - Screen Manufacturers Association; www.smainfo.org.
182. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
183. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
184. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
185. SPIB - Southern Pine Inspection Bureau; www.spib.org.
186. SPRI - Single Ply Roofing Industry; www.spri.org.
187. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
188. SSINA - Specialty Steel Industry of North America; www.ssina.com.
189. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
190. STI - Steel Tank Institute; www.steeltank.com.
191. SWI - Steel Window Institute; www.steelwindows.com.
192. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
193. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
194. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
195. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
196. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
197. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
198. TMS - The Masonry Society; www.masonrysociety.org.
199. TPI - Truss Plate Institute; www.tpinst.org.

200. TPI - Turfgrass Producers International; www.turfgrasssod.org.
201. TRI - Tile Roofing Institute; www.tileroofing.org.
202. UL - Underwriters Laboratories Inc.; www.ul.com.
203. UL LLC - UL LLC; www.ul.com.
204. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
205. USAV - USA Volleyball; www.usavolleyball.org.
206. USGBC - U.S. Green Building Council; www.usgbc.org.
207. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
208. WA - Wallcoverings Association; www.wallcoverings.org.
209. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
210. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
211. WDMA - Window & Door Manufacturers Association; www.wdma.com.
212. WI - Woodwork Institute; www.wicnet.org.
213. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
214. WWPA - Western Wood Products Association; www.wwpa.org.

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.
5. OBC - Ohio Building Code

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOE - Department of Energy; www.energy.gov.
5. EPA - Environmental Protection Agency; www.epa.gov.

6. FAA - Federal Aviation Administration; www.faa.gov.
7. FG - Federal Government Publications; www.gpo.gov/fdsys.
8. GSA - General Services Administration; www.gsa.gov.
9. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
10. OSHA - Occupational Safety & Health Administration; www.osha.gov.
11. USPS - United States Postal Service; www.usps.com.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, testing agencies, and authorities having jurisdiction.

B. Sewer Service: Engineer will pay sewer-service use charges for sewer usage by all entities for construction operations.

C. Water Service: Engineer will pay water-service use charges for water used by all entities for construction operations.

D. Electric Power Service: Engineer will pay electric-power-service use charges for electricity used by all entities for construction operations.

E. Water and Sewer Service from Existing System: Water from Engineer's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

F. Electric Power Service from Existing System: Electric power from Engineer's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.

C. Project Identification and Temporary Signs: Not required. Contractor may display their own Project Identification Sign at Contractor's cost and as approved by the Engineer.

D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

E. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
3. Indicate methods to be used to avoid trapping water in finished work.

F. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust-and HVAC-control measures proposed for use, proposed locations and proposed time frame for their operation. Include the following:

1. Location of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste-handling procedures.
5. Other dust-control measures.

G. Noise and Vibration Control Plan: Identify construction activities that may impact the occupancy and use of existing spaces within the building or adjacent existing buildings, whether occupied by others, or occupied by Engineer. Include the following:

1. Methods used to meet the goals and requirements of Engineer.
2. Concrete cutting method(s) to be used.
3. Location of construction devices on the site.
4. Show compliance with the use and maintenance of quieted construction devices for the duration of the Project.
5. Indicate activities that may disturb building occupants and that are planned to be performed during non-standard working hours as coordinated with Engineer.
6. Indicate locations of sensitive equipment areas or other areas requiring special attention as identified by Engineer. Indicate means for complying with Engineer's requirements.

1.5 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in ICC/ANSI A117.1.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Engineer's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top and bottom rails. Provide concrete bases for supporting posts.

B. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil (0.25-mm) minimum thickness, with flame-spread rating of 15 or less in accordance with ASTM E84 and passing NFPA 701 Test Method 2.

C. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats, minimum 36 by 60 inches.

D. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Engineer, Design Professional, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

1. Furniture required for Project-site documents, including file cabinets, plan tables, plan racks, and bookcases.
2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack and marker boards.

3. Drinking water and private toilet.
4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
5. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Engineer authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.

2. Heating, Cooling, and Dehumidifying Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

3. Permanent HVAC System: If Engineer authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Section 017700 "Closeout Procedures."

C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Engineer's property.

3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

C. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

1. Prior to commencing work, isolate the HVAC system in area where work is to be performed according to coordination drawings.

a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.

b. Maintain negative air pressure within work area, using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.

2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.

3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Engineer, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

D. Water Service: Connect to Engineer's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Engineer. At Substantial Completion, restore these facilities to condition existing before initial use.

E. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

1. Use of Permanent Toilets: Use of Engineer's existing or new toilet facilities will not be permitted.

F. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.

G. Electric Power Service: Connect to Engineer's existing electric power service. Maintain equipment in a condition acceptable to Engineer.

H. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

1. Install electric power service underground unless otherwise indicated.

2. Connect temporary service to Engineer's existing power source, as directed by Engineer.

I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

J. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel.

1. At each telephone, post a list of important telephone numbers.

a. Police and fire departments.

b. Ambulance service.

c. Contractor's home office.

d. Contractor's emergency after-hours telephone number.

e. Design Professional's office.

f. Engineers' offices.

g. Engineer's office.

h. Principal subcontractors' field and home offices.

K. Electronic Communication Service: Provide secure WiFi wireless connection to internet with provisions for access by Design Professional and Engineer.

3.4 SUPPORT FACILITIES INSTALLATION

A. Comply with the following:

1. Provide construction for temporary field offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible in accordance with ASTM E136. Comply with NFPA 241.

2. Maintain support facilities until Design Professional schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Engineer.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain, including curbs, pavement, and utilities.

2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Use designated areas of Engineer's existing parking areas for construction personnel.

D. Storage and Staging: Use designated areas of Project site for storage and staging needs.

E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs as indicated on Drawings.

2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

a. Provide temporary, directional signs for construction personnel and visitors.

3. Maintain and touch up signs, so they are legible at all times.

F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

H. Existing Elevator Use: Use of Engineer's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to Engineer. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.

1. Do not load elevators beyond their rated weight capacity.
2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work, so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.

I. Existing Stair Usage: Use of Engineer's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Engineer. At Substantial Completion, restore stairs to condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas, so no evidence remains of correction work.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property Engineer to access property for that purpose.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 011000 "Summary."

C. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals, so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.

D. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

F. Temporary Egress: Provide temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction. Provide signage directing occupants to temporary egress.

G. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.

1. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
2. Paint and maintain appearance of walkway for duration of the Work.

H. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

I. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Engineer from fumes and noise.

1. Construct dustproof partitions with gypsum wallboard, with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
2. Insulate partitions to control noise transmission to occupied areas.
3. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
4. Protect air-handling equipment.
5. Provide walk-off mats at each entrance through temporary partition.

J. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition in accordance with requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign, stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

A. Moisture and Mold Protection: Protect stored materials and installed Work in accordance with Moisture and Mold Protection Plan.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.
2. Protect stored and installed material from flowing or standing water.
3. Keep porous and organic materials from coming into prolonged contact with concrete.
4. Remove standing water from decks.
5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
2. Keep interior spaces reasonably clean and protected from water damage.
3. Periodically collect and remove waste containing cellulose or other organic matter.
4. Discard or replace water-damaged material.

5. Do not install material that is wet.

6. Discard and replace stored or installed material that begins to grow mold.

7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.

D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.

2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.

3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective and require replacing.

b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Design Professional.

c. Remove and replace materials that cannot be completely restored to their manufactured moisture level within 48 hours.

3.7 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Engineer reserves right to take possession of Project identification signs.

2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove

soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 01560

TEMPORARY CONTROLS AND REGULATORY
REQUIREMENTS FOR ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.01 GENERAL

A. Each CONTRACTOR shall provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site and adjacent areas. Remove physical evidence of temporary facilities at completion of Work.

B. Each CONTRACTOR shall adhere to all federal, state, and local laws, permits, and regulations concerning environmental pollution and its control and all other controls required by this Section and the Contract Documents.

C. CONTRACTOR shall cease operations determined by ENGINEER to be in noncompliance with the requirements of this Section. The CONTRACTOR shall make every effort to take corrective action promptly. The ENGINEER shall issue an order to stop all or part of the Work should the CONTRACTOR fail to comply promptly. No part of time loss due to such stoppage shall be used for claims for extension of time and additional monetary compensation.

D. Disposals: Construction wastes, excess excavated material, unsalvageable materials, devices, and equipment not required to be turned over to OWNER shall not be allowed to remain on construction site except for clean fill dirt. Construction waste to be disposed of shall include, but is not limited to, wood, wallboard, support steel, packing, roofings, floorings, oils, pesticides, herbicides, paints, thinners, cleaners, etc. Comply with the disposal requirements stated in Section 01710, Cleaning.

1.02 NOISE CONTROL

A. CONTRACTOR's vehicles and equipment shall be operated and maintained to minimize noise to the greatest degree practicable. Noise levels shall conform to the latest OSHA standards and shall not exceed maximum permitted levels established by local codes, ordinances, standards and regulations. In no case will noise levels be permitted which interfere with the work of the OWNER or others.

B. Motorized equipment shall be equipped with intake silencers and mufflers.

1.03 DUST CONTROL

A. Each CONTRACTOR shall maintain work areas free from dust which would contribute to air pollution or otherwise be objectionable or a nuisance. Approved temporary methods of stabilization consisting of water sprinkling or similar methods will be permitted to control dust. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times, and the CONTRACTOR must have sufficient competent equipment on the job to accomplish this task. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

1. Do not use calcium chloride on paved surfaces.

1.04 PEST AND RODENT CONTROL

A. Each prime CONTRACTOR shall provide rodent and pest control as necessary to prevent infestation of construction or storage area.

1. Employ methods and use materials which will not adversely affect conditions at the site or on adjoining properties.

2. Comply with all Ohio EPA and federal regulations.

1.05 POLLUTION CONTROL

A. Provide methods, means and facilities required to prevent pollution of soil, groundwater, surface water or atmosphere with fuels, oils, bitumens, calcium chloride, construction wastes, and other harmful substances from construction operations.

1. Pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; or unfavorably affect other species of importance.

B. Spills, Discharges and Releases:

1. Provide necessary equipment and personnel and perform emergency measures required to contain any spillages, discharges and releases and to remove contaminated soils or liquids.

2. Excavate and dispose of any contaminated earth offsite and replace with suitable compacted fill and topsoil.

3. Take all action necessary to prevent harmful substances from entering surface waters or groundwater. Prevent release of soil, sediment, wastes, effluents, chemicals, and other such substances adjacent to and in streams, sanitary sewers and storm sewers.

4. CONTRACTOR shall report all fuel/chemical spills, discharges and releases that occur to the appropriate regulatory agency regardless of who is responsible. The spills, discharges and releases shall also be reported to the ENGINEER with the report made immediately following awareness of the incident.

5. The CONTRACTOR shall clean up all spills, discharges and releases caused by the CONTRACTOR's negligence of faulty equipment. The cleanup methods shall be as required by or acceptable to the ENGINEER.

6. The CONTRACTOR shall reimburse the OWNER for all materials and assistance provided by the OWNER and used in containment or cleanup of those spills, discharges and releases caused by the CONTRACTOR's negligence or faulty equipment.

C. Provide systems for control of atmospheric pollutants.

1. Prevent toxic concentrations of chemicals.

2. Prevent harmful dispersal of pollutants into the atmosphere.

D. Burning. No open burning of any construction waste and/or unsalvageable materials shall be allowed.

E. Litter. Litter shall be controlled and containerized at all times. Care will be exercised to ensure that no litter is lost from any vehicle while in transit to and from the construction site.

F. All CONTRACTOR's equipment used during construction shall conform to all current federal, state and local laws and regulations.

1.06 EROSION CONTROL

A. CONTRACTOR shall comply with all requirements of local, state and federal storm water regulations.

B. CONTRACTOR shall comply with all requirements of Ohio EPA Permit number OHC000004 - "Authorization for Storm Water Discharges Associated with Construction Activity under the National Pollutant Discharge Elimination System".

C. CONTRACTOR shall obtain permit coverage from the Ohio Environmental Protection Agency under permit OHC000004. CONTRACTOR shall submit to the Ohio EPA a Notice of Intent (NOI), a site map (8 1/2" x 11"), a permit fee (expected fee between $200 and $500), prepare a Storm Water Pollution Prevention Plan, and perform and submit all other items necessary to achieve coverage under the permit. See Miscellaneous Forms for the NOI form and instructions.

D. CONTRACTOR shall avoid, to the greatest extent possible and in accordance with the Contract Documents and the Storm Water Pollution Prevention Plan, disturbance to the stream bank and streambed and prevent erosion and sediment runoff.

E. Each CONTRACTOR shall plan and execute construction and earth work by methods to control surface water drainage from the entire construction site including from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation in compliance with the approved Storm Water Pollution Prevention Plan and as follows:

1. Reduce by the greatest extent practicable the area and duration of exposure of readily erodible soils.

2. Protect the soils by use of temporary vegetation, or seeding and mulch, or by accelerating the establishment of permanent vegetation. Complete and protect segments of work as rapidly as is consistent with approved construction schedules.

3. Provide temporary measures such as berms, dikes, erosion control fences, silt barriers, geotextiles, drains, etc. to protect storm sewers, streams, and all water conveying systems from water-borne sediment and to control surface water drainage.

4. Control fill, grading and ditching to direct surface water drainage away from excavations, pits, tunnels and other construction areas; and to direct drainage to proper runoff courses so as to prevent any erosion, damage or nuisance.

5. Trap sediment resulting from the construction site and control disposal of surface water drainage.

6. Provide temporary measures for the control of erosion in the event construction operations are suspended for any appreciable length of time.

7. Provide protection against discharge of pollutants such as chemicals, fuel, lubricants, sewage, etc. into any stream, sewer and water drainage course.

8. For slopes greater than 2 to 1 (two feet of horizontal distance to one foot of vertical rise), provide water diversion berms, sod or jute or excelsior blankets at a minimum.

F. Provide, operate and maintain equipment and facilities of adequate size to control surface water drainage.

G. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas and in conformance with all environmental requirements.

H. Construct fills and waste areas by selective placement to eliminate surface silts or clays which will erode.

I. Periodically inspect earthwork to detect any evidence of the start of erosion and apply corrective measures as required to control erosion.

1.07 STREAM CROSSING/ RIPARIAN ZONE CONSTRUCTION

A. CONTRACTOR shall take all action necessary to minimize damage to vegetation and trees in the riparian zone adjacent to streams.

1. Definitions: The latest definition of similar terms or concepts by the Ohio Environmental Protection Agency shall supersede the definitions following:

a. Riparian zone is defined to extend a minimum distance of two and one-half times the stream width, from top of bank to top of bank, on each side of the stream.

b. Streams are defined as any water course draining an area equal to one half square mile or greater.

B. General CONTRACTOR shall prepare a detailed work plan including but not limited to the following information:

1. Locations of haul roads, stockpile sites, and staging areas.

2. Protection of existing vegetation.

3. Types of erosion control measures to be employed.

4. Places where erosion control measures will be used.

5. Methods to be used for stream crossing work.

6. Types of temporary bridges, culverts, etc. proposed to be used for haul roads crossing streams.

7. Restoration of disturbed areas in stages to match work progress and minimize impacts.

C. General CONTRACTOR shall present the work plan in draft form at the pre-construction conference. Final work plan incorporating review comments shall be submitted to ENGINEER prior to the start of construction in impacted areas.

D. As directed by ENGINEER, General CONTRACTOR shall prepare and submit a videotape record of pre-construction condition of stream crossing and riparian zone construction areas.

E. Each CONTRACTOR's practices during construction in stream crossings and riparian zones shall include but not be limited to the following:

1. Limit clearing and grubbing activities within easements to only that needed for actual construction.

2. Perform clearing and grubbing work (and site restoration) in stages to limit soil exposure and sediment runoff.

3. Properly install and maintain erosion control devices along the limits of construction and wherever required by work plan. Maintain erosion control devices until permanent vegetative cover has been established.

4. Place all dredged material at an upland site in such a way that sediment runoff to the waterway is controlled and minimized.

5. Restrict any stream crossing work to low flow periods.

6. Preserve all streambank vegetation at crossing sites, except that necessary for actual excavation and equipment passage, to help maintain bank stability. Protect as many trees as possible from construction activity. Do not stockpile any material within tree driplines.

7. Ensure bank stability at all times, including, but not limited to, placement of riprap or bank seeding.

8. Divert stream flow around the work site during stream crossing work to minimize bank erosion.

    a. Flow Diversion: Divert flows so as to prevent discharge of any spoil materials, sediment, construction debris and excavated materials into the stream waters.

9. Employ extreme care throughout the course of work to avoid the creation of unnecessary sediment or debris in the water which may degrade water quality or adversely affect aquatic life outside the work area.

10. Discharge any dewatering flows in such a manner so as to avoid causing soil erosion or stream siltation.

    a. Direct discharge of dewatering flows is strictly prohibited. Sediment shall be removed from dewatering flows by use of siltation basins or filters.

    b. After sediment has been removed, dewatering flows can be discharged to stable sites such as streams or storm sewers, however, they shall not be discharged to exposed soils, stream banks, or any other site where flows could cause erosion.

11. Repair immediately any damages to the immediate environment caused by construction or hauling equipment.

12. Do not alter natural stream courses.

F. The completed stream crossing shall not impede the flow of water or create an impoundment of water upstream except as allowed by appropriate permits.

G. Indiscriminate, arbitrary or capricious operation of any equipment in a stream corridor, wetland, or surface water is strictly prohibited.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01600

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for requests for substitutions.
2. Section 014200 "References" for applicable industry standards for products specified.
3. Section 01770 "Closeout Procedures" for submitting warranties.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products, unless indicated otherwise.
3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in Part 2 "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.

1. Evaluation of Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.

D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:

1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.

2. Data indicating compliance with the requirements specified in Part 2 "Comparable Products" Article.

E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 013300 "Submittal Procedures."

F. Substitution: Refer to Section 012500 "Substitution Procedures" for definition and limitations on substitutions.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. If dispute arise between contractors over concurrently selectable but incompatible products, Design Professional will determine which product shall be used.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.

2. Equipment Nameplates: Provide a permanent nameplate on each item of service- or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:

a. Name of product and manufacturer.

b. Model and serial number.

c. Capacity.

d. Speed.

e. Ratings.

3. See individual identification Sections in Divisions 21, 22, 23, and 26 for additional equipment identification requirements.

1.5 COORDINATION

A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to determine compliance with the Contract Documents and that products are undamaged and properly protected.

C. Storage:

1. Provide a secure location and enclosure at Project site for storage of materials and equipment.

2. Store products to allow for inspection and measurement of quantity or counting of units.

3. Store materials in a manner that will not endanger Project structure.

4. Store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.

5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.

6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

7. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of the Engineer or endorsed by manufacturer to Engineer.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Engineer and issued in the name of the Engineer or endorsed by manufacturer to Engineer.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.

2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.

3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.

3. Engineer reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.

4. Where products are accompanied by the term "as selected," Design Professional will make selection.

5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

6. Or Equal: For products specified by name and accompanied by the term "or equal," "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

    a. Submit additional documentation required by Design Professional in order to establish equivalency of proposed products. Unless otherwise indicated, evaluation of "or equal" product status is by the Design Professional, whose determination is final.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole product may be indicated by the phrase "Subject to compliance with requirements, provide the following."

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole manufacturer/source may be indicated by the phrase "Subject to compliance with requirements, provide products by the following."

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."

4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed or an unnamed product that complies with requirements.

    a. Non-limited list of products is indicated by the phrase "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following."

    b. Provision of an unnamed product is not considered a substitution, if the product complies with requirements.

5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."

6. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require the phrase "match Design Professional's sample," provide a product that complies with requirements and matches Design Professional's sample. Design Professional's decision will be final on whether a proposed product matches.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Design Professional from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Design Professional will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Design Professional will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Design Professional may return requests without action, except to record noncompliance with the following requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.

2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes, such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.

3. Evidence that proposed product provides specified warranty.

4. List of similar installations for completed projects, with project names and addresses and names and addresses of Design Professionals and Engineers, if requested.

5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 01710

CLEANING

PART 1 GENERAL

1.01 GENERAL

A. Each prime CONTRACTOR shall execute cleaning during progress of the Work, at completion of the Work, and as required by the General Conditions.

B. Requirements of Regulatory Agencies:

1. In addition to the requirements herein, maintain the cleanliness of the Project site, the construction area, the surrounding premises, all temporary storage yards and staging areas so as to comply with federal, state, and local fire and safety laws, ordinances, codes and regulations.

2. Comply with all federal, state and local anti-pollution laws, ordinances, codes and regulations when disposing of any material, waste materials, debris and rubbish.

C. Waste Disposal:

1. Dispose of all waste materials, surplus materials, debris and rubbish off the project site.

2. Do not burn or bury rubbish and waste materials on the project site.

3. Do not dispose of volatile compounds or hazardous wastes such as fuels, cleaning agents, mineral spirits, oil, paint thinner, etc. in storm drains, sanitary sewers, streams, waterways and any other conveyance system.

4. Do not discharge wastes into streams or waterways.

5. Do not discharge wastes into plant drains or process units. In no case can wastes be allowed to enter County operated systems.

D. Cleaning Materials:

1. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

2. Use each type of cleaning product on only those surfaces recommended by the cleaning product manufacturer.

3. Use only materials which will not create hazards to health or property.

1.02 SCHEDULING

A. Scheduling of Cleaning and Disposal Operations:

1. Schedule such operations so that dust, wash water or other contaminants generated during such operations do not damage or mar painted or finished surfaces.

2. Schedule such operations to prevent accumulation of dust, dirt, debris, rubbish and waste materials on or within the Work or on the premises surrounding the Work.

B. Cleaning and disposal operations shall be performed once a day at a minimum and as required to accomplish the requirements of this Section:

1. During Construction:

   a. Keep the Project site, the construction area, the surrounding premises, all temporary storage yards and staging areas and surrounding premises free of accumulations of dirt, dust, waste materials, debris and rubbish.

   b. Keep dust generating areas wetted down. The requirements for dust control is further defined in Section 01560.

   c. Provide suitable containers for storage of waste materials, debris and rubbish until time of disposal.

   d. Dispose of waste, debris and rubbish off site at legal disposal areas.

2. When Project is Completed:

   a. Remove and dispose of all excess or waste materials, debris, rubbish, and temporary facilities from the site, structures and all facilities.

   b. Remove spatter, grease, stains, fingerprints, dirt, dust, labels, tags, packing materials and other foreign items or substances from interior and exterior surfaces, equipment, signs and lettering.

   c. Repair, patch and touch up chipped, scratched, dented or otherwise marred surfaces to match specified finish.

   d. Remove paint, clean and restore all equipment and material nameplates, labels and other identification markings.

   e. Wash and shine mirrors, glazing and polished surfaces.

   f. Clean all floors, slabs, pavements, and ground surfaces.

   g. Maintain cleaning until acceptance and occupation by OWNER.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01720

RECORD DOCUMENTS

PART 1 GENERAL

1.01 GENERAL

A. CONTRACTOR shall maintain and provide record documents as specified in paragraph 7.11 of the General Conditions and herein, except where otherwise specified or modified in Divisions 2-16. The General CONTRACTOR shall have the responsibility of ensuring that each of the other prime CONTRACTORs maintains the record documents specified herein.

B. Maintenance of Documents:

1. Maintain in each prime CONTRACTOR's field office in clean, dry, legible condition complete sets of the following: Drawings, Specifications, Addenda, approved Shop Drawings, Samples, photographs, Change Orders, other modifications of Contract Documents, test records, survey data, Field Orders, and all other documents pertinent to CONTRACTOR's Work.

2. Provide files and racks for proper storage and easy access. File in accordance with filing format of Construction Specification Institute (CSI), unless otherwise approved by the ENGINEER.

3. Make documents available at all times for inspection by the ENGINEER, and OWNER.

4. Record Documents shall not be used for any other purpose and shall not be removed from the CONTRACTOR's office without ENGINEER's approval.

C. Marking System: Provide colored pencils or felt tipped pens for marking changes, revisions, additions and deletions, to the record set of Drawings.

1. Use following color code for all structures and systems except underground utilities, unless otherwise approved by the ENGINEER.

a. Process and Mechanical: Red.

b. Architectural: Blue.

c. Structural: Purple.

d. Plumbing: Brown.

e. HVAC: Green.

f. Electrical: Orange.

g. Other Printed Notations: Black.

2. For underground utilities use the Montgomery County Standard Underground Protection Service color coding system.

Sanitary Sewer - Green Phone - Orange

Storm Sewer - Green	CATV - Orange
Electric - Red	Water - Blue
Gas - Yellow	

D. Recording

1. Label each document "PROJECT RECORD" in 2-inch high printed letters.

2. Keep record documents current.

3. Do not permanently conceal any Work until required information has been recorded.

4. CONTRACTOR shall utilize dimensional measurements, state plane coordinates, and elevations to provide survey accurate data for all sanitary sewer and water appurtenances and facilities installed for this project. This information shall be incorporated into the as-built drawings of the Work. Any point that will be covered, such as lateral wyes/tees, ends of casings, and deflection points for water mains, shall be located prior to being covered by three horizontal reference points approximately 120 degrees apart. The points shall be nails, stakes, or other fixed points that will enable the reestablishment of the horizontal location of the point after the item is covered. Elevations of each point shall be determined prior to covering the point.

1.02 DRAWINGS

A. Comply with the Montgomery County Environmental Services Rules and Regulations and legibly mark to record actual construction including but not limited to:

1. Depths of various elements of foundation/construction in relation to NAD 83 datum.

2. Horizontal location of all underground utilities and appurtenances referenced to permanent surface improvements.

3. Horizontal locations referenced to the State Plane Coordinate System.

4. Prepare additional drawings as necessary.

5. Information to be recorded shall include but not be limited to:

6. Physical location of manholes, bends, hydrants, and valves by horizontal control to two permanent surface objects and by State Plane Coordinates,

7. Angles between lines,

8. Lengths of spans, and

9. Elevations of all pipe inverts and tops of manholes.

10. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.

11. Field changes of dimensions and details.

12. Changes made by Amendment or Field Order.

13. Material description of each pipe installed.

14. Details not on original Drawings.

15. All sanitary manholes, lampholes and water valves shall be located with a minimum of two (2) horizontal dimensions. The two (2) dimensions shall not be on the same line to the appurtenance or on the same line on either side of the appurtenance. The angles between dimension lines should be between 20 and 160 degrees.

16. All record location dimensions shall be measured in feet and tenths of a foot and shall not exceed 100 feet in length.

    a. The character height of numbers shall be between 0.125 inches minimum and 0.5 inches maximum.

    b. Dimension lines shall be shown on each drawing except where they would add substantial confusion in interpreting the drawing. In those cases, a detail shall be included on the same plan sheet. The detail shall include the dimensions and an arrow pointing to the area of the drawing represented by the detail.

    c. Dimensions shall be from centerline to centerline of each object except for house corners and catch basins (see paragraph 6 below).

17. Dimensions shall be level distances unless noted under special conditions.

18. The following shall be required on all record drawings:

    a. Measured distance between valves within each intersection and at each tee and cross. These dimensions shall be in addition to the two (2) required dimension locations.

    b. Measured distance between fire hydrants and fire hydrant valves.

    c. Measured distances between sanitary manholes, and between a sanitary sewer and a lamphole, shall be shown on the plan. Length of span, grade size of pipe, pipe material and invert elevations shall be shown in the profile.

    d. The plan view of pipe length and location on the plan and profile drawing shall be changed for any constructed span length or horizontal location that differs more than five (5) feet from the design. The span length on both the plan and profile shall labeled with the constructed length.

    e. The profile view on the plan and profile drawing shall be changed for any constructed sanitary or storm sewer invert elevation that differs more than 0.5 feet from the design elevation. The invert elevations shall be labeled with the constructed invert elevations.

    f. The plan view of a constructed water main shall be changed for any horizontal location that differs more than five (5) feet from the design location.

19. The following is a list of objects that are acceptable for as-built dimension references, in order of preference:

    a. Fire Hydrant.

b. Curb. All curb dimensions shall be to the back of the curb and shall not be to any curb or extended curb lines with a radius.

c. Catch basins. Dimensions shall be to the nearest corner of the street edge on the street side. The street name and reference corner on the catch basin shall be indicated.

d. Sanitary Manhole may be used for valve locations.

e. Permanent Utility Pole (pole number shall be included).

f. House Corner. The house street address shall be indicated when a dimension to a house corner is used. Show the entire outline of the house and designate the reference corner for the measured dimension.

g. Corner of a drive. The house street address shall be indicated when a dimension to a driveway corner is used.

20. MCES will possess copies of all vendor and CONTRACTOR Electronic drawing files at the end of the project. The Electronic drawing files shall be provided in AutoCAD® 2018. This includes but is not limited to: PLC control panels, motor control centers, motor starters, switchgear, automatic and manual transfer switches, panels and switchboards, mobile and permanent generators, and any other equipment provided for this project.

1.03 SPECIFICATIONS AND ADDENDA

A. Legibly mark up each Section to record:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.

2. Changes made by Amendment or Field Order.

3. Other matters not originally specified.

1.04 DATABASE

A. See Section S-01050, Field Engineering/Surveying for additional requirements related to database submission.

1.05 GRADE CERTIFICATION

A. Grade Certification: Grade certifications shall be prepared, signed, dated and sealed by a State of Ohio Registered Surveyor or Engineer. The certifications shall be in a tabular format. Rows shall be manhole numbers. Columns shall include:

1. Upstream Manhole Number

2. Inlet Pipe diameter (inches)

3. Invert elevation (feet)

4. Elevation difference (feet)

5. Span length (feet)

6. Grade (%)

7. Top of Casting elevation (feet)

8. Northing (state plane coordinate)

9. Easting (state plane coordinate)

10. Comments

PART 2 PRODUCTS

2.01 SUBMITTAL

A. Upon Substantial Completion of the Work, deliver Record Documents to the ENGINEER. Final payment will not be made until satisfactory Record Documents are received by the ENGINEER. Record Documents shall include the following:

1. One marked paper copy of the design drawings with as-built information.

2. One (1) original signed copy of the grade certification.

3. One database table as specified in Section S-01050.

B. Accompany submittal with transmittal letter containing:

1. Date.

2. Project title and number.

3. CONTRACTOR's name and address.

4. Title and number of each record document.

5. Certification that each document as submitted is complete and accurate.

6. Signature of CONTRACTOR, or his authorized representative.

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01730

EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of Engineer's portion of the Work.
6. Coordination of Engineer-installed products.
7. Progress cleaning.
8. Starting and adjusting.
9. Protection of installed construction.
10. Correction of the Work.

B. Related Requirements:

1. Section 01100 "Summary" for coordination of Engineer-performed work , Engineer's separate contracts, and limits on use of Project site.
2. Section 01771 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Engineer-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
3. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.
4. Section 078413 "Penetration Firestopping" for patching penetrations in fire-rated construction.

1.2 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.3 PREINSTALLATION MEETINGS

A. Cutting and Patching Conference: Conduct conference at Project site.

1. Prior to commencing work requiring cutting and patching, review extent of cutting and patching anticipated and examine procedures for ensuring satisfactory result from cutting and patching work. Inform Design Professional of scheduled meeting. Require representatives of each entity directly concerned with cutting and patching to attend, including the following:

a. Contractor's superintendent.
b. Trade supervisor responsible for cutting operations.
c. Trade supervisor(s) responsible for patching of each type of substrate.
d. Mechanical, electrical, and utilities subcontractors' supervisors, to the extent each trade is affected by cutting and patching operations.

2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.4 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

A. Professional Engineer Qualifications: Refer to Section 01400 "Quality Requirements."

B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Design Professional of locations and details of cutting and await directions from Design Professional before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

    a. Water, moisture, or vapor barriers.
    b. Membranes and flashings.
    c. Sprayed fire-resistive material.
    d. Equipment supports.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Design Professional's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Design Professional for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.

C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to Engineer that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Design Professional in accordance with requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks and existing conditions. If discrepancies are discovered, notify Design Professional promptly.

B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

C. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Design Professional.

3.4 INSTALLATION

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb, and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces, unless otherwise indicated on Drawings.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure satisfactory results as judged by Design Professional. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations, so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.

F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Design Professional.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Design Professional. Fit exposed connections together to form hairline joints.

3.5 CUTTING AND PATCHING

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of Work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements in Section 01100 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Design Professional. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.

b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

   a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 COORDINATION OF ENGINEER'S PORTION OF THE WORK

A. Site Access: Provide access to Project site for Engineer's construction personnel and Engineer's separate contractors.

1. Provide temporary facilities required for Engineer-furnished, Engineer-installed products.
2. Refer to Section 01100 "Summary" for other requirements for Engineer-furnished, Engineer-installed products.

B. Coordination: Coordinate construction and operations of the Work with work performed by Engineer's construction personnel and Engineer's separate contractors.

1. Construction Schedule: Inform Engineer of Contractor's preferred construction schedule for Engineer's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Engineer if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Engineer's construction personnel and Engineer's separate contractors at preinstallation conferences covering portions of the Work that are to receive Engineer's work. Attend preinstallation conferences conducted by Engineer's construction personnel if portions of the Work depend on Engineer's construction.

3.7 PROGRESS CLEANING

A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

    a. Use containers intended for holding waste materials of type to be stored.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

A. Repair or remove and replace damaged, defective, or nonconforming Work. Restore damaged substrates and finishes.

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.

C. Restore permanent facilities used during construction to their specified condition.

D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

SECTION 01739

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Ohio Revised Code (ORC) Chapter 3745-273 - Management Standards for Universal Waste.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous construction waste.
2. Recycling nonhazardous construction waste.
3. Disposing of nonhazardous construction waste.
4. Disposing of Universal Waste.

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Universal Waste: Specific building materials resulting from demolition or selective demolition operations including: Batteries, Mercury-Containing Equipment and Lamps.

D. Disposal: Removal off-site of demolition and construction waste and subsequent sale of, recycling of, reuse of, or depositing in landfill or incinerator acceptable to authorities having jurisdiction.

E. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

F. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

1.4 PERFORMANCE REQUIREMENTS

A. General: Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials.

B. Proper Universal Waste handling, transporting and processing meeting the requirements of these specifications and the ORC will protect the environment from mercury and other toxic heavy metals that may pose risks to human health and the environment.

1.5 INFORMATIONAL SUBMITTALS

A. Recycling and Processing Facility Records: Indicate receipt and acceptance of Recyclable and Universal Waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

B. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

C. Qualification Data: For refrigerant recovery technician.

D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."

3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers. All recyclable plastic containers, glass bottles and cans shall be collected from construction site by contractor and placed in Engineer’s recycling bins.

B. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Inspect containers and bins for contamination and remove contaminated materials if found.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Engineer's property and transport to recycling receiver or processor.

3.3 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.

3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. All metal and wiring shall be separated from construction debris and recycled off site by contractor.

C. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

D. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

3.4 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Do not Uses Engineers dumpsters for disposal unless direct by the Engineer’s Project Manager.
4. Engineer reserves the right to salvage any item deemed of value to the University to re-purpose.

B. Burning: Do not burn waste materials.

C. Batteries:
1. Remove Lead-Acid batteries from fixtures or appliances and place in a closed, structurally sound container compatible with the contents of the battery.
2. Containers shall prevent any universal waste components from leaking or spilling into the environment.
3. Provide labeling with the phrase “Universal Waste – Batteries”.

D. Mercury-Containing Equipment:

1. Remove Lamps, light fixture ballasts and thermostats from ceilings and walls and place in closed, structurally sound containers compatible with the contents of the mercury-containing device.
2. Containers shall prevent any universal waste components from leaking or spilling into the environment.

3. Provide separate containers for each type of mercury-containing device.
4. Provide labeling using the following phrases:

    a. “Universal Waste – Lamps”
    b. “Universal Waste – Mercury Ballasts”
    c. “Universal Waste – Mercury Thermostats”

E. Prepare Cleanup Plan for broken lamps and spilled mercury.

1. Do not use a vacuum cleaner to collect broken lamps or mercury.
2. Turn off air handling equipment.
3. Scoop glass, powder materials and mercury into a separate container.
4. Collect remaining debris with sticky side of duct tape.
5. Wipe clean with disposable wipe.
6. Place tape and wipes into container with broken glass.

F. Disposal: Remove waste materials from Engineer's property and legally dispose of them using qualified transporters and destination facilities.

END OF SECTION 017419

SECTION 01740

WARRANTIES AND BONDS

PART 1 GENERAL

1.01 GENERAL

A. Each CONTRACTOR shall provide warranties and bonds required by the Contract Documents, including manufacturers' standard warranties on products and special warranties.

1. Refer to paragraphs 7.17 of Article 7 of the General Conditions for the CONTRACTOR's General Warranty and Guarantee.

2. Refer to paragraph 6.01 of Article 6 of the General Conditions for the CONTRACTOR's Performance/Payment Bond.

3. General closeout requirements are included in Section 01770, Project Closeout.

4. Specific requirements for warranties for the Work and products and installations that are specified to be warranted are included in the individual Sections of Division 2 through 16. If not specifically specified otherwise, all equipment and products specified in Sections of Division 2 through 16 shall be provided with the CONTRACTOR's General Warranty and Guarantee.

5. Certifications and other commitments and agreements for continuing services to OWNER shall be as specified elsewhere in the Contract Documents.

B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the CONTRACTOR of the warranty on the products nor on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the CONTRACTOR.

1.02 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The CONTRACTOR shall be responsible for the cost of replacing or rebuilding defective Work regardless of whether the OWNER has benefitted from use of the Work through a portion of its anticipated useful service life.

D. OWNER's Recourse: Written warranties made to the OWNER are in addition to implied warranties and shall not limit the duties, obligations, rights and remedies otherwise available, nor shall warranty periods be interpreted as limitations on time in which the OWNER can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The OWNER reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

E. The OWNER reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments have done so.

1.03 SUBMITTALS

A. Submit written warranties to the ENGINEER as required to receive approval of equipment or material and as required to be approved prior to Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the work, or a designated portion of the Work, submit written warranties upon request of the ENGINEER.

1. When a designated portion of the Work is completed and occupied or used by the OWNER, by separate agreement with the CONTRACTOR during the construction period, submit properly executed warranties to the ENGINEER within fifteen days of completion of that designated portion of the Work.

B. When a special warranty is required to be executed by the CONTRACTOR, or the CONTRACTOR and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the OWNER through the ENGINEER for approval prior to final execution.

1. Refer to individual Sections of Division 2 through 16 for specific content requirements for warranties or bonds.

C. Form of Submittal: At Project Closeout, compile two (2) copies of each required warranty and bond properly executed by the CONTRACTOR or by the CONTRACTOR, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Contract Documents.

D. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.

1. Provide heavy paper dividers with celluloid covered tubs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.

2. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS", the Project title or name, and the name of the CONTRACTOR.

3. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual. See Section S-01730, Operation and Maintenance Data.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01770

PROJECT CLOSEOUT

PART 1 GENERAL

1.01 GENERAL

A. Administrative and procedural requirements for project closeout include but are not limited to:

1. Substantial completion.

2. Final inspection, payment and acceptance.

1.02 SUBSTANTIAL COMPLETION

A. In addition to the requirements of Article 15 of the General Conditions, CONTRACTOR shall comply with following paragraphs and notify ENGINEER of any exceptions.

B. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following:

1. Application for Payment that coincides with, or first follows, date Substantial Completion is claimed. Include supporting documentation for completion as indicated in these Contract Documents and statement showing accounting of changes to Contract Amount, if any.

2. Where Substantial Completion has not been attained, include list of incomplete items, value of incomplete construction, and reasons Work is not complete.

3. Advise OWNER of pending insurance change over requirements.

4. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, inspections by authorities (building, electrical, plumbing, boilers, fire marshal, elevators and similar items) and similar documents. Refer to Section 01740, Warranties and Bonds, if that Section is included in the Contract Documents.

5. Obtain and submit releases enabling OWNER unrestricted use of Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.

6. Submit record drawings, maintenance manuals, final project photographs and negatives, damage or settlement survey, property survey, and similar final record information. CONTRACTOR shall also comply with the requirements of the following Sections if the Section is included in the Contract Documents:

a. Section 01720, Record Documents.

b. Section S-01380, Construction Photographs.

c. Section S-01730, Operation and Maintenance Data.

7. Deliver tools, spare parts, extra stock, and similar items. CONTRACTOR shall also comply with the requirements of the following Sections if the Section is included in the Contract Documents:

    a. Section S-01760, Spare Parts and Maintenance Materials.

8. Make final changeover of permanent locks and transmit keys to OWNER. Advise OWNER's personnel of change over in security provisions.

9. Complete start up testing of systems, and instruction of OWNER's operating and maintenance personnel. CONTRACTOR shall also comply with the requirements of the following Sections if the Section is included in the Contract Documents:

    a. Section S-01661, Field Tests of Equipment.

    b. Section S-01662, Instruction of Operation and Maintenance Personnel.

    c. Section S-01663, Starting and Placing Equipment in Operation.

10. Discontinue or change over and remove temporary facilities from site, along with construction tools, mock-ups, and similar elements.

11. Complete final clean up requirements, including touch-up painting. Provide touch-up painting and otherwise repair and restore marred exposed finishes. CONTRACTOR shall also comply with the requirements of the following Sections if the Section is included in the Contract Documents:

    a. Section 01710, Cleaning.

    b. Section S-09900, Painting.

C. Inspection procedures: On receipt of request for certification, ENGINEER will inspect to determine the status of completion as described in Article 15.03 of the General Conditions.

1.03 FINAL INSPECTION, PAYMENT AND ACCEPTANCE

A. In addition to the requirements of Article 15 of the General Conditions, CONTRACTOR shall comply with the following paragraphs and notify ENGINEER of any exceptions.

B. Preliminary Procedures: Before submitting a Final Application for Payment, CONTRACTOR shall request a Final Inspection as described in Article 15 of the General conditions, paragraph 15.05. After all corrections are complete, CONTRACTOR shall submit final application for payment.

C. In addition to the requirements of Article 15 of the General Conditions, Paragraph 15.06, CONTRACTOR shall include the following with the Final Application for Payment:

1. Submit releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

2. Submit updated final statement, accounting for final additional changes to Contract Amount, if any.

3. Submit certified list of items to be completed or corrected, developed during certification of Substantial Completion and amended as necessary.

4. Submit final meter readings for utilities, measured record of stored fuel, and similar data as of date of Substantial Completion or when OWNER took possession of and responsibility for corresponding portions of Work.

5. Submit consent of surety to final payment and Contractor's Affidavit of Payment.

6. Submit final liquidated damages settlement statement, if any.

7. Submit evidence of final, continuing insurance coverage complying with insurance requirements of Article 6 of the General Conditions. This shall include as a minimum, but not be limited to:

    a. Status of CONTRACTOR's liability insurance.

    b. Status of CONTRACTOR's property insurance.

    c. Status of CONTRACTOR's Performance/Payment Bond.

    d. Status of CONTRACTOR's maintenance agreements and similar continuing commitments required by the Contract Documents.

D. ENGINEER will recommend Final Payment and Acceptance in accordance with Article 15 of the General Conditions, paragraph 15.06.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

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SECTION 01771

CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Warranties.
2. Final cleaning.
3. Repair of the Work.

B. Related Requirements:

1. Section 01730 "Execution" for progress cleaning of Project site.
2. Sectin 01770 “Project Cloesout” for additional closeout requirements.
3. Section 01782 "Operation and Maintenance Data" for operation and maintenance manual requirements.
4. Section 01770 "Project Closeout" for submitting record Drawings, record Specifications, and record Product Data.

1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order.

2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

3. Include the following information at the top of each page:

a. Project name.

b. Date.

c. Name of Design Professional.

d. Name of Contractor.

e. Page number.

4. Submit list of incomplete items in the following format:

a. PDF electronic file. Design Professional will return annotated file.

1.7 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Design Professional for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Engineer's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 – EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

c. Remove tools, construction equipment, machinery, and surplus material from Project site.

d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

f. Sweep concrete floors broom clean in unoccupied spaces.

g. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.

h. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.

i. Remove labels that are not permanent.

j. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

k. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

l. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

m. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.

(1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.

n. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.

o. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 5000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.

2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

SECTION 01782

OPERATION AND MAINTENANCE DATA

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation manuals for systems, subsystems, and equipment.

2. Product maintenance manuals.

3. Systems and equipment maintenance manuals.

B. Related Requirements:

1. Section 01 3300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Design Professional will comment on whether content of operations and maintenance submittals are acceptable.

2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Design Professional.
    a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
    b. Enable inserted reviewer Comments on draft submittals.

C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Design Professional will return copy with comments.
    1. Correct or revise each manual to comply with Design Professional's comments. Submit copies of each corrected manual within 15 days of receipt of Design Professional's comments and prior to commencing demonstration and training.

PART 2 – PRODUCTS

2.1 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
    1. Title page.
    2. Table of contents.
    3. Manual contents.

B. Title Page: Include the following information:
    1. Subject matter included in manual.
    2. Name and address of Project.
    3. Name and address of Engineer.
    4. Date of submittal.
    5. Name and contact information for Contractor.
    6. Name and contact information for Design Professional.
    7. Names and contact information for major consultants to the Design Professional that designed the systems contained in the manuals.
    8. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.

2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

2.2 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.

2. Performance and design criteria if Contractor has delegated design responsibility.

3. Operating standards.

4. Operating procedures.

5. Operating logs.

6. Wiring diagrams.

7. Control diagrams.

8. Piped system diagrams.

9. Precautions against improper use.

10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.

2. Manufacturer's name.

3. Equipment identification with serial number of each component.

4. Equipment function.

5. Operating characteristics.

6. Limiting conditions.

7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.3 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and crossreference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.

4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 – EXECUTION

3.1 MANUAL PREPARATION

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Engineer's operating personnel.

C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

   1. Do not use original project record documents as part of operation and maintenance manuals.

   2. Comply with requirements of newly prepared record Drawings in Section 01 7839 "Project Record Documents."

E. Comply with Section 01 7700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

SECTION 01790

DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for instructing Engineer's personnel, including the following:

1. Instruction in operation and maintenance of systems, subsystems, and equipment.
2. Demonstration and training video recordings.

1.3 INFORMATIONAL SUBMITTALS

A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

B. Qualification Data: For facilitator.

C. Attendance Record: For each training module, submit list of participants and length of instruction time.

D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.4 CLOSEOUT SUBMITTALS

A. Demonstration and Training Video Recordings: Submit one copies within seven of end of each training module.

1. Identification: On each copy, provide an applied label with the following information:

a. Name of Project.
b. Name and address of videographer.
c. Name of Design Professional.
d. Name of Construction Manager.
e. Name of Contractor.
f. Date of video recording.

2. At completion of training, submit complete training manual(s) for Engineer's use prepared in same paper and PDF file format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data."

1.5 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.

D. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:

1. Inspect and discuss locations and other facilities required for instruction.
2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
3. Review required content of instruction.
4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.6 COORDINATION

A. Coordinate instruction schedule with Engineer's operations. Adjust schedule as required to minimize disrupting Engineer's operations and to ensure availability of Engineer's personnel.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Design Professional.

1.7 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

    a. System, subsystem, and equipment descriptions.
    b. Performance and design criteria if Contractor is delegated design responsibility.
    c. Operating standards.
    d. Regulatory requirements.
    e. Equipment function.
    f. Operating characteristics.
    g. Limiting conditions.
    h. Performance curves.

2. Documentation: Review the following items in detail:

    a. Emergency manuals.
    b. Systems and equipment operation manuals.
    c. Systems and equipment maintenance manuals.
    d. Product maintenance manuals.
    e. Project Record Documents.
    f. Identification systems.
    g. Warranties and bonds.
    h. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:

    a. Instructions on meaning of warnings, trouble indications, and error messages.
    b. Instructions on stopping.
    c. Shutdown instructions for each type of emergency.
    d. Operating instructions for conditions outside of normal operating limits.
    e. Sequences for electric or electronic systems.
    f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

    a. Startup procedures.
    b. Equipment or system break-in procedures.
    c. Routine and normal operating instructions.
    d. Regulation and control procedures.
    e. Control sequences.

f. Safety procedures.
g. Instructions on stopping.
h. Normal shutdown instructions.
i. Operating procedures for emergencies.
j. Operating procedures for system, subsystem, or equipment failure.
k. Seasonal and weekend operating instructions.
l. Required sequences for electric or electronic systems.
m. Special operating instructions and procedures.

5. Adjustments: Include the following:

a. Alignments.
b. Checking adjustments.
c. Noise and vibration adjustments.
d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:

a. Diagnostic instructions.
b. Test and inspection procedures.

7. Maintenance: Include the following:

a. Inspection procedures.
b. Types of cleaning agents to be used and methods of cleaning.
c. List of cleaning agents and methods of cleaning detrimental to product.
d. Procedures for routine cleaning.
e. Procedures for preventive maintenance.
f. Procedures for routine maintenance.
g. Instruction on use of special tools.

8. Repairs: Include the following:

a. Diagnosis instructions.
b. Repair instructions.
c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
d. Instructions for identifying parts and components.
e. Review of spare parts needed for operation and maintenance.

1.8 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."

B. Set up instructional equipment at instruction location.

1.9 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Engineer for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct Engineer's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Design Professional will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
2. Engineer will furnish an instructor to describe Engineer's operational philosophy.
3. Engineer will furnish Contractor with names and positions of participants.

C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with Engineer with at least seven days' advance notice.

D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of **a** demonstration performance-based test.

F. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.10 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of each training module, record each chart containing learning objective and lesson outline.

B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode.

1. Submit video recordings on CD-ROM or thumb drive.
2. File Hierarchy: Organize folder structure and file locations according to Project Manual table of contents. Provide complete screen-based menu.
3. File Names: Utilize file names based on name of equipment generally described in video segment, as identified in Project specifications.

4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the equipment demonstration and training recording that describes the following for each Contractor involved on the Project, arranged according to Project Manual table of contents:

    a. Name of Contractor/Installer.
    b. Business address.
    c. Business phone number.
    d. Point of contact.
    e. Email address.

C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.

1. Film training session(s) in segments not to exceed 15 minutes.

    a. Produce segments to present a single significant piece of equipment per segment.
    b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
    c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.

D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.

1. Furnish additional portable lighting as required.

E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.

F. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017900

SECTION 024119

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section Includes:

1. Demolition and removal of selected portions of exterior or interior of building or structure and site elements.
2. Removal and salvage of existing items for delivery to Owner and removal of existing items for reinstallation.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 017300 "Execution" for cutting and patching procedures.
3. Section 013516 "Alteration Project Procedures" for general protection and work procedures for alteration projects.
4. Section 330500 "Common Work Results for Utilities" for removal of site utility systems piping, equipment, and components.

1.2 DEFINITIONS

A. Remove (Demo): Detach items from existing construction and legally dispose of off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove (Demo) and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner as indicated.

C. Remove (Demo) and Reinstall: Detach items from existing construction, in a manner to prevent damage; prepare for reuse; and reinstall where indicated.

D. Existing to Remain: Existing items of construction that are not to be removed.

1.3 MATERIALS OWNERSHIP

A. Unless otherwise indicated, 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

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Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.
6. Review and finalize protection requirements.
7. Review procedures for noise control and dust control.
8. Review storage, protection, and accounting for items to be removed for salvage or reinstallation.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Statements: For refrigerant recovery technician.

B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property , for environmental protection. Indicate proposed locations and construction of barriers.

C. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Temporary interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed in accordance with EPA regulations. Include name and address of technician and date refrigerant was recovered.

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E. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Universal certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

1. Before selective demolition, Owner will remove the following items:

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials:

1. It is not expected that hazardous materials will be encountered in the Work.

a. Hazardous materials will be removed by Owner before start of the Work.
b. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

2. Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is included in Section 003126 "Existing Hazardous Material Information" for review and use. Examine report to become aware of locations where hazardous materials are present.

a. Hazardous material remediation is specified in Section 02 82 20 " Hazardous Materials Abatement."

E. On-site sale of removed items or materials is not permitted.

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PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

D. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video , measured drawings. Comply with Section 013233 "Photographic Documentation."

1. Inventory and record the condition of items to be removed for salvage or reinstallation. Photograph or video conditions that might be misconstrued as damage caused by removal.
2. Photograph or video existing conditions of adjoining construction including finish surfaces, that might be misconstrued as damage caused by selective demolition operations or removal of items for salvage or reinstallation.

3.2 PREPARATION

A. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of

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construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

B. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location and cleaned and reinstalled in their original locations after selective demolition operations are complete.

D. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment in accordance with 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 UTILITY SERVICES AND BUILDING SYSTEMS

A. Existing Services/Systems to Remain: Maintain utilities and building systems and equipment to remain and protect against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utilities and building systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated utilities when requested by Contractor.
2. If disconnection of utilities and building systems will affect adjacent occupied parts of the building, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to those parts of the building.
3. Demolish and remove existing building systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment

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and components.

4. Abandon existing building systems, equipment, and components indicated on Drawings to be abandoned in place.

    a. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    b. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

5. Remove and reinstall/salvage existing building systems, equipment, and components indicated on drawings to be removed and reinstalled or removed and salvaged:

    a. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment and components; when appropriate, reinstall, reconnect, and make equipment operational.
    b. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and components and deliver to Owner.

3.4 SALVAGE/REINSTALL

A. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

B. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

3.5 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.

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2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch during and for at least 24 hours after flame-cutting operations.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations 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 trafficways if required by authorities having jurisdiction.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete:

1. Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
2. Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.

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D. Resilient Floor Coverings: Remove floor coverings and adhesive in accordance with recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction. and recycle or dispose of them in accordance with Section 017419 "Construction Waste Management and Disposal."

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

3.8 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

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SECTION 02 82 20

HAZARDOUS MATERIALS ABATEMENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Removal and disposal of hazardous materials and related work.

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

1. Division 00 Section 00 31 26 “Existing Asbestos Information” for the NESHAPs survey report prepared for this project. This report is to be used as a reference only; contractors shall not bid on materials and quantities in Section 00 31 26. Contractors shall bid based on this Section 02 82 20 and the Hazardous Materials Abatement Drawings.

1.03 GENERAL REQUIREMENTS

A. General contract conditions and specifications apply to this section.

B. The project site is the Montgomery County Environmental Services Solid Waste Old Administration Building located at 2550 Sandridge Drive, Moraine, Ohio 45439.

C. The leading Architect/Engineer (A/E) for this project is SPGB Architects. All project communication shall go through the A/E. The Lawhon project manager shall be copied on all abatement related correspondence.

D. The Environmental Engineer for the project is Lawhon & Associates, Inc. (L&A). The Environmental Engineer’s main office is located at 1441 King Avenue, Columbus, Ohio 43212. Mr. Jordan Mederer is the Project Manager and Project Designer (PD 60876, exp. 6/8/2026) for the project and can be reached at (614) 481-8600 ext. 142, or at jmederer@lawhon-assoc.com. All project communication shall go through the A/E. L&A is responsible for the asbestos NESHAPs report, preparing asbestos abatement design documents, on-site monitoring and clearance testing for this project.

E. The contractor shall notify Lawhon & Associates at least ten (10) business days prior to mobilizing for abatement work. Failure to notify Lawhon & Associates may result in project delays at the contractor’s expense.

F. Any abatement that renders ACM friable at any point must be conducted within full negative pressure enclosures with -0.02” of water column pressure differential.

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1.04 GLOSSARY OF TERMS

AHERA	Asbestos Hazard Emergency Response Act
AIHA	American Industrial Hygiene Association
ACM	Asbestos Containing Material
CAHES	Certified Asbestos Hazard Evaluation Specialist
CFR	Code of Federal Regulations
COMPETENT PERSON	Person Designated by the Hazardous Material Abatement Contractor as the Responsible Person
DOT	Department of Transportation
EC	Environmental Consultant (Lawhon & Associates)
EPA	Environmental Protection Agency
F/CC	Fibers per Cubic Centimeter
GFCI	Ground Fault Circuit Interrupters
HEPA	High Efficiency Particulate Air
HMAC	Hazardous Materials Abatement Contractor
HVAC	Heating, Ventilating, and Air Conditioning
L&A	Lawhon & Associates, Inc.
LBP	Lead Based Paint
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NESHAPs	National Emission Standard for Hazardous Air Pollutants
NIH	National Institutes of Health
NIOSH	National Institute for Occupational Safety and Health
NVLAP	National Voluntary Laboratory Accreditation Program
OD	Outer Diameter of Pipe Insulation
ODA	Ohio Department of Agriculture
ODOT	Ohio Department of Transportation
OEPA	Ohio Environmental Protection Agency
OSHA	Occupational Safety and Health Administration
ORM	OSHA Reference Method
PAPR	Powered Air Purifying Respirator
PAT	Proficiency Analytical Testing
PEL	Permissible Exposure Limit
PCB	Polychlorinated Bi-phenyls
PCM	Phase Contrast Microscopy
RACM	Regulated Asbestos Containing Material
SF	Square Foot(Feet)
TEM	Transmission Electron Microscopy
TSI	Thermal System Insulation
UL	Underwriters Laboratories
USEPA	United States Environmental Protection Agency

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1.05 DESCRIPTION OF THE WORK

A. General. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section

B. Removal and Disposal. Hazardous Materials Abatement Contractor (HMAC) shall remove dispose of the listed friable ACM, non-friable ACM and non-ACM materials associated with the project. The following tables summarize the various asbestos containing materials and total estimated quantities for each material required for abatement by the HMAC. HMAC must verify materials and quantities prior to bid and submit any exceptions in writing prior to submission of bid. The quantities listed below shall be utilized for the OEPA notification, if required.

1. Table 1 – Base Bid: Scope of Work for Hazardous Materials Abatement: (Reference Abatement Drawing HM100)

ACM	Estimated Quantities (1)	General Locations (1)
Glazing Compound Associated with Interior Windows (2)	2 each (4 sf)	2nd Floor
Caulking Associated with Perimeter Window Openings (3)	11 openings (25 square feet)	2nd-4th Floors
Mortar Associated with Speckled Ceramic Tile Wall Tile Systems (4)	2,240 square feet	3rd Floor Locker Room/ Restroom Areas
Black Mastic and Contaminated 12” Floor Tile (5)	700 square feet	4th Floor
Assumed ACM Fire Doors (6)	18 each	Throughout
Assumed Mechanical Flange Gaskets (6)	100 square feet	Throughout
Assumed Electrical Components (6)	60 square feet	Throughout

Table Specific Notes:

(1) Not all locations may be depicted on Drawing(s). Quantities are estimations only and must be field verified prior to bidding.
(2) HMAC shall remove and dispose of entire window.
(3) HMAC shall only remove caulking from windows and masonry prior to window demolition by the demolition contractor.
(4) HMAC shall remove and dispose of entire ceramic wall tile system (tile, grout, mortar, thin-set, etc.) down to a clean masonry substrate.

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(5) Remove all flooring layers down to a clean substrate in this area. ACM flooring may be located beneath cabinets, casework, interior partition walls, etc. HMAC is responsible for access to all ACM flooring.
(6) HMAC shall be responsible for demolition of assumed asbestos containing materials regardless if they contain asbestos or not. Lawhon will inspect and test for asbestos at the time of construction to determine proper disposal requirements.

C. GENERAL NOTES

Refer to abatement drawings for General Notes.

1.06 QUALITY ASSURANCE

A. General. Perform all asbestos removal work in compliance with applicable requirements of governing agencies having jurisdiction and as specified herein.

B. Codes and Regulations. This section sets forth governmental regulations and industry standards and are included and incorporated herein by reference and made a part of the specification. This section also sets forth those notices and permits which are known to Owner and Environmental Consultant and which either must be applied for and received, or which must be given to governmental agencies before start of Work.

1. General Applicability of Codes, Regulations and Standards. Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable codes, regulations and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.

a. References: In addition to publications referenced in the Construction Contract Clauses, following CFR publications designate and define hazardous materials and conditions, and establish procedures for handling these materials and conditions. Omission of any publication in this section does not remove any obligation or legal requirement on the part of the contractor to comply with all legal requirements for the location of the work.

1. 29 CFR, Part 1910: OSHA General Industry and Health Standards.

2. 29 CFR, Part 1926: OSHA Construction Industry Standards.

3. 40 CFR, Part 61: National Emission Standards for Hazardous Air Pollutants.

4. 40 CFR, Part 261: EPA Characteristics of Hazardous Waste.

5. 40 CFR, Part 761: EPA PCBs, Manufacturing, Processing, Distribution in Commerce and Use Prohibitions.

6. 40 CFR, Part 763: EPA Asbestos.

7. Federal Standards 313A: MSDS, Preparation and the Submission of.

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8. NIH DCAB publication "Standards for Temporary Construction," March 1988.

b. Hazardous Materials: Some Hazardous and Toxic materials and substances are included in 29 CFR part 1910, subparts H and Z, and in 29 CFR Part 1926 and others additionally defined in Federal Standard 313A. Commonly encountered hazardous materials include but are not limited to asbestos, PCBs, explosives and radioactive material.

1. Asbestos may be found in spray-on fireproofing, insulation, boiler lagging, pipe coverings and other materials.

2. PCBs may be contained in ballasts, transformers, capacitors, voltage regulators, oil switches, mechanical insulation and other materials.

c. Acquisition of Publications: Referenced CFR publications may be purchased from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

2. Contractor Responsibility. The HMAC shall assume full responsibility and liability for the compliance with all applicable Federal, state and local regulations pertaining to work practices, hauling, disposal and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. HMAC is also responsible for notifying the proper authorities (fire departments, police departments, etc.) of the proposed work at least 10 days prior to commencing work under this Contract. The HMAC is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, state and local regulations. The HMAC shall hold Owner, the Architect/Engineer (A/E) and A/E's sub-Environmental Consultants harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulation on the part of himself, his employees or his HMACs.

3. Federal Requirements which govern asbestos hazard abatement work include, but are not limited to, the following:

a. U.S. Department of Labor, OSHA including, but not limited to:

Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite; Final Rules; 29 CFR 1910.1001 and 29 CFR 1926.58
Respiratory Protection; 29 CFR 1910.134
Construction Industry; 29 CFR 1926
Access to Employee Exposure and Medical Records; 29 CFR 1910.2
Hazard Communication; 29 CFR 1910.1200
Specifications for Accident Prevention Signs and Tags; 29 CFR 1910.145

b. USEPA including, but not limited to:

National Emission Standard for Hazardous Air Pollutants; 40 CFR 61 Subpart A
National Emission Standard for Hazardous Air Pollutants: Amendments to Asbestos Standard; 40 CFR 61 Subpart M
National Requirements: Reportable Quantity Adjustments; 40 CFR 763.117 and 40 CFR 763 Subpart E

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4. State Requirements which govern asbestos abatement work include, but are not limited to, the following:

   a. Chapter 3745 of the Ohio Administrative Code.

5. Compliance with Regulations

   a. The work, including contact with or handling of hazardous materials, disturbance or dismantling of surfaces containing hazardous materials, and disposal of hazardous materials, shall comply with the applicable requirements of: 29 CFR Parts 1910 and 1926; and 40 CFR Parts 61, 261, 761 and 763.

   b. Work involving disturbance or dismantling of asbestos or asbestos containing materials, demolition of structures containing asbestos and removal of asbestos, shall comply with 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763.

   c. Work shall additionally comply with all applicable state and local safety and health regulations.

   d. Contractor Responsibility: The HMAC shall assume full responsibility and liability for compliance with all applicable codes, standards and regulations pertaining to the health and safety of personnel during execution of the Work, and shall hold Owner harmless for any action on the Contractor's part, or that of the HMAC's employees or subcontractors, that result in illness, injury, or death.

      1. The Contractor shall have written safety and health programs in compliance with 29 CFR Parts 1910 and 1926.

      2. Special Inspections, Tests, and Reports: Any special inspections, tests and reports by the contractor, subcontractor, specially trained technicians, equipment manufacturer, and others as required, shall be at the HMAC's expense.

C. Certifications

1. The HMAC must be licensed by OEPA to perform asbestos abatement activities as is required by Chapter 3745 of the Ohio Administrative Code.

2. The HMAC's Supervisor must be certified by OEPA as an Asbestos Hazard Abatement Specialist.

3. Each of the HMAC's employees, including full-time employees, temporary employees and contract labor, must be certified by OEPA as either an Asbestos Hazard Abatement Worker or as an Asbestos Hazard Abatement Specialist.

4. All of the HMAC's employees performing any work on scaffolds must have general OSHA Scaffold training.

1.07 SUBMITTALS

A. General. Submit the following in accordance with Conditions of Contract and Division 1 specification sections.

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B. Submittals.

1. Accident Reports: The Contractor must submit to Owner Representative a written report within three calendar days of any accident, fire, emergency, theft or incident in which any personal or property damage took place, regardless of any other notifications performed. Include a copy of each accident report that is submitted by the Contractor or Subcontractors to their insurance carriers, within seven calendar days after the date of the accident.

C. Pre-Abatement Submittals. All documents are to be submitted to A/E and reviewed before the start of work at the site.

1. Provide copies of notifications to the following:
   a. Police and Fire Department
   b. OEPA Notification, if required.
2. OEPA Asbestos Abatement Project Agreement per OAC 3745-22-11.
3. Copy of license to conduct asbestos abatement activities.
4. Copy of current liability insurance certificate.
5. Copy of current Bureau of Workers Compensation (BWC) certificate.
6. Name, certification and health records of supervisor.
7. Name, certification and health records of workers.
8. Detailed Asbestos Abatement Plan (AAP) which describes procedures to be used to comply with the requirements of these specifications. The AAP shall have detailed written operating procedures describing control and removal techniques to be used as required by Chapter 3745-22-11 of the Ohio Administrative Code. The AAP must be reviewed and approved by the Environmental Consultant prior to commencing the work.
9. Drawings which detail decontamination unit, waste container, water utility, traffic patterns, emergency exits, etc.
10. Emergency contact list.
11. Contractor's Site Specific Safety and Health Program: The HMAC shall submit a written copy of the Company Safety and Health Program as well as the site specific safety and health plan for the project to the Architect/Engineer within 14 calendar days of the Notice to proceed or before work commences on the project site, whichever is earlier. This plan shall include emergency evacuation procedures, respirator protection program, procedures to prevent unauthorized entry into regulated work areas, and measures for accident prevention. This shall also include a negative exposure assessment for Class I work if half-face respirators are to be utilized for such work.
12. Safety Data Sheets (SDS): The contractor shall provide the SDS's for all products containing hazardous chemicals to the Architect/Engineer within 14 calendar days of the Notice to Proceed or before work commences on the site. The SDS's shall be maintained at the project site for workers, Owner personnel and government officials.

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SDS's for new products shall similarly be submitted to the Architect/Engineer and be retained at the project site until completion of the project.

13. A copy of the written notification to any rental agencies stating the intended use of rental equipment for an asbestos abatement project, or a statement that no rental equipment will be used on this asbestos abatement project.

D. Close-Out Documentation. The following documents are to be submitted to the A/E at the completion of the work on site.

1. Provide completed landfill receipts and any waste hauler manifests.
2. Provide log of all air samples and results.
3. Provide work area sign-in sheets.
4. Provide daily project logs.
5. Provide copies of all supervisor's and worker's required certification documents to perform asbestos abatement for any personnel not submitted in the pre-abatement submittal package.
6. Provide copies of all OEPA and EPA inspection reports (if applicable).
7. Provide copies of all OEPA notification revisions (if applicable).
8. Provide copies of accident reports (if applicable).

1.08 PRECONSTRUCTION SAFETY MEETING

A. Prior to commencing construction, representatives of the Contractor, including the general superintendent and one or more safety representatives shall meet with the Architect/Engineer for the purpose of reviewing Contract safety and health requirements.

1. The Contractor's Safety and Health Program and Site Specific Safety and Health Plan shall be reviewed and implementation of safety and health provisions pertinent to the Work shall be discussed.
2. The Contractor shall be prepared to discuss, in detail, the Contractor's Site Specific Safety and Health Plan including measures intended to control any unsafe or unhealthy conditions associated with the work to be performed under the contract.
3. This meeting may be held in conjunction with the pre-construction conference, if so directed by the Architect/Engineer. The conduct of this meeting is not contingent upon a general pre-construction meeting.

   The level of detail for the safety meeting is dependent upon the nature of the work and potential for inherent hazards.

1.09 JOB CONDITIONS

A. The HMAC shall notify the A/E and/or Third-Party Consultant at least one week before mobilizing or setting up to perform the work.

B. Documents to be Posted and Maintained on Job Site.

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1. To be posted on site:
    a. Copy of EPA notification(s), if applicable
    b. Proof of worker training
    c. Emergency contact list
    d. U.S. Department of Labor Job Safety & Health Protection Notice, per 29 CFR 1903.2(a)(1)
    e. Copy of contractor's license for abatement
    f. Equal opportunity notice
    g. Worker's Compensation Certificate
    h. Daily clean-up program
    i. Fire and Police notifications
2. To be maintained on site:
    a. All employee certifications and health records
    b. A copy of all pre-construction submittals
    c. Specifications, drawing and other contract documents
    d. Methods of abatement
    e. Daily Job Inspection Reports
    f. Personnel Air Sampling Results (24 hour per day posting)
    g. All pre and interim environmental air sampling results.
    h. Negative Exposure Assessment.
    i. OEPA Project Agreement
    j. Asbestos NESHAPs Survey Report

C. Temporary Facilities
1. Materials and Equipment
    a. Scaffolding - Provide all scaffolding, ladders and/or staging, etc. as necessary to accomplish the Work of this Contract. Erection of scaffolding must conform with OSHA and industry safety standards for scaffold operation.
    b. Water Service - HMAC will provide decontamination facilities. HMAC shall provide hot and cold water for decontamination showers from portable water supply provided by HMAC, unless use of Owner's water supply is authorized in writing by A/E. All water hoses must be suspended in a manner not to create a trip hazard.
    c. Electrical – HMAC shall provide power supply via portable generator, unless use of existing Owner's electrical service may be utilized with prior authorization in writing by A/E. Comply with all applicable NEMA, NECA and UL standards and

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regulations for materials and layout of temporary electrical service. If required, HMAC shall provide hardwired ground fault circuit interrupters with a minimum 100 amp rating for each work area or floor of a work area. All electrical power used for this project shall be provided via these units (if applicable).

d. First Aid - Comply with governing regulations and recognized recommendations within the construction industry. HMAC shall be responsible for providing first aid supplies for employees.

e. Fire Extinguishers - Provide Type “A” fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical or grease-oil-flammable liquid fires. In other locations, provide type “ABC” dry chemical extinguishers. One fire extinguisher, sealed in polyethylene, of the “ABC” type shall be placed within the work area for each 2,000 square feet of floor space in a location which would be easily accessible during an emergency.

f. Decontamination Facilities - HMAC is to provide these facilities as required and approved.

g. Heat - HMAC shall maintain a temperature in the work area(s) of not less than 50ºF and a temperature of not less than 70ºF in non-work areas in the building.

h. Documents - HMAC will maintain and post all required documents on site.

i. Supply Storage - HMAC will be permitted to store supplies inside of the facility at a location to be determined by Owner / A/E prior to the project.

j. Storage of asbestos-containing waste, properly labeled and bagged waste must be stored in a lockable and secure storage container out of the work area. Storage of asbestos-containing waste in open top or otherwise unsecured containers is prohibited.

D. Damage. Promptly repair damage caused to adjacent facilities by demolition work.

1.10 DELIVERY, STORAGE AND HANDLING

A. Material Deliveries

1. Whenever practicable, deliveries shall be made during regular working hours and only when the Contractor’s representative is available to receive them. Deliver material in approved containers and with properly licensed vehicles and operators. Open delivery vehicles not permitted. Deliver materials in fully closed vehicles or tarp-covered vehicles. All dump trucks shall be fully covered while in transport to and from the unloading site. All loads shall be securely fastened until unloading. Engines shall not be left running while vehicles are loading, unloading, waiting or parked. Do not block roads, walks, building entrances/exits, fire hydrants and standpipes, exterior tanks or building gas connections.

1.11 SPECIAL WARRANTY

Not used.

PART 2 – PRODUCTS

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2.01 PRODUCTS

A. Safety and Health Programs: The Contractor shall submit copies of the written site specific project safety and health plan and emergency action procedures, as applicable to the work scope, as required as a result of the safety meeting, or as required by OSHA 29 CFR, Part 1926 including but not necessary limited to the procedures and programs that support the requirements of the following:

1. Designation of Safety Competent Person
2. Occupational Noise Exposure
3. Fall Protection
4. Personnel Protective Equipment
5. Control of Hazardous Energy
6. Hazardous Materials Waste Management Plan (draft it final plan has not been accepted)
7. Electrical Safety Related Work Practices
8. Lead
9. Asbestos
10. Respirator Protection
11. Confined Spaces
12. Emergency Evacuation and Reporting
13. Hot Work

B. Contractor’s Safety and Health Plan: In Addition to specific safety and health programs applicable to this project, HMAC shall submit to the Architect/Engineer a copy of the firms’ general Safety and Health Plan listing emergency Procedures and contact persons with home addresses and telephone numbers.

C. Permits: If Hazardous materials are disposed of off-site, submit copies of shipping manifests and permits from applicable federal, state or local authorities and disposal facilities, and submit certificates that the material has been disposed of in accordance with regulations.

PART 3 – EXECUTION

3.01 WORK PRACTICES

A. Use of Power Actuated Fastener Tools.

1. Use of explosives shall be prohibited.

2. Power actuated fastener tools are often used on construction sites due to the unique manner in which objects can be accurately and positively secured to a substrate. Also,

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these tools tend to allow for work to proceed more rapidly and efficiently with desirable results. However, these tools also present potential problems to the work area relative to damaged base material and fasteners. Also, the fastener tools present health and safety hazards to untrained users of fastener equipment, unprotected workers in the immediate work area, as well as building occupants that might be present. Based upon these circumstances, there is a need for safe work practice requirements to be followed whenever such equipment is used. It should be noted that fasteners can be powered or driven primarily by powder charges, gas, or pneumatic means.

3. Power actuated fastener tools (e.g. nail guns, etc.) including pneumatic, powder actuated and gas actuated tools shall be used by individuals for whom the contractor has documentation of appropriate training and the contractor has written standard operating procedures and safety plan for the use of this equipment in the particular application requested.

4. The contractor will be fully responsible to make every effort to appropriately protect the safety of people and equipment when utilizing this tool. These include, but are not limited to, the following:

    a. The contractor shall inspect the substrate and the fastening material to determine if this proposed fastening method is appropriate. This determination should include a description of the type of material to be fastened and the method of fastening. The base material should be inspected to determine whether it is too hard, soft, or brittle that it may cause spalling, cause the fastener to shatter or not hold, or cause the fastener to free flight.

    b. The contractor shall develop written instructions or procedures on the use of the fastener tool. The standard operating procedures should include the type of surfaces (e.g. metal studs to floor, hangers to the deck, etc.) to be fastened to minimize damage to the building and injury to the user, other employees, and the public and safety precautions.
    NOTE: Concrete or other surfaces that are damaged shall not be fastened. When fastening into concrete, never fasten closer than two inches from the edge since this may reduce fastener strength or damage to this material.

    c. Trained, competent, and credentialed individuals shall be the only persons allowed to utilize such fastener tools.

    d. A "Competent Person" shall be present to ensure that the fastener tool is being used properly and workers not involved with the fastener task are clear of the immediate work area. This would include non-construction workers or building occupants above and below where the fastener tool is being used.

    e. Fastener tool operators shall report immediately any problems associated with the device or fastener work to the "Competent Person" or immediate supervisor and not proceed until the problem has been resolved and authorization given to proceed.

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f. The fastener tool shall be operated at the lowest power or charge setting, as well as using the shortest fasteners to ensure a sufficient fastening, as well as to minimize personal injury and/or property damage.

g. The fastener equipment shall be inspected for proper operation before use to ensure the proper discharge and a solid fastener attachment.

h. The fastener equipment shall be unloaded before inspecting, servicing, cleaning or storing.

i. The fastener equipment and charging equipment shall be stored in a tamper resistant container that can be locked when not in use.

j. The fastener equipment shall be used in accordance with the owner's manual and manufacturer's directions.

k. The appropriate personal protective equipment (i.e., safety glasses, hard hats, hearing protection, etc.) shall be worn by the operator of the fastener equipment.

B. Work Underground or in Confined Spaces

1. Work shall comply with appropriate MSHA (Mine Safety and Health Administration) and OSHA regulations; including but not limited to, 29 CFR 1910.146.
2. All confined space entrants, supervisors and attendants must receive training in areas relating to safe confined space entry prior to entering a confined space.
3. The Contractor shall remove water and debris and properly vent manholes/ confined spaces before commencement and during execution of work in manholes/ confined spaces.
4. The Contractor shall have a competent person on site during the project as per the OSHA construction standard.

C. Electrical

1. Electrical arc welding equipment shall not be connected to the building power supply.

D. Hazardous Materials

1. The contractor shall bring to the attention of the Architect/Engineer any material encountered during execution of the Work that the contractor suspects is hazardous. At direction of the A/E a properly trained Third-Party Consultant will perform tests to determine if the material is hazardous. Contractor is prohibited from collecting their own samples to be used for waste determination.
2. If the tested material is found to be hazardous, and/or if additional protective measures are required, a change to the Contract price may be provided subject to the applicable provisions of the Contract.

E. Additional Safety Requirements

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1. No work shall be performed in any area occupied by the public or Owner employees unless approved by Owner.
    a. Accident Treatment and Records: The HMAC shall post emergency first aid information.
    b. No person, regardless of position or authority, shall operate any switch, valve, or equipment that has an official lockout/tag out tag attached to it, nor shall such tag be removed except as provided in this section.
    c. When work is to be performed on electrical circuits, the work shall be performed only by qualified personnel following the required safety procedures.
    d. Identification markings on building light and power distribution circuit breakers shall not be relied on for establishing safe work conditions.
    e. Before clearance will be given on any equipment other than electrical (generally referred to as mechanical apparatus), the apparatus, valves, or systems shall be secured in a passive condition with the appropriate vents, pins, and locks.
    f. Pressurized or vacuum systems shall be vented to relieve differential pressure completely.
    g. Vent valves shall be lockout/tag out tagged open during the course of the work.
    h. Where dangerous gas or fluid systems are involved, or in areas where the environment may be oxygen deficient, systems or areas shall be purged, ventilated, or otherwise made safe prior to entry.

F. Personnel Protective Equipment
    1. Special facilities, devices, equipment and similar items used by the contractor in execution of the work shall comply with 29 CFR, Part 1910, Subpart 1 and other applicable regulations.

G. Respirator Protection
    1. At a minimum, a Powered Air-Purifying Respirator (PAPR) respirator shall be used for the following activities:
        a. During the removal and disposal of friable regulated asbestos containing materials, unless a negative exposure assessment is submitted and approved by Owner indicating that the PEL is not exceeded.
        b. If at any time the OSHA PEL is exceeded.
        c. After phase PCM clearance, the contractor will be allowed to use a half-face respirator for final clean-up and tear down activities.
    2. At a minimum, a half-face respirator shall be used for the following activities:
        a. Construction of containments.
        b. Pre-cleaning and removal of non-friable asbestos.
        c. Bagging of asbestos waste.

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d. Deconstruction of containments.

H. Use of Water

1. HMAC shall provide hot and cold water for showers from a fixed head adjustable at the shower. Also, ample soap, shampoo, disinfectant and towels for use by employees as needed must be available.

2. The clean room, airlock and shower shall be disinfected daily and no accumulations of used towels, suits, street clothes and supplies shall be allowed in any decontamination unit.

3. No water shall be allowed to accumulate within the shower. All shower water must be promptly filtered through a filtration unit capable of removing particles 3.0 microns or larger. HMAC must document filter pore size and Environmental Consultant reserves the right to acquire effluent samples for analysis. In the event that analysis indicates contamination of effluent (any asbestos particles observed longer than 5.0 microns by TEM) the HMAC shall bear the costs of all testing and shall immediately correct any problems and document that the corrections have been effective.

4. In the event that a leak occurs which releases water from the work area into any clean area all work shall immediately stop until the leak is repaired and all liquid cleaned up. Cleaning shall include mopping, wet-wiping, and HEPA vacuuming as necessary to ensure collection of all asbestos fibers.

5. All water hoses must be suspended and secured in a manner not to create a trip hazard.

6. Protection of Sensitive Flooring Materials as required. Whenever abatement activities occur in areas where carpeting, floor tile or wood flooring are present and are to remain, special precautionary measures will be taken to protect those surfaces. These measures include but may not be limited to:

a. The addition of an extra layer of 6-mil (full weight) polyethylene to the enclosure system. This will result in 4 layers total on the floors in these areas.

b. The addition of a layer of Kraft paper between the 2nd and 3rd layers of polyethylene to act as an indicator of damaged polyethylene, which results in water leakage.

c. Any other measures deemed necessary by Owner or Environmental Consultant to ensure the protection of sensitive flooring materials. In the event a water leak is detected, all work will immediately stop and corrective measures will be taken before any other activities are allowed to proceed. The HMAC is ultimately responsible for the protection of all building materials and surfaces.

3.02 EMERGENCY SUSPENSION OF WORK

A. When the HMAC is notified by the Architect/Engineer or Owner Representative, of non-compliance with the safety or health provisions of the Contract, the Contractor shall immediately, unless otherwise instructed, correct the unsafe or unhealthy condition.

1. If the HMAC fails to comply promptly, all or part of the work will be stopped by notice from the Architect/Engineer.

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2. When, in the opinion of and by notice given by the associate and or Owner Representative, satisfactory corrective action has been taken by the HMAC, work shall resume.

3. The HMAC shall not be allowed any extension of time or compensation for damages in connection with a work stoppage for an unsafe or unhealthy condition

3.03 PROTECTION OF PERSONNEL

A. The HMAC shall take all necessary precautions to prevent injury to the public, occupants, or damage to property of others. The public and occupants includes all persons not employed by the contractor or subcontractor.

B. Wherever practical, the work area shall be fenced, barricaded or otherwise blocked off from the public or occupants to prevent unauthorized entry into the work area.

1. Provide traffic barricades and traffic control signage where construction activities occur in vehicular areas.

2. Corridors, aisles, stairways, doors and exit ways shall not be obstructed or used in a manner to encroach upon routes of ingress or egress utilized by the public or occupants, or to present an unsafe or unhealthy condition to the public or occupants.

3. Store, position and use equipment, tools materials, scraps and trash in a manner that does not present a hazard to the public or occupants by accidental shifting, ignition or other hazardous activity.

4. Store and transport refuse and debris in a manner to prevent unsafe and unhealthy conditions for the public and occupants. Cover refuse containers, and remove refuse on a frequent regular basis acceptable to Owner Representative. Use Tarpaulins or other means to prevent loose transported materials from dropping from trucks.

C. Alternate Precautions: When the nature of the work prevents isolation of the work area and the public or building occupants may be in pass through, under or over the work area, alternate precautions such as the posting of signs, the use of signal persons, the erection of barricades or similar protection around particularly hazardous operations shall be used as appropriate.

D. Public Thoroughfare: When work is to be performed over a public thoroughfare such as a sidewalk, roadway or other site access way, the thoroughfare shall be closed, if possible, or other precautions taken such as the installation of screens or barricades. When the exposure to heavy falling objects exists, as during the erection of building walls or during demolition, special protection of the type detailed in 29CFR, Parts 1910 and 1926 shall be provided.

3.04 MONITORING

A. Air Monitoring Required by OSHA Regulations

1. The HMAC must perform air monitoring in the work area to comply with OSHA regulations for his employees. Results shall be posted no later than 24 hours after sample collection.

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2. If at any time during the project, the PCM personal air sample results exceed the OSHA PEL of 0.1 fibers per cubic centimeter, then the HMAC shall cease all abatement activities. The HMAC shall then review work procedures and evaluate alternative abatement methods which could reduce fiber concentration and implement additional engineering controls prior to continuing asbestos abatement.
3. The HMAC shall keep a log of all monitoring activities he performs. A complete log of all air samples and results will be submitted at the completion of the Project. It is the HMAC's responsibility to furnish and maintain all air monitoring equipment. The HMAC shall bear all costs in connection with air sampling and reporting under this section.
4. The Third-Party Consultant may procure personal air samples of HMAC's employees to measure worker exposure levels. HMAC will cooperate with such monitoring activities.
5. The laboratory used for analyzing personal air samples must be AIHA Pat Round Proficient and analyzed by an analyst with NIOSH 582 or equivalent training.

B. Air Monitoring of the Work Area

1. The HMAC shall provide full containment enclosures, in compliance with regulations, with appropriate air circulation for asbestos removal operations. HMAC shall monitor and maintain a minimum negative air pressure of 0.02 inches of water while enclosure is operative. HMAC shall continuously monitor differential pressure in the containment using a digital manometer. Owner and Consultant reserve the right to approve or deny use of non-digital manometers. Each containment enclosure shall be equipped with a convenient transparent observation port no smaller than one square foot.
2. The Third-Party Consultant may perform air monitoring outside of and adjacent to the work areas. If these measurements indicate containment in excess of 0.01 f/cc outside the work area from asbestos hazard abatement work, the HMAC shall immediately cease operation until the presence of contamination is verified and the cause of contamination is identified and corrected, if necessary, to the satisfaction of Owner. This correction may involve established a more stringent enclosure. The HMAC shall resume asbestos operations only after he receives written authorization from Owner.
3. The HMAC shall facilitate and cooperate fully with air monitoring and shall take no action intended to distort or falsify measurements of fiber concentrations and shall not take any action to obstruct air monitoring activities.
4. All sampling and analytical work shall conform with ORM, NIOSH Method 7400 (A Rules) or by AHERA specified clearance procedures.

C. Air Monitoring

1. Third-Party Consultant will be certified to collect asbestos air samples and perform clearance inspections and shall be responsible for conducting the clearance inspection and the final clearance air testing to determine if the abatement work has been satisfactorily completed to the expectations of Owner.

D. Air Sampling

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1. At the completion of each segment, or as otherwise specified/required, the Third-Party Consultant may procure air samples within the work area(s) for clearance by PCM analysis or TEM analysis. If the analysis indicates that the concentration of asbestos fibers in these samples exceeds clearance levels (0.01 f/cc by PCM or 70 structures per square mm by TEM), the HMAC shall continue to air and surface clean the work area until air monitoring indicates asbestos concentrations have fallen below the appropriate limit. In the event a final clearance test fails, the HMAC will bear the costs associated with further testing and consulting until the area passes clearance testing.

E. Personnel and Facility Protection

1. Protection Instruction. The HMAC shall provide decontamination and work procedures to be followed by the workers.

2. Protective Clothing. The HMAC shall comply with OSHA regulations for protective clothing. The HMAC shall at all times have sufficient supplies of protective clothing and supplies needed for the proper entrance/exit from the work area.

3. Hygiene Facilities and Practices. The HMAC shall comply with OSHA regulations concerning hygiene facilities and practices. Daily inspection and disinfecting of decontamination facilities shall be provided by the HMAC.

4. Emergency Precautions. Prepare a contingency plan for emergencies including fire, accident, power failure, negative pressure system failure, supplied air system failure, or any other event that may require modification or abridgment of decontamination or work area isolation procedures. Include a plan of specific procedures for decontamination or work area isolation. Note that nothing in this plan should impede safe exiting or providing of adequate medical attention in the event of an emergency.

5. Facility Security. The HMAC shall comply with OSHA and EPA regulations concerning signage and labeling. All entrances to the work areas shall be clearly labeled to prevent accidental entrance to a regulated area. Labeling shall include signs, stickers and flagging as appropriate to prevent unauthorized entry to the work site.

F. Disposal

1. Disposal containers shall be suitable to receive and retain any asbestos-containing or contaminated materials until disposal at an approved site. The containers shall be labeled in accordance with OSHA, EPA and DOT regulations. Containers must be airtight and watertight. Shipping manifests should be submitted to Owner as well as disposal documentation.

G. Execution. The sequence of execution for each work area shall be as follows:

1. Prepare work area.

2. Remove asbestos-containing materials.

3. Remove and dispose of the contaminated waste generated by work area preparation and removal activities.

4. Decontaminate work area and clean site.

3.05 ASBESTOS ABATEMENT PROCEDURES

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A. The general sequence for performing asbestos abatement activities will be as follows:
   1. Work area isolation (Regulated Area, Full Containment)
   2. General Abatement Sequence and Removal Procedures
   3. Disposal of ACM
   4. Cleaning of work area (decontamination)
   5. Work area clearance

B. Only full-weight polyethylene shall be used to construct work area enclosures. Polyethylene used to cover critical barriers and floors shall be 6-mil and polyethylene used to cover wall surfaces shall be 4-mil. In addition, reinforced polyethylene shall be used in areas of high traffic and areas where the use of scaffolds or other equipment may be reasonably assumed to cause damage to sensitive flooring materials.

C. Class I work and/or work which involved mechanical operations (grinding, sanding, blasting, etc.) or which renders ACM friable shall include polyethylene ceilings in addition to wall and floor coverings.

D. Fiberglass and other porous materials remaining in the work area during abatement (full containment or regulated area) shall be covered with 6-mil poly or be removed and disposed of as ACM contaminated if still within work area at commencement of gross removal.

D. Electrical extension cords and air filtration ducting shall be suspended wherever feasible.

E. Air filtration units are to be placed strategically to promote the most effective circulation of air within the work area. Air filtration ducting shall be inspected daily for leaks. Air filtration devices must be exhausted to the exterior of the building. If this is not possible, the contractor must receive a variance in writing from Owner or Third-Party Consultant.

F. Where ACM is selectively removed (such as selective removal of ACM drywall systems, hard plaster, etc.), the newly exposed edges shall be encapsulated with an EPA approved encapsulant, brush applied. Re-wettable cloth wrap shall also be installed to seal newly exposed edges of ACM remaining in the work area.

G. Respiratory protection is required for all activities involving asbestos. Respiratory protection is to be initiated during the start of work area isolation.

H. An approved decontamination unit, containment, and securable waste storage must be in place for removal of items or fixtures that are adjacent to asbestos. No exterior decontamination units will be permitted unless the Owner, A/E and/or Third-Party Consultant gives permission.

I. The following paragraphs describe the sequence of activities; however, practices may not be limited to those herein described.

J. Work Area Isolation (Full Containment)
   1. All electrical and HVAC systems are to be de-energized at the proper breaker and locked out by the HMAC. All electrical power to be used for this project must pass through a temporary, GFCI system, installed by a licensed electrician. This includes all power needed for equipment and machinery inside and outside of all contained areas. No existing electrical service is to be used on this project (this includes existing lighting).

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2. Seal all critical barriers with 1 layer of 6-mil (full weight) polyethylene. This will include all non-asbestos thermal, doors, windows, HVAC penetrations (grills, etc.) skylights, etc. Smoke alarms and security devices shall be left exposed and functioning unless they are to be removed and replaced.
3. Install HEPA equipped air-filtering devices. The devices shall be placed as to minimize stagnant air within the work area. The number of units shall be such that there is a minimum of (1) 2000 cfm unit for each 20,000 cubic feet of workspace. Units larger than 2,000 cfm will count as (1) 2,000 cfm. There should be a minimum of four (4) air changes per hour within each containment. The devices shall be exhausted to the exterior of the building via an exterior window within the space. If the windows in the space cannot be opened, the HMAC will have a window removed for the duration of the project, and replaced upon completion, at the cost of the HMAC.
4. Pre-clean all surfaces, fixtures, and objects within the work area. Cleaning is to be accomplished by HEPA vacuuming and wet wiping all surfaces to remove all dust, dirt and ACM residue and other debris. Any asbestos found in a pre-cleaned area during asbestos removal work or removal of the enclosures will be assumed as having been caused by the HMAC's work and shall be cleaned at the HMAC's expense. All fixtures and objects remaining within the work area are to be sealed with 1 layer of 6-mil polyethylene. All moveable items are to be secured in a contamination-free area until the abatement has been completed. The HMAC is responsible for the security and condition of all items stored during this contract.
5. Attach non-slip material to stairs to prevent falling.
6. Install a clear one square foot 1/4-inch Plexiglas viewing ports into each work area. Viewing port to be installed in a location, which will permit the visibility of the maximum area possible.
7. Attach polyethylene to a decontamination unit so that an airtight and watertight seal is made between the work area and the decontamination unit.
8. Prepare the personal decontamination unit by installing a shower (separated from the work area by an airlock) to the clean room area (separated from the shower by an airlock) to the non-regulated area (separated from the clean room by an airlock). The clean area shall be of sufficient size to allow the non-restricted entry/exit of the entire work crew and shall not be a storage area for abatement supplies.
9. The equipment/waste decontamination unit shall consist of a separate shower (isolated by airlocks) joined to a separate clean room area (isolated by airlocks). This area is to be used for the removal of ACM and equipment of ACM and equipment from the work area and is only to be used for personnel decontamination in the event of an emergency.
10. Document level of pressure differential containment. The minimum pressure differential shall be 0.02 inches of water. Daily pressure checks shall be obtained by the HMAC. HMAC shall continuously monitor differential pressure in the containment using a digital manometer. The Owner and Environmental Consultant reserve the right to approve or deny use of non-digital manometers. Readings shall be taken in areas remote from air filtration devices and sources of makeup air.
11. Emergency exits shall be clearly labeled and shall be constructed so as to provide easy exit from the containment in event of an emergency. Red paint shall be used to denote

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the locations of emergency exits, fire extinguishers and hazardous areas within the work area. HMAC's employees shall be trained in emergency procedures.

12. Work area enclosures shall be erected so as to remain intact during the duration of the abatement project. Methods to be used include, but are not limited to, anchoring polyethylene with wire or wooden blocks, attaching anchoring strips to the surface of walls, using prefabricated 2" x 4" panels with polyethylene stapled to the frame, etc. The Owner and Environmental Consultant reserves the right to approve or deny use of materials or devices used to anchor polyethylene.

K. Removal of Asbestos-Containing Materials

1. Remove all equipment and fixtures from area to be abated necessary to accomplish the asbestos removal specified. All items removed are to be stored in a location designated by the Owner.
2. Pre-clean the entire work area if debris is present.
3. The floor of the work area shall be kept free of unnecessary equipment supplies and debris. All contaminated materials shall be promptly bagged and removed from the work area according to established removal methods. The HMAC shall not allow asbestos-containing materials to dry out or collect on floors or other surfaces. Bagged ACM shall not accumulate within the work area. No contaminated materials are to be stored outside of the building except in a sealed, secure, temporary storage trailer.
4. The HMAC shall use amended water during all asbestos removal operations. All ACM must be thoroughly wetted prior to and during removal and shall be wetted during bagging operations.
5. The use of the technique of dry brushing, dry sweeping or dry cleaning of asbestos, asbestos-contaminated material or ACM residue is strictly prohibited.
6. If a breach of containment occurs, removal activities are to cease until containment integrity has been restored.
7. Removal of Category II ACM which becomes Friable (Ceramic Tile Mortar)
    a. Refer to 3.05.J or full containment procedures.
    b. Remove all ceramic tile systems down to clean substrate.
    c. Final clean work area.
    d. Perform inspection of work area.
8. Removal of Category II Non-Friable ACM (Intact Category II Non – Friable Removal)
    a. Asbestos barrier tape and warning signs must be installed to mark off the work area.
    b. Place an AFD in the work area to filter air for local exhaust.
    c. Materials must be removed intact and all removal using hand tools must be performed using wet methods (with amended water).
    d. Place the materials into disposal bags and/or wrap in two layers of 6-mil poly and remove from the work area via disposal procedures. All ACM wastes must be properly labeled prior to leaving the work area and entering the disposal container.

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e. A drop layer of plastic, extending 10 feet from the structure must be secured beneath the area of work to catch debris. This drop layer must be removed at the end of the work day and replaced daily.

f. Perform final visual inspection of the work area and, if necessary, post abatement air sampling.

9. Removal of ACM - Category I Non-Friable Flooring Materials

a. Material must be removed intact and all removal using mechanical methods must be performed using wet methods. Floor tile must not become friable at any point during abatement activities.

Note: If floor tiles cannot be removed intact and will become friable, then a full containment work area isolation must be constructed (See paragraph 3.5.C). Floor tile will be deemed friable if breakage occurs resulting in pieces equal to or smaller than four (4) square inches as per OEPA.

b. Critical barriers must be placed over all the openings in the work area.

c. Asbestos caution barrier tape must be installed to close off the work area.

d. A decon with working shower must be established as part of the work area.

e. If carpet is present, remove carpet. If carpet is not contaminated with ACM flooring debris/residue, carpet may be disposed of as C&D waste. Carpet which is contaminated with ACM material must be properly disposed of as ACM waste.

f. After carpet removal (if present), remove floor tile. Place the tiles into disposal bags and remove from the work area via disposal procedures.

g. Prior to mastic removal (if mastic is ACM), inspect the floor for cracks and/or holes (except if on lowest level of a building). Seal cracks/ holes in floor prior to applying mastic remover. HMAC will be responsible to periodically inspect floor below and conduct cleanup of any mastic leaks. HMAC will also be responsible for any damages to floors below as a result of mastic leaks.

h. Apply a layer of mastic remover, according to manufacturer’s directions, to the mastic and allow to penetrate. Use test area prior to removal of main area. This activity requires the use of organic vapor/ asbestos cartridges on a half-face dual cartridge respirator.

i. Do not apply solvent near walls that are porous (gypsum, wood, porous block).

j. Dilute the solution with water and us mops to remove the solvent/ mastic mixture.

k. Soak the solution up with towels or an absorbent and promptly bag material.

l. Repeat steps g through j as needed to remove all residue of mastic.

m. Perform final visual inspection of the work area and, if necessary, post abatement air sampling.

Note: Removal of mastic around perimeter of a room - to avoid solvent being absorbed by walls, remove tile adjacent to wall last and carefully dissolve mastic by hand with solvent in these areas.

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L. Disposal of ACM

1. Open top dumpsters are strictly prohibited for ACM waste, regardless of the Category of ACM. Dumpsters shall be secured/ locked at all times except during supervised load-out. All ACM must be disposed of in approved containers.
2. All ACM generated from this project shall be properly documented. Detailed disposal documents including information concerning amounts of material, generator information, hauler information, date of generation, and disposal documentation must be processed for all material disposed of as contaminated wastes.
3. All bagged contaminated materials must be sufficiently wetted, sealed in airtight containers, and at a minimum must be sealed within two 6-mil polyethylene bags (one sealed inside the other). No rips or tears shall be visible in the bags, no material may be protruding through the polyethylene, and no visible residue may be visible outside of a container. HMAC shall wash all inner, as well as outer, bags of asbestos-containing material.
4. All asbestos disposal containers must be labeled with the current hazardous warning labels and DOT information. The HMAC shall label the inner and outer asbestos bag or container.
5. All contaminated materials must be moved from the work area through the waste decontamination unit. There, all bags will be washed and placed into clean bags before being moved from the building. PPE shall be utilized during this process and transporting to dumpster or enclosed vehicle compartment.
6. All ACM wastes must be transported in a fully enclosed vehicle and or dumpster. If vehicle, the driver compartment must be separated from the cargo compartment. The cargo compartment and or dumpster must be line with 6-mil polyethylene, which is to be removed at the dump and disposed of as contaminated.
7. The cargo compartment of the disposal vehicle must be cleaned between loads. Cleaning shall include washing, wet-wiping and HEPA vacuuming.
8. All ACM wastes are to be removed from the structure and properly disposed of in a timely fashion.
9. All ACM bagged wastes shall be labeled, counted by HMAC, and entered into daily logs.
10. Proper documentation of all ACM wastes generated as a result of this project must be delivered to the Owner’s Representative in a timely fashion.

M. Cleaning of the Work Area

1. All HEPA filtration devices shall continue to operate during cleaning of the work area. All vacuums inside work area shall utilize HEPA filtration. All HEPA vacuums when not in use shall have openings properly sealed.
2. HEPA filters and pre-filters shall be inspected by the HMAC on a daily basis. This includes filters on air filtration devices and HEPA equipped vacuum cleaners. All vacuums in the work area must have and maintain HEPA attributes.

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3. Cleaning shall be initiated only after all of the gross ACM has been removed from the work area.
4. All unnecessary equipment, tools, devices, and supplies shall be properly cleaned and removed from the work area via the equipment decontamination unit.
5. All liquids sprayed within the work area shall be delivered through an airless sprayer. Spraying with garden hoses and pressurized sprayers is prohibited.
6. Cleaning shall start by wetting all surfaces within the work area with clean water. Surfaces shall be wetted from top to bottom.
7. Removal of ACM residue shall be accomplished with the use of wire or nylon-bristle brushes, nylon scouring pads, towels, sponges, and HEPA-equipped vacuums. The use of the technique of dry brushing ACM residue is strictly prohibited.
8. After all residue of ACM has been removed, the surfaces are to be cleaned with clear water and wiped with a clean disposable towel. Each towel is to be used only once and then disposed of. Rinse water is to be changed frequently.
9. Perform inspection and clearance of work area.
10. HMAC shall reinstall all fixtures removed during the abatement process.

N. Final Clearance/Cleaning Procedures. The following clean-up sequence shall be utilized for this asbestos removal project. It consists of visual inspections, two cleanings, and one air-sampling event. The sequence is as follows:

1. Gross Removal Inspection – HMAC shall perform visual inspection of all surfaces previously containing ACM. All surfaces must be cleaned thoroughly so no visible debris, film, or residues remain.
2. Gross Cleaning - HMAC shall remove all remaining accumulation and visible ACM, debris, and dust from all surfaces and plastic sheeting. Remove all containers and equipment not necessary for clean-up procedures. Wet clean all surfaces in work area.
3. Gross Cleaning Inspection - A visual inspection of work area to ensure that all surfaces and plastic sheeting are clean of asbestos-containing materials. Encapsulant shall NOT be applied until the Third-Party Consultant (if applicable) has passed the cleaning inspection.
4. Encapsulation - HMAC shall apply a “bridging” encapsulant to all surfaces where ACM has been removed. Additionally, the contractor shall apply a coat of “bridging” encapsulant to all plastic sheeting on walls, floors, and all plastic sheeting in “dirty” areas of the decontamination units. The post-removal encapsulant shall be flame-resistant to 1,800ºF and shall be colored with an easily identified pigment.
5. Second Cleaning - HMAC shall remove all remaining floor and wall plastic sheeting except plastic sheeting used to cover critical barriers. This includes all plastic sheeting covering fixtures, wires, and equipment inside the work area. HMAC shall wet clean and vacuum all surfaces within the work area.
7. Second Cleaning Inspection - A visual inspection of work area to ensure that all surfaces are clean and free of dust and debris. All asbestos-containing materials must be visually non-detectable.

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8 Final Clearance Air Sampling (if requested by Owner's Representative)- HMAC shall give 48-hour notice to Third-Party Consultant for clearance testing. The Third-Party Consultant with the appropriate state certifications and related credentials shall collect the air samples to verify that the "standard of final clearance" has been attained. Depending upon ACM to be removed, "aggressive methods" for air sampling may be used. All air filtration devices shall remain operative during collection of the final clearance air samples. If the "standard of final clearance" is not achieved, HMAC shall continue to clean until additional air sampling confirms "standard" has been met. The HMAC shall bear all costs associated with any required additional rounds of clearance sampling in event that the first round of clearance sampling does not meet the clearance standard.

9. Upon favorable clearance results, the HMAC shall remove all remaining polyethylene barriers, equipment, air filtration devices and any supplies or materials from the work area and reinstall any fixtures removed during the abatement process. The decontamination enclosures shall be removed after all waste plastic sheeting and remaining equipment have been properly cleaned and removed from the work area. The decontamination enclosures may be disassembled by workers wearing half-mask or full-face respirators and disposable uniforms over normal street clothes. Air filtration devices shall remain within the work area and continue to operate.

3.06 FINAL CLEARANCE INSPECTION

A. Inspection Procedures (if requested by Owner's Representative). Upon receipt of HMAC's request for inspection, the certified and credentialed Third-Party Consultant shall proceed with the visual inspection and will advise the HMAC of unfulfilled prerequisites relative to the completion of this project.

3.07 DISPOSAL OF MATERIALS

A. General. Remove from building site debris, rubbish and other materials resulting from asbestos removal operations. Transport and legally dispose off site.

1. Burning of removed materials is not permitted on project site.

3.08 CLEAN-UP AND REPAIR

A. General. Upon completion of asbestos removal work, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas broom clean.

1. Repair areas damaged by asbestos removal procedure. Return elements of construction and surfaces to condition existing prior to start of operations. Repair adjacent construction or surfaces soiled or damaged by asbestos removal work.

3.09 ENVIRONMENTAL PROTECTION

A. Dispose of solid, liquid and gaseous contaminants in accordance with local codes, laws, ordinances and regulations.

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B. Comply with applicable federal, state and local noise control laws, ordinances and regulations, including but not limited to 29 CFR, Part 1910.95 and 29 CFR, Part 1926.52

END OF SECTION

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SECTION 030130 – REPAIR OF STRUCTURAL CONCRETE

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.

B. Work on the project shall conform to all requirements of ACI 563-18 “Specifications for Repair of Concrete in Buildings” published by the American Concrete Institute, Farmington Hills, Michigan, except as specifically modified by the Contract Documents.

1.2 SUMMARY

A. Section Includes:

1. Removal of deteriorated concrete and subsequent replacement and patching.
2. Reinforcement used in concrete repairs.
3. Epoxy crack injection.

1.3 UNIT PRICES

A. Work of this Section is affected by unit prices specified in Section 012200 "Unit Prices."

1. Unit prices apply to authorized work covered by estimated quantities.
2. Unit prices apply to authorized additions to and deletions from the Work as authorized by Change Orders.

B. General: Unit prices include the cost of preparing existing construction to receive the work indicated.

1.4 ACTION SUBMITTALS

A. Submittals: As defined in ACI 563.

B. Product Data: For each type of product.

1. Include construction details, material descriptions, chemical composition, physical properties, test data, and mixing, preparation, and application instructions.

1.5 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each manufactured bonding agent, cementitious patching mortar and, crack-injection adhesive, for tests performed by manufacturer and witnessed by a qualified testing agency.

B. Cold and hot weather concreting procedures.

C. Written procedures for each work item indicated.

D. Meeting minutes: Contractor shall record minutes of all meetings, and provide typed minutes distributed to all parties concerned within 5 days of the meeting.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Each manufactured product listed manufacturer shall employ factory-authorized service representatives who are available for consultation and Project-site inspection and on-site assistance.

B. Concrete-Repair Qualifications: Engage an experienced concrete-repair firm that employs installers and supervisors who are trained and approved by manufacturer to apply packaged patching-mortar, crack-injection adhesive and each manufactured product listed 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 or patching new concrete is insufficient experience for concrete-repair work.

1. Field Supervision: Concrete-repair firm shall maintain experienced full-time supervisors on Project site during times that concrete-repair work is in progress.

C. Documents required on site:

1. Copies of ACI 563-18 “Specifications for Repair of Concrete in Buildings”.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's written instructions for minimum and maximum temperature requirements and other conditions for storage.

B. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

C. Store cementitious materials off the ground, under cover, and in a dry location.

D. Store aggregates covered and in a dry location; maintain grading and other required characteristics and prevent contamination.

1.8 FIELD CONDITIONS

A. Environmental Limitations for Epoxies: Do not apply when air and substrate temperatures are outside limits permitted by manufacturer.

B. Cold-Weather Requirements for Concrete: Comply with ACI 563 and ACI 306.1.

C. Cold-Weather Requirements for Proprietary Cementitious and Polymer Repair Material: Comply with Manufacturer's requirements.

D. Hot-Weather Requirements for Concrete: Comply with ACI 563 and ACI 305.1.

E. Hot-Weather Requirements for Proprietary Cementitious and Polymer Repair Material: Comply with Manufacturer's requirements.

1.9 WARRANTY

A. The contractor shall furnish a written performance warranty that the repaired areas will be free of defects related to workmanship or material deficiency for **a two-year** period from the date of completion. Spalls, delaminations, cracks, and scaling shall be specifically covered under the warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: For repair products, obtain each color, grade, finish, type, and variety of product from single source and from single manufacturer with resources to provide products of consistent quality in appearance and physical properties.

B. Proprietary Cementitious and Polymer Repair Material products shall be manufactured by one of the following:

1. Master Builders Solutions; an MBCC company
2. ChemMasters, Inc.
3. Euclid Chemical Company (The); an RPM company
4. MAPEI Corporation
5. Sika Corporation

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Epoxy-Coated Reinforcing Bars: ASTM A 615, Grade 60 deformed bars, ASTM A 775 or ASTM A 934, epoxy coated, with less than 2 percent damaged coating in each 12-inch bar length.

C. Steel Bar Mats: ASTM A 184, fabricated from ASTM A 615, Grade 60 deformed bars, assembled with clips.

D. Plain-Steel Wire: ASTM A 1064, as drawn.

E. Epoxy-Coated Wire: ASTM A 884, Class A, Type 1 coated, as-drawn, plain-steel wire, with less than 2 percent damaged coating in each 12-inch wire length.

F. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064, plain, fabricated from as-drawn steel wire into flat sheets.

G. Epoxy-Coated Welded-Wire Reinforcement: ASTM A 884, Class A coated, Type 1, plain steel.

2.3 REINFORCEMENT ACCESSORIES

A. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view, where legs of wire bar support contact forms, use CRSI Class 1 plastic-protected steel wire bar supports.
2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

C. Existing reinforcement and embedment’s corrosion-protection material:
1. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Manufactured product that consists of water-insensitive epoxy adhesive, portland cement, and water-based solution of corrosion-inhibiting chemicals that forms a protective film on steel reinforcement.
2. Install mechanical splices/couplers where indicated on the Contract drawings in the Operations Building foundation mat restoration work.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

2.5 BONDING AGENTS

A. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Manufactured product that consists of water-insensitive epoxy adhesive, portland cement, and water-based solution of corrosion-inhibiting chemicals that forms a protective film on steel reinforcement.

B. Epoxy Bonding Agent: ASTM C881, bonding system Type V and free of VOCs.

C. Scrub Coat: Mix per repair material manufacturer recommendations.

2.6 PROPRIETARY CEMENTITIOUS AND POLYMER REPAIR MATERIAL

A. Proprietary Cementitious and Polymer Repair Material (Repair Materials) Requirements:

1. Only use repair materials that are recommended by manufacturer for each applicable horizontal, vertical, or overhead use orientation
2. Only use repair materials that are recommended by manufacturer for each application method, hand applied, form-and-pour, and form-and-pump.
3. Color and Aggregate Texture: Provide repair materials and aggregates of colors and sizes necessary to produce repair material that matches existing, adjacent, exposed concrete. Blend several aggregates if necessary to achieve suitable matches.
4. Coarse Aggregate for Repair Material: ASTM C33, washed aggregate. Add to repair material mix only as permitted by repair material manufacturer.

B. Cementitious Repair Material: Packaged, dry mix for repair of concrete.

1. Compressive Strength: Not less than 5000 psi at 14 days when tested according to ASTM C109.

C. Rapid-Strengthening, Cementitious Repair Material: Packaged, dry mix, ASTM C928 for repair of concrete.

1. Compressive Strength: Not less than 2000 psi within three hours when tested according to ASTM C109.

2.7 EPOXY CRACK-INJECTION MATERIALS

A. Epoxy Crack-Injection Adhesive: ASTM C881 bonding system Type IV, free of VOCs.

1. Capping Adhesive: Product manufactured for use with crack-injection adhesive by same manufacturer.
2. Color: Provide epoxy crack-injection adhesive and capping adhesive as indicated by manufacturer's designations that blend with existing, adjacent concrete and do not stain concrete surface.

2.8 MISCELLANEOUS MATERIALS

A. Portland Cement: ASTM C150, Type I, II, or III unless otherwise indicated.

B. Water: Potable.

2.9 MIXES

A. General: Mix products, in clean containers, according to manufacturer's written instructions.

1. Do not add water, thinners, or additives unless recommended by manufacturer.
2. When practical, use manufacturer's premeasured packages to ensure that materials are mixed in proper proportions. When premeasured packages are not used, measure ingredients using graduated measuring containers; do not estimate quantities or use shovel or trowel as unit of measure.
3. Do not mix more materials than can be used within time limits recommended by manufacturer. Discard materials that have begun to set.

B. Scrub Coat: Mix dry ingredients with enough water to provide consistency of thick cream, as directed by the repair material manufacturer.

C. Concrete: Design Mixtures shall meet the requirements of ACI 563 and the following requirements:
1. Sulfate Resistance Exposure Category: S0.
2. Freezing-and-thawing Exposure Category: F2.
3. Low-permeability concrete Exposure Category: W1.
4. Chloride Exposure Category: C2.
5. Maximum Water-Cementitious Materials Ratio: 0.40.
6. Minimum Silica Fume: 5% of Cementitious Materials.
7. Minimum Compressive Strength: 5,000 psi.
8. Minimum Bond Strength: 175 psi.

PART 3 - EXECUTION

3.1 CONCRETE REPAIRS

A. Have concrete-repair work performed only by qualified concrete-repair specialist.

B. Work only in areas permitted by the Owner and within the Owner approved schedule.

C. Comply with manufacturers' written instructions for surface preparation and product application.

3.2 EXAMINATION

A. Notify Engineer seven days in advance of dates when areas of deteriorated or delaminated concrete and deteriorated reinforcing bars will be located.

B. Locate areas of deteriorated or delaminated concrete using hammer or chain-drag sounding and mark boundaries. Mark areas for removal by simplifying and squaring off boundaries as indicated on the drawings. At columns and walls make boundaries level and plumb unless otherwise indicated.

C. Pachometer Testing: Locate at least three reinforcing bars using a pachometer, and drill test holes to determine depth of cover. Calibrate pachometer using depth of cover measurements and verify depth of cover in removal areas using pachometer.

D. Perform surveys as the Work progresses to detect hazards resulting from concrete-repair work.

3.3 PREPARATION

A. Ensure that supervisory personnel are on-site and on duty when concrete repair work begins and during its progress.

B. Protect persons, motor vehicles, surrounding surfaces of building being repaired, building site, plants, and surrounding buildings from harm resulting from concrete repair work.

1. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
2. Use only proven protection methods appropriate to each area and surface being protected.
3. Provide temporary barricades, barriers, and directional signage to exclude public from areas where concrete repair work is being performed.
4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of concrete repair work.
5. Contain dust and debris generated by concrete repair work and prevent it from reaching the public or adjacent surfaces.
6. Use water-mist sprinkling and other wet methods to control dust only with adequate, approved procedures and equipment that ensure that such water will not create a hazard or adversely affect other building areas or materials.
7. Protect floors and other surfaces along haul routes from damage, wear, and staining.
8. Provide supplemental sound-control treatment to isolate removal and dismantling work from other areas of the building.

9. Protect adjacent surfaces and equipment by covering them with heavy polyethylene film and waterproof masking tape. If practical, remove items, store, and reinstall after potentially damaging operations are complete.
10. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
11. Dispose of debris and runoff from operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

C. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Owner immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is in working order.

1. Prevent solids such as aggregate or mortar residue from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from concrete repair work.
2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

D. Preparation for Concrete Removal: Examine construction to be repaired to determine best methods to safely and effectively perform concrete repair work. Examine adjacent work to determine what protective measures will be necessary. Make explorations, probes, and inquiries as necessary to determine condition of construction to be removed in the course of repair.

1. Verify that affected utilities have been disconnected and capped.
2. Inventory and record the condition of items to be removed for reinstallation or salvage.

E. Reinforcement and Embedment Preparation: Remove loose and flaking rust from exposed reinforcement and metal embedment by needle scaling or wire brushing until only tightly adhered light rust remains.

1. Do not remove any reinforcement unless directed to by the Engineer.
2. Where section loss of reinforcing bars is more than 15 percent, add supplemental reinforcement as indicated on Drawings.
3. Where embedments are damaged, or corroded beyond repair, replace to match existing.
4. Remove additional concrete as necessary to provide at least 3/4-inch clearance at existing and replacement bars.
5. Splice replacement bars to existing bars according to ACI 318 by lapping, welding, or using mechanical couplings.
6. Coat cleaned and exposed reinforcement and metal embedments with Corrosion-protection material per manufacturer’s recommendations.
7. Means of cleaning corrosion from reinforcement and metal embedments shall be per the Corrosion-protection material manufacturer’s recommendations.

3.4 REMOVAL OF CONCRETE

A. Do not overload structural elements with debris.

B. Saw-cut perimeter of areas indicated for removal to a depth of at least 3/4 inch. Make cuts perpendicular to concrete surfaces and no deeper than cover on reinforcement.

C. Remove deteriorated and delaminated concrete by breaking up and dislodging from reinforcement.

D. Remove additional concrete if necessary to provide a depth of removal of at least 1/2 inch over entire removal area.

E. Where half or more of the perimeter of reinforcing bar is exposed, bond between reinforcing bar and surrounding concrete is broken, or reinforcing bar is corroded, remove concrete from entire perimeter of bar and to provide at least 3/4-inch clearance around bar.

F. Test areas where concrete has been removed by tapping with hammer and remove additional concrete until unsound and disbonded concrete is completely removed.

G. Roughen surface of concrete to produce a minimum surface profile matching CSP 6 according to ICRI 310.2. At walls, make top and bottom surfaces level.

H. Thoroughly clean removal areas of loose concrete, dust, debris, and bond-inhibiting materials.

I. Concrete Column Limitations:

1. Do not remove concrete behind column vertical reinforcement beyond one tie spacing without consulting the Engineer.
2. Do not remove concrete in front of column vertical reinforcement beyond two tie spaces if column ties are deteriorated more than 25 percent of area without consulting the Engineer.

3.5 APPLICATION OF BONDING AGENT OR SCRUB COATS

A. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Apply at the interface between new and existing concrete surface by stiff brush or hopper spray according to manufacturer's written instructions.

B. Epoxy Bonding Agent: Apply to concrete by brush, roller, or spray according to manufacturer's written instructions, leaving no pinholes or other uncoated areas. Place repair material or concrete while epoxy is still tacky. If epoxy dries, recoat before placing repair material or concrete.

C. Scrub Coat for Repair Materials:

1. Place scrub coat as specified in this article unless otherwise recommended in writing by the manufacturer.
2. Wet substrate thoroughly and then remove standing water, for a surface saturated dry condition.

3. Scrub neat repair material mixed with latex bonding agent into substrate, filling pores and voids.
4. Do not allow the scrub coat to dry.

3.6 INSTALLATION OF REPAIR MATERIALS

A. Installation by Hand Application:

1. The contractor shall familiarize themselves with ACI RAP-6 “Vertical and Overhead Spall Repair by Hand Application”.
2. Place repair material as specified in this article unless otherwise recommended in writing by manufacturer.
3. Pretreatment: Apply specified bonding agent or scrub coat as recommended by the repair material manufacturer.
4. General Placement: Place repair material as recommended by the repair material manufacturer.
5. Vertical and Overhead Patching: Place material in lifts of not more than or less than as recommended by the repair material manufacturer. Do not feather edge.
6. Consolidation: After each lift is placed, consolidate material and screed surface.
7. Multiple Lifts: Where multiple lifts are used, score surface of lifts to provide a rough surface for placing subsequent lifts. Allow each lift to reach final set before placing subsequent lifts.
8. Finishing: Allow surface to become firm and then finish to a Surface finish-2.0 (SF-2.0) per ACI 563.
9. Curing: Cure repair material as recommended by the repair material manufacturer.

B. Installation by Form-and-Pour Application:

1. The contractor shall familiarize themselves with ACI RAP-4 “Surface Repair Using Form-and-Pour Techniques”.
2. Place repair material as specified in this article unless otherwise recommended in writing by manufacturer.
3. Forming: Provide forms as necessary to confine patch to required shape.
4. Pretreatment: Apply specified bonding agent or scrub coat as recommended by the repair material manufacturer.
5. General Placement: Place and consolidate repair material as recommended by the repair material manufacturer.
6. At unformed surfaces, screed repair material to produce a surface that when finished will match required profile and surrounding concrete.
7. Finishing:

    a. Finish unformed surface to match adjacent concrete and per ACI 563.
    b. Finish formed surfaces to a Surface finish-2.0 (SF-2.0) per ACI 563.

8. Curing: Cure repair material as recommended by the repair material manufacturer.

C. Installation by Form-and-Pump Application:

1. The contractor shall familiarize themselves with ACI RAP-5 “Surface Repair Using Form-and-Pump Techniques”.
2. Place repair material as specified in this article unless otherwise recommended in writing by manufacturer.
3. Forming:

    a. Provide forms as necessary to confine patch to required shape.
    b. Design and construct forms to resist pumping pressure in addition to weight of wet repair material. Seal joints and seams in forms and where forms abut existing concrete.

4. Pretreatment: Apply specified bonding agent or scrub coat as recommended by the repair material manufacturer.
5. General Placement: Pump and consolidate repair material as recommended by the repair material manufacturer.
6. Finish formed surfaces to a Surface finish-2.0 (SF-2.0) per ACI 563.
7. Curing: Cure repair material as recommended by the repair material manufacturer.

3.7 CONCRETE PLACEMENT

A. Installation by Form and Pour Application:

1. The contractor shall familiarize themselves with ACI RAP-4 “Surface Repair Using Form-and-Pour Techniques”.
2. Forming: Provide forms as necessary to confine patch to required shape.
3. Pretreatment: Apply epoxy-modified, cementitious bonding and anticorrosion agent or epoxy bonding agent to concrete substrate.
4. General Placement: Place concrete according to ACI 563 and as specified in this article.

    a. Consolidate concrete according to ACI 563.

5. At unformed surfaces, screed concrete to produce a surface that when finished will match required profile and surrounding concrete.
6. Finishing:

    a. Finish unformed surface to match adjacent concrete and per ACI 563.
    b. Finish formed surfaces to a Surface finish-2.0 (SF-2.0) per ACI 563.

7. Curing: Wet-cure concrete for not less than seven days by leaving forms in place or other means per ACI 563.

B. Installation by Form and Pump Application:

1. The contractor shall familiarize themselves with ACI RAP-5 “Surface Repair Using Form-and-Pump Techniques”.
2. Forming:

a. Provide forms as necessary to confine patch to required shape.
b. Design and construct forms to resist pumping pressure in addition to weight of wet concrete. Seal joints and seams in forms and where forms abut existing concrete.

3. Pretreatment: Apply epoxy-modified, cementitious bonding and anticorrosion agent or epoxy bonding agent to concrete substrate.
4. General Placement: Place concrete according to ACI 563 and as specified in this article.

a. Pump concrete into place from bottom to top, releasing air from forms as repair material is introduced. When formed space is full, close air vents and pressurize to a minimum of 14 psi.
b. Consolidate concrete according to ACI 563.

5. Finish formed surfaces to a Surface finish-2.0 (SF-2.0) per ACI 563.
6. Curing: Wet-cure concrete for not less than seven days by leaving forms in place or other means per ACI 563.

3.8 EPOXY CRACK INJECTION

A. Follow ACI 503.7 “Specification for Crack Repair by Epoxy Injection”.

3.9 FIELD QUALITY CONTROL

A. Testing Agency: On behalf of the Owner, A-E will engage a qualified testing agency to perform tests and inspections.

B. Perform the following tests and inspections:

1. Packaged, Cementitious Repair Material: Three randomly selected sets of samples for each type of material required, tested according to ASTM C928.
2. Job-Mixed Patching Mortar: Three randomly selected sets of samples for each type of mortar required, tested for compressive strength according to ASTM C109.
3. Concrete: As specified in ACI 563.

a. Tests shall be randomly selected once per day or for every 50 cu/yd of concrete.

4. Bond strength verification: Per ICRI 210.3, “Guide to Using In-Situ Tensile Pull-Off Test to Evaluate Bond of Concrete Surface Materials” or ASTM C1583 “Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method).

a. A minimum of three tests for each repair material and concrete mix used in a form-and-pour or form-and-pump application.

5. Epoxy Crack Injection: Core-drilled samples to verify proper installation.

a. Testing Frequency: One sample for each 100 feet of crack injected.
b. Core locations shall avoid reinforcement and other embedded items.
c. Where samples are taken, refill holes with epoxy mortar.

C. Product will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

E. Manufacturers Field Service: Engage manufacturers' factory-authorized service representatives for consultation and Project-site inspection and to provide on-site assistance when requested by Engineer.

1. Have manufacturers' factory-authorized service representatives perform the following number of Project-site inspections to observe progress and quality of the Work, distributed over the period of product installation, regardless of on-site assistance requested by Engineer:

a. Bonding-Agent and Repair Material Installation: Two inspections.
b. Crack-Injection-Adhesive Preparation and Installation: One inspection.

END OF SECTION 030130

SECTION 042000

UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Clay masonry units.
2. Reinforcement.
3. Embedded flashing.
4. Mortar and grout mixes.

B. Products Installed, but Not Furnished, under This Section:

1. Steel lintels in unit masonry.
2. Cavity wall insulation adhered to masonry backup.

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Exposed: Weather-exposed side of a constructed wall.

C. Reinforced Masonry: Masonry containing reinforcing steel within grouted cells.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of specified product.

B. Shop Drawings:

1. Masonry Units: Indicate sizes, profiles, coursing, and locations of special shapes.
2. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.

C. Samples for Initial Selection:

1. Colored Mortar: Full range of manufacturer's standard colors.

D. Samples for Verification: For each type and color of the following:

1. Colored mortar.

1.4 INFORMATIONAL SUBMITTALS

A. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.

1. Submittal is for information only. Receipt of list does not constitute approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.

B. Material Certificates: For each type of the following:

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 in accordance with ASTM C67/C67M.
d. For masonry units , include data and calculations establishing average net-area compressive strength of units.

2. Cementitious materials. Include name of manufacturer, brand name, and type.
3. Mortar admixtures.
4. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
5. Grout mixes. Include description of type and proportions of ingredients.
6. Reinforcing bars.
7. Joint reinforcement.
8. Anchors, ties, and metal accessories.

C. 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 in accordance with ASTM C109/C109M for compressive strength, ASTM C1506 for water retention, and ASTM C91/C91M for air content.
2. Include test reports, in accordance with ASTM C1019, for grout mixes required to comply with compressive strength requirement.

D. Qualification Statements: For testing agency.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: All masonry flashing installers must complete the International Masonry Institute Flashing Upgrade training course.

B. Testing Agency: Qualified in accordance with ASTM C1093 for testing indicated.

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. Store preblended, dry mortar mix in delivery containers on elevated platforms 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 FIELD 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.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Provide unit masonry that develops indicated net-area compressive strengths at 28 days.

1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) in accordance with TMS 402/602.
2. Determine net-area compressive strength of masonry by testing masonry prisms in accordance with ASTM C1314.

2.2 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 402/602, 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. Do not use units where such defects are exposed in the completed Work and will be within 20 ft. vertically and horizontally of a walking surface .

C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.

1. Where fire-resistance-rated construction is indicated, units are listed by UL or a qualified testing agency acceptable to authorities having jurisdiction.

2.3 CONCRETE MASONRY UNITS

A. General: 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. Provide square-edged units for outside corners unless otherwise indicated.

B. CMUs: ASTM C90, normal weight .

1. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.

C. Concrete Masonry Unit Admixtures:

1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested in accordance with ASTM E514/E514M as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive, with test period extended to 24

hours, will show no visible water or leaks on the back of test specimen.

a. Location: For exposed units .

2.4 CLAY MASONRY UNITS

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 requiring brick of size, form, color, and texture on exposed surfaces that cannot be produced by sawing .

2.5 MORTAR AND GROUT MATERIALS

A. General: Provide mortar and grout materials to achieve performance requirements as specified in mortar and grout mixes.

B. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

1. Alkali content will not be more than 0.1 percent when tested in accordance with ASTM C114.

C. Hydrated Lime: ASTM C207, Type S.

D. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

E. Colored Mortar: Packaged blend made from portland cement-lime mix and mortar pigments, all complying with specified requirements, and containing no other ingredients.

1. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors.
2. Pigments do not exceed 10 percent of portland cement by weight.

F. Aggregate for Mortar: ASTM C144.

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.

G. Aggregate for Grout: ASTM C404.

H. Water: Potable.

2.6 REINFORCEMENT

A. Uncoated-Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60.

B. Masonry-Joint Reinforcement: ASTM A951/A951M.

1. Interior Walls: Mill- galvanized carbon steel.
2. Exterior Walls: Hot-dip galvanized carbon steel.
3. Wire Size for Side Rods: 0.148-inch diameter.
4. Wire Size for Cross Rods: 0.148-inch diameter.
5. Wire Size for Veneer Ties: 0.148-inch 0.187-inch diameter.
6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
7. Provide in lengths of not less than 10 ft., with prefabricated corner and tee units .

C. Masonry-Joint Reinforcement for Veneers Anchored with Seismic Masonry-Veneer Anchors: Single 0.187-inch- diameter, hot-dip galvanized carbon steel continuous wire.

2.7 TIES AND ANCHORS

A. General: Ties and anchors extend at least 1-1/2 inches into veneer but with at least a 5/8-inch cover on outside face.

B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

1. Mill-Galvanized, Carbon-Steel Wire: ASTM A1064/A1064M, with ASTM A641/A641M, Class 1 coating.
2. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A1064/A1064M, with ASTM A153/A153M, Class B coating.
3. Stainless Steel Wire: ASTM A580/A580M, Type 304 .
4. Steel Sheet, Galvanized after Fabrication: ASTM A1008/A1008M, Commercial Steel, with ASTM A153/A153M, Class B coating.

C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches wide.

1. Z-shaped ties with ends bent 90 degrees to provide hooks not less than 2 inches long for masonry constructed from solid units.
2. Where wythes do not align , use adjustable ties with pintle-and-eye connections having a maximum adjustment of 1-1/4 inches.
3. Wire: Fabricate from 1/4-inch- diameter, hot-dip galvanized steel wire. Mill-galvanized wire ties may be used in interior walls unless otherwise indicated.

D. Partition Top Anchors: 0.105-inch- thick metal plate with a 3/8-inch- diameter metal rod 6

inches long welded to plate and with closed-end plastic tube fitted over rod that allows rod to move in and out of tube. Fabricate from steel, hot-dip galvanized after fabrication .

E. Rigid Anchors: Fabricate from steel bars 1-1/2 inches wide by 1/4 inch thick by 24 inches long, with ends turned up 2 inches or with cross pins unless otherwise indicated .

1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A153/A153M .

F. Adjustable Masonry-Veneer Anchors:

1. General: Provide anchors that allow vertical adjustment but resist a 100 lbf load in both tension and compression perpendicular to plane of wall without deforming or developing play in excess of 1/16 inch.
2. Fabricate sheet metal anchor sections and other sheet metal parts from 0.1084-inch- thick steel sheet, galvanized after fabrication .
3. Fabricate wire ties from 0.25-inch- diameter, hot-dip galvanized-steel wire unless otherwise indicated.
4. Contractor's Option: Unless otherwise indicated, provide any of the adjustable masonry-veneer anchors specified.

2.8 EMBEDDED FLASHING

A. Flexible Flashing: Where flashing is fully concealed in masonry, use one of the following unless otherwise indicated:

B. Preformed Corners, End Dams, and Seaming Shapes for Flashing: Flashing manufacturer's standard products or products recommended by flashing manufacturer for waterproofing openings.

C. 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.

D. Termination Bars for Flexible Flashing:

1. Material: Aluminum
2. Size: 1/8 by 1 inch .

E. Termination Bars for Flexible Flashing, Flanged:

1. Material: Stainless steel sheet 0.019 by 1-1/2 inches .
2. Fabricate with a 3/8-inch flange at top and bottom .

2.9 ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene urethane or PVC .

B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D2000, 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 felt complying with ASTM D226/D226M, Type I (No. 15 asphalt felt).

D. Weep/Cavity Vents: Use one of the following unless otherwise indicated:

1. Rectangular Plastic Weep/Vent Tubing: Clear butyrate, 3/8 by 1-1/2 by 3-1/2 inches long.

E. Masonry Cell Fill: Foamed-in-place masonry cell fill .

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 portland cement-lime mortar unless otherwise indicated.
3. For exterior masonry, use portland cement-lime mortar.
4. 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 C270, 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 masonry below grade or in contact with earth, use Type M.
2. For reinforced masonry, use Type S .
3. For mortar parge coats, use Type S or Type N .
4. For interior nonload-bearing partitions, Type O may be used instead of Type N.

D. Grout for Unit Masonry: Comply with ASTM C476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 402/602 for dimensions of grout spaces and pour height.
2. Proportion grout in accordance with ASTM C476, Table 1 or paragraph 4.2.1.2 for specified 28-day compressive strength indicated, but not less than 2000 psi .
3. Provide grout with a slump of 8 to 11 inches as measured in accordance with ASTM C143/C143M.

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 the Work.
2. Verify that foundations are within tolerances specified.
3. Verify that reinforcing dowels are properly placed.
4. Verify that substrates are free of substances that impair mortar bond.

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 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. 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 in accordance with ASTM C67/C67M. 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. Joints:

1. For 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.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
4. 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.
5. 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.

3.4 INSTALLATION OF 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 Exposed Masonry: 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 stepping back units in each course from those in course below; do not tooth. 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. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

H. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

I. Build nonload-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.

1. Install compressible filler in joint between top of partition and underside of structure above.
2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of hollow CMUs solidly around plastic tubes of anchors, and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o.c. unless otherwise indicated.
3. Wedge nonload-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.
4. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 078443 "Joint Firestopping."

3.5 INSTALLATION OF MORTAR BEDDING AND JOINTING

A. General: Lay masonry units as follows:

1. Bed face shells in mortar and make head joints of depth equal to bed joints.
2. Bed webs in mortar in all courses of piers, columns, and pilasters.
3. Bed webs in mortar in grouted masonry, including starting course on footings.
4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
5. Fully bed units and fill cells with mortar at anchors and ties as needed to fully embed anchors and ties in mortar.

B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

C. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

D. Cut joints flush where indicated to receive air barriers unless otherwise indicated.

3.6 INSTALLATION OF COMPOSITE MASONRY

A. Bond wythes of composite masonry together using one of the following methods :

1. Individual Wire Ties: Provide ties as indicated installed in horizontal joints, but not less than one metal tie for 2.67 sq. ft. of wall area spaced not to exceed 16 inches o.c. horizontally and 16 inches o.c. vertically. Stagger ties in alternate courses. Provide additional ties within 12 inches of openings and space not more than 36 inches apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more

than 24 inches o.c. vertically.

2. Masonry-Joint Reinforcement: Installed in horizontal mortar joints.

    a. Where bed joints of both wythes align, use ladder-type reinforcement extending across both wythes .

3. Header Bonding: Provide masonry unit headers extending not less than 3 inches into each wythe. Space headers not more than 8 inches clear horizontally and 16 inches clear vertically.

B. Corners: Provide interlocking masonry unit bond in each wythe and course at corners unless otherwise indicated.

1. Provide continuity with masonry-joint reinforcement at corners by using prefabricated L-shaped units as well as masonry bonding.

C. Intersecting and Abutting Walls: Unless vertical expansion or control joints are indicated at juncture, bond walls together as follows:

1. Provide individual wire ties not more than 16 inches o.c.
2. Provide rigid metal anchors not more than 24 inches o.c. If used with hollow masonry units, embed ends in mortar-filled cores.

3.7 INSTALLATION OF ANCHORED MASONRY VENEERS

A. Masonry-veneer anchors to comply with the following requirements:

1. Fasten screw-attached anchors to concrete and masonry backup with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.
2. Embed connector sections and continuous wire in masonry joints.
3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
4. Space anchors as indicated, but not more than 18 inches o.c. vertically and 24 inches o.c. horizontally, with not less than one anchor for each 2 sq. ft. of wall area. Install additional anchors within 12 inches of openings and at intervals, not exceeding 8 inches, around perimeter.

3.8 INSTALLATION OF MASONRY-JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.

1. Space reinforcement not more than 16 inches o.c.
2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement .

B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

C. Provide continuity at corners by using prefabricated L-shaped units.

D. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.9 INSTALLATION OF CONTROL AND EXPANSION JOINTS

A. General: Install control- and expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

B. Indicate locations of joints on Drawings. Form control joints in concrete masonry as follows:

1. Fit bond-breaker strips into hollow contour in ends of CMUs on one side of control joint. Fill resultant core with grout, and rake out joints in exposed faces for application of sealant.
2. Install preformed control-joint gaskets designed to fit standard sash block.
3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar, or rake out joint for application of sealant.
4. Install temporary foam-plastic filler in head joints, and remove filler when unit masonry is complete for application of sealant.

C. Form expansion joints in brick as follows:

1. Build flanges of metal expansion strips into masonry. Lap each joint 4 inches in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints if any.
2. Build flanges of factory-fabricated, expansion-joint units into masonry.
3. Build in compressible joint fillers where indicated.

3.10 INSTALLATION OF EMBEDDED FLASHING

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

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, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer .
2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 8 inches , and through inner wythe to within 1/2 inch of the interior face of wall in exposed masonry. Where interior face of wall is to receive

furring or framing, carry flashing completely through inner wythe and turn flashing up approximately 2 inches on interior face.

3. Install metal drip edges with sawtooth sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements in Section 079200 "Joint Sealants" for application indicated.
4. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.

C. Install reglets and nailers for flashing and other related construction where they are indicated to be built into masonry.

3.11 INSTALLATION OF WEEP/CAVITY VENTS

A. Install weep holes in exterior wythes and veneers in head joints of first course of masonry immediately above embedded flashing.

1. Use specified weep/cavity vents to form weep holes.
2. Space weep holes 24 inches o.c. unless otherwise indicated.
3. Cover cavity side of weep holes with plastic insect screening at cavities insulated with loose-fill insulation.
4. Trim wicking material flush with outside face of wall after mortar has set.

B. Place pea gravel in cavities as soon as practical to a height equal to height of first course above top of flashing, but not less than 2 inches, to maintain drainage.

1. Fill cavities full height by placing pea gravel in cavities as masonry is laid, so that at any point, masonry does not extend more than 24 inches above top of pea gravel.

C. Cavity Drainage Material: Place in cavities to comply with configuration requirements for cavity drainage material in "Accessories" Article.

D. Install cavity vents in head joints in exterior wythes at spacing indicated. Use specified weep/cavity vent to form cavity vents.

1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

3.12 INSTALLATION OF REIINFORCED UNIT MASONRY

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
2. Do not remove forms and shores until reinforced masonry members have hardened

sufficiently to carry their own weight and that of other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in TMS 402/602.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in TMS 402/602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than 60 inches .

3.13 INSTALLATION OF MASONRY CELL FILL

A. Loose-Fill Insulation: Pour into cavities to fill void spaces. Maintain inspection ports to show presence of fill at extremities of each pour area. Close the ports after filling has been confirmed. Limit the fall of fill to one story high, but not more than 20 ft..

B. Foamed-in-Place Masonry Cell Fill: Drill holes in mortar bed joints at spacing as indicated in writing by foamed-in-place masonry fill manufacturer, and inject foam to fill masonry cell voids.

3.14 PARGING

A. Parge exterior faces of below-grade masonry walls, where indicated, in two uniform coats to a total thickness of 3/4 inch. Dampen wall before applying first coat, and scarify first coat to ensure full bond to subsequent coat.

B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot. Form a wash at top of parging and a cove at bottom.

C. Damp-cure parging for at least 24 hours and protect parging until cured.

3.15 REPAIRING AND POINTING

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.

3.16 CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

B. 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 brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
6. Clean concrete masonry by applicable cleaning methods indicated in TEK 08-04A.
7. Clean masonry with a proprietary acidic masonry cleaner applied in accordance with manufacturer's written instructions.

3.17 MASONRY WASTE DISPOSAL

A. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042000

SECTION 055000

METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Slotted channel framing materials.
2. Miscellaneous framing and supports.
3. Metal ladders.
4. Metal bollards.

B. Products Furnished, but Not Installed, under This Section:

1. Loose steel lintels.

C. Related Requirements:

1. Section 042000 "Unit Masonry" for installing loose lintels, anchor bolts, and other items built into unit masonry.

1.2 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide for the following:

1. Miscellaneous Framing and Supports: For applications where framing and supports are

not specified in other Sections.
2. Steel Shapes: For supporting elevator door sills.
3. Metal ladders.
4. Metal bollards.

C. Delegated Design Submittals: For metal ladders, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

A. Mill Certificates: Signed by stainless steel manufacturers, certifying that products furnished comply with requirements.

B. Welding certificates.

C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

D. Delegated design engineer qualifications.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel in accordance with the following welding codes:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.6 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls, floor slabs, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design metal ladders.

B. Structural Performance of Metal Ladders: Ladders are to withstand the effects of loads and stresses within limits and under conditions specified in ANSI/ASC A14.3.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 METAL MATERIALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

C. Stainless Steel Sheet, Strip, and Plate: ASTM A240/A240M or ASTM A666, Type 304.

D. Stainless Steel Bars and Shapes: ASTM A276/A276M, Type 304.

E. Steel Tubing: ASTM A500/A500M, cold-formed steel tubing.

F. Steel Pipe: ASTM A53/A53M, Standard Weight (Schedule 40) unless otherwise indicated.

G. Aluminum Extrusions: ASTM B221, Alloy 6063-T6.

2.3 SLOTTED CHANNEL FRAMING MATERIALS

A. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.

1. Size of Channels: 1-5/8 by 1-5/8 inches or As indicated.
2. Galvanized Steel: ASTM A653/A653M, commercial steel, Type B, with G90 coating; 0.079-inch nominal thickness.
3. Cold-Rolled Steel: ASTM A1008/A1008M, commercial steel, Type B; 0.0677-inch minimum thickness; unfinished.

B. Slotted Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches by length indicated with anchor straps or studs not less than 3 inches long at not more than 8 inches o.c. Provide with temporary filler and tee-head bolts, complete with washers and nuts, all zinc-plated to comply with ASTM B633, Class Fe/Zn 5, as needed for fastening to inserts.

2.4 FASTENERS

A. Fasteners, General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

1. Provide stainless steel fasteners for fastening aluminum.

B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A; with hex nuts, ASTM A563; and, where indicated, flat washers.

C. Anchors, General: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.

D. Post-Installed Anchors: chemical anchors.

1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated.
2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.

2.5 MISCELLANEOUS MATERIALS

A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

1. Use primer that contains pigments that make it easily distinguishable from zinc-rich primer.

B. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.

C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

E. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.6 FABRICATION OF METAL, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.

G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.7 MISCELLANEOUS FRAMING AND SUPPORTS

A. Miscellaneous Framing and Supports, General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

1. Fabricate units from slotted channel framing where indicated.
2. Furnish inserts for units installed after concrete is placed.

C. Galvanize miscellaneous framing and supports where indicated.

D. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

2.8 METAL BOLLARDS

A. Metal Bollards: Fabricate metal bollards from Schedule 80 steel pipe.

1. Metal Bollard Cap: 1/4-inch- thick, steel plate with sloped top.

B. Metal Bollard Baseplate: Fabricate bollards with 3/8-inch- thick, steel baseplates for bolting to concrete slab. Drill baseplates at all four corners for 3/4-inch anchor bolts.

1. Where bollards are to be anchored to sloping concrete slabs, angle baseplates for plumb alignment of bollards.

C. Galvanize and prime metal bollards and plate.

2.9 LOOSE STEEL LINTELS

A. Loose Steel Lintels: Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.

1. Size loose lintels to provide bearing length at each side of openings equal to one-twelfth of clear span, but not less than 8 inches unless otherwise indicated.

B. Galvanize and prime loose steel lintels located in exterior walls.

2.10 GENERAL FINISH REQUIREMENTS

A. Finish metal fabrications after assembly.

B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.11 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.

1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean galvanized surfaces of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.

C. Shop prime iron and steel items unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.

1. Shop prime with universal shop primer or primers specified in Section 099113 "Exterior Painting" Section 099123 "Interior Painting" unless zinc-rich primer is indicated.

D. Preparation for Shop Priming: Prepare surfaces to comply with SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial

Blast Cleaning."

3. Galvanized-Steel Items: SSPC-SP 16, "Brush-off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals."

E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 - EXECUTION

3.1 INSTALLATION OF METAL FABRICATIONS, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:

3.2 INSTALLATION OF MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported,

including manufacturers' written instructions and requirements indicated on Shop Drawings.

B. Steel Girders: Support girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.

1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installation of Loose Bearing and Leveling Plates" Article.

3.3 INSTALLATION OF METAL BOLLARDS

A. Fill metal-capped bollards solidly with concrete and allow concrete to cure seven days before installing.

1. Do not fill removable bollards with concrete.

B. Anchor bollards to existing construction with anchor bolts. Provide four 3/4-inch bolts at each bollard unless otherwise indicated.

1. Embed anchor bolts at least 4 inches in concrete.

C. Fill bollards solidly with concrete, mounding top surface to shed water.

1. Do not fill removable bollards with concrete.

3.4 REPAIRS

A. Touchup Painting:

1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

a. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

2. Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 099113 "Exterior Painting." Section 099123 "Interior Painting."

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas; repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION 055000

SECTION 055213

PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Steel railings.

1.2 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Manufacturer's product lines of mechanically connected railings.
2. Fasteners.
3. Post-installed anchors.
4. Handrail brackets.
5. Shop primer.
6. Nonshrink, nonmetallic grout.
7. Anchoring cement.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

C. Delegated Design Submittal: For railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For delegated design professional engineer.

B. Welding certificates.

C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

D. Product Test Reports: For tests on railings performed by a qualified testing agency, in accordance with ASTM E894 and ASTM E935.

E. Research Reports: For post-installed anchors, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel in accordance with the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect mechanical finishes on exposed surfaces of railings from damage by applying a strippable, temporary protective covering before shipping.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design railings, including attachment to building construction.

B. Structural Performance: Railings, including attachment to building construction, withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Handrails and Top Rails of Guards:

a. Uniform load of 50 lbf/ ft. applied in any direction.
b. Concentrated load of 200 lbf applied in any direction.
c. Uniform and concentrated loads need not be assumed to act concurrently.

2. Infill of Guards:

a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft..
b. Infill load and other loads need not be assumed to act concurrently.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

1. Provide type of bracket with predrilled hole for exposed bolt anchorage and that provides 1-1/2-inch clearance from inside face of handrail to finished wall surface.

2.3 STEEL RAILINGS (Railing)

A. Tubing: ASTM A500/A500M (cold formed).

B. Pipe: ASTM A53/A53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.

1. Provide galvanized finish for exterior installations and where indicated.

C. Plates, Shapes, and Bars: ASTM A36/A36M.

D. Cast Iron Fittings: Either gray iron, ASTM A48/A48M, or malleable iron, ASTM A47/A47M, unless otherwise indicated.

2.4 FASTENERS

A. Fastener Materials:

1. Ungalvanized-Steel Railing Components: Plated steel fasteners complying with ASTM F1941/F1941M, Class Fe/Zn 5 for zinc coating.
2. Hot-Dip Galvanized Railing Components: Type 304 stainless steel or hot-dip zinc-coated steel fasteners complying with ASTM A153/A153M or ASTM F2329/F2329M for zinc coating.
3. Finish exposed fasteners to match appearance, including color and texture, of railings.

B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction and capable of withstanding design loads.

C. Fasteners for Interconnecting Railing Components:

1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless otherwise indicated.
2. Provide tamper-resistant flat-head machine screws for exposed fasteners unless otherwise indicated.

D. Post-Installed Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193 or ICC-ES AC308.

1. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated.
2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.

2.5 MISCELLANEOUS MATERIALS

A. Handrail Brackets: Cast iron center of handrail 2-1/2 inches from face of railing or wall.

B. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for metal alloy welded.

C. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

D. Bituminous Paint: Cold-applied asphalt emulsion, complying with ASTM D1187/D1187M.

E. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout, complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

F. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.

1. Water-Resistant Product: At exterior locations, provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.6 FABRICATION

A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage , but not less than that required to support structural loads.

B. Shop assemble railings to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations.

1. Clearly mark units for reassembly and coordinated installation.
2. Use connections that maintain structural value of joined pieces.

C. Cut, drill, and punch metals cleanly and accurately.

1. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated.
2. Remove sharp or rough areas on exposed surfaces.

D. Form work true to line and level with accurate angles and surfaces.

E. Fabricate connections that are exposed to weather in a manner that excludes water.

1. Provide weep holes where water may accumulate.
2. Locate weep holes in inconspicuous locations.

F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.

G. Connections: Fabricate railings with welded connections unless otherwise indicated.

H. Gates: Form gates from steel tube of same size and shape as top rails, with infill to match guards. Provide with spring hinges for fastening to wall and overlapping stop with rubber bumper to prevent gate from opening in direction opposite egress.

I. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove flux immediately.
4. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #1 welds; ornamental quality with no evidence of a welded joint.

J. Welded Connections for Aluminum Pipe: Fabricate railings to interconnect members with concealed internal welds that eliminate surface grinding, using manufacturer's standard system of sleeve and socket fittings.

K. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

1. Fabricate splice joints for field connection, using an epoxy structural adhesive, if this is manufacturer's standard splicing method.

L. Form changes in direction as follows:

1. As detailed.
2. By bending or by inserting prefabricated elbow fittings.
3. By bending to smallest radius that will not result in distortion of railing member.

M. Bend members in jigs to produce uniform curvature for each configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

N. Close exposed ends of hollow railing members with prefabricated cap and end fittings of same metal and finish as railings.

O. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.

P. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.

1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers or other means to transfer loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.

Q. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work.

1. Fabricate anchorage devices capable of withstanding loads imposed by railings.
2. Coordinate anchorage devices with supporting structure.

R. For railing posts set in concrete, provide stainless steel sleeves not less than 6 inches long with inside dimensions not less than 1/2 inch greater than outside dimensions of post, with metal plate forming bottom closure.

S. For removable railing posts, fabricate slip-fit sockets from stainless steel tube or pipe whose ID is sized for a close fit with posts; limit movement of post without lateral load, measured at top, to not more than one-fortieth of post height.

1. Provide socket covers designed and fabricated to resist being dislodged.
2. Provide chain with eye, snap hook, and staple across gaps formed by removable railing sections at locations indicated. Fabricate from same metal as railings.

T. Toe Boards: Where indicated, provide toe boards at railings around openings and at edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.

2.7 STEEL AND IRON FINISHES

A. For nongalvanized-steel railings, provide nongalvanized ferrous-metal fittings, brackets, fasteners, and sleeves; however, hot-dip galvanize anchors to be embedded in exterior concrete or masonry.

B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 6/NACE No. 3.

C. Primer Application: Apply shop primer to prepared surfaces of railings unless otherwise indicated. Comply with requirements in SSPC-PA 1 for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.

1. Shop prime uncoated railings with universal shop primer unless zinc-rich primer is indicated.
2. Do not apply primer to galvanized surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements are clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.2 INSTALLATION, GENERAL

A. Perform cutting, drilling, and fitting required for installing railings.

1. Fit exposed connections together to form tight, hairline joints.
2. Install railings level, plumb, square, true to line; without distortion, warp, or rack.
3. Set railings accurately in location, alignment, and elevation; measured from established lines and levels.
4. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
5. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
6. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.

B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1. Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

C. Adjust railings before anchoring to ensure matching alignment at abutting joints.

D. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.3 RAILING CONNECTIONS

A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws, using plastic cement filler colored to match finish of railings.

B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article, whether welding is performed in the shop or in the field.

C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve, extending 2 inches beyond joint on either side; fasten internal sleeve securely to one side; and locate joint within 6 inches of post.

3.4 ANCHORING POSTS

A. Use stainless steel pipe sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.

B. Form or core-drill holes not less than 5 inches deep and 3/4 inch larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.

C. Leave anchorage joint exposed with 1/8-inch buildup, sloped away from post.

D. Anchor posts to metal surfaces with flanges, angle type, or floor type, as required by conditions, connected to posts and to metal supporting members as follows:

1. For steel railings, weld flanges to post and bolt to metal supporting surfaces.

3.5 ATTACHING RAILINGS

A. Anchor railing ends to concrete and masonry with sleeves concealed within railing ends and anchored to wall construction with anchors and bolts.

B. Anchor railing ends to metal surfaces with flanges bolted to metal surfaces and welded to railing ends.

C. Attach handrails to walls with wall brackets . Provide brackets with 1-1/2-inch clearance from inside face of handrail and finished wall surface.

1. Use type of bracket with predrilled hole for exposed bolt anchorage.
2. Locate brackets as indicated or, if not indicated, at spacing required to support structural

loads.

D. Secure wall brackets and railing end flanges to building construction as follows:

1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
2. For hollow masonry anchorage, use toggle bolts.
3. For steel-framed partitions, use hanger or lag bolts set into fire-retardant-treated wood backing between studs. Coordinate with stud installation to locate backing members.
4. For steel-framed partitions, fasten brackets directly to steel framing or concealed steel reinforcements, using self-tapping screws of size and type required to support structural loads.
5. For steel-framed partitions, use toggle bolts installed through flanges of steel framing or through concealed steel reinforcements.

E. Install railing gates level, plumb, and secure for full opening without interference.

1. Attach hardware using tamper-resistant or concealed means.
2. Adjust hardware for smooth operation.

3.6 CLEANING

A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A780/A780M.

3.7 PROTECTION

A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

B. Restore finishes damaged during installation and construction period, so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 055213

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wood products.
2. Wood-preservative-treated lumber.
3. Fire-retardant-treated lumber.
4. Miscellaneous lumber.
5. Plywood backing panels.

B. Related Requirements:

1. Section 061600 "Sheathing" for sheathing, subflooring, and underlayment.
2. Section 064023 "Interior Architectural Woodwork" for interior wood stairs and railings.

1.2 DEFINITIONS

A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.

B. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.

C. SBX: An inorganic boron used to prevent termites and fungal decay.

D. Lumber grading agencies, and abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NLGA: National Lumber Grades Authority.
3. RIS: Redwood Inspection Service.
4. SPIB: The Southern Pine Inspection Bureau.
5. WCLIB: West Coast Lumber Inspection Bureau.
6. WWPA: Western Wood Products Association.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of 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 in accordance with ASTM D5664.
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.

1.4 INFORMATIONAL SUBMITTALS

A. Material Certificates:

1. For preservative-treated wood products. Indicate type of preservative used and net amount of preservative retained.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products 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

A. Lumber: Comply with DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber 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. 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 wood products.

B. Maximum Moisture Content:

1. Boards: 15 percent.
2. Dimension Lumber: 15 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Wood-Preservative-Treated Lumber by Pressure Process: AWPA U1, use categories as follows:

1. UC3B, Above Ground, Exposed (All Other Commodity Specifications): Uncoated wood products in exterior construction not in contact with ground, exposed to all weather cycles including prolonged wetting. Include the following items:

    a. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing as indicated on the drawings.

2. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
3. For exposed items indicated to receive a stained or natural finish, chemical formulations are not to require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
4. After treatment, redry boards to 19 percent maximum moisture content.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that 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.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing at locations indicated on drawings.
2. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED LUMBER

A. General: Where fire-retardant-treated materials are indicated, materials are to comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested in accordance with ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 ft. beyond the centerline of the burners at any time during the test.

1. Treatment is not to promote corrosion of metal fasteners.
2. Interior Type A: Treated materials are to have a moisture content of 28 percent or less when tested in accordance with ASTM D3201/D3201M at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry lumber after treatment to maximum moisture content of 19 percent. Kiln-dry plywood after treatment to maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency and other information required by authorities having jurisdiction.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

E. Application: Treat items indicated on Drawings, and the following:

1. Framing for raised platforms.
2. Concealed blocking.

2.4 MISCELLANEOUS LUMBER

A. Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.
4. Cants.
5. Furring.
6. Utility shelving.

B. Dimension Lumber Items:

1. Grade: Construction or No. 2.
2. Species: Any species.

C. Utility Shelving:

1. Lumber Moisture Content: 15 percent maximum.
2. Species and Grade:

a. Eastern white pine, Idaho white, lodgepole, ponderosa, or sugar pine; Premium or No. 2 Common (Sterling) grade; NeLMA, NLGA, WCLIB, or WWPA.
b. Mixed southern pine or southern pine; No. 1 grade; SPIB.

D. Concealed Boards:

1. Lumber Moisture Content: 15 percent maximum.
2. Species and Grade: Any of the following:

a. Mixed southern pine or southern pine; No. 3 grade; SPIB.
b. Hem-fir or hem-fir (north); Standard or No. 3 Common grade; NLGA, WCLIB, or WWPA.
c. Eastern softwoods; No. 3 Common grade; NeLMA.
d. Northern species; No. 3 Common grade; NLGA.

E. Roofing Nailers: Structural- or No. 2-grade lumber or better; kiln-dried Douglas fir, southern

pine, or wood having similar decay-resistant properties.

F. Wood Blocking: 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.

2.5 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: Plywood, DOC PS 1.

1. Grade: Exterior, A-C.
2. Thickness: As indicated on the drawings or, if not indicated, not less than 3/4-inch nominal thickness.

2.6 FASTENERS

A. General: Fasteners are to be of size and type indicated and comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches into wood substrate.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M or ASTM F2329.

B. Nails, Brads, and Staples: ASTM F1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

2.7 ACCESSORIES

A. Sill-Sealer Gasket:

1. Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch nominal thickness, compressible to 1/32 inch; selected from manufacturer's standard widths to suit width of sill members indicated.

B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable 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.

1. Compound Material: Butyl rubber or rubberized asphalt.

PART 3 - EXECUTION

3.1 INSTALLATION OF ROUGH CARPENTRY, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

C. Plywood Backing Panels: Install 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. Do not splice structural members between supports unless otherwise indicated.

E. 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.

F. Sort and select lumber so that natural characteristics do 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.

G. Field Application of Preservative Treatment: Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron (SBX) for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

H. Flexible Flashing: Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.10.1, "Fastening Schedule," in ICC's "International Building Code" (IBC).
2. ICC-ES evaluation report for fastener.

J. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 INSTALLATION OF ROOFING NAILERS

A. Install roofing nailers where indicated on Drawings and where required for 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. Securely attach roofing nailers to substrate to resist the designed outward and upward wind loads indicated on Drawings and in accordance with SPRI ED-1, Tables A6 and A7.

3.3 INSTALLATION OF WOOD BLOCKING

A. Install wood blocking where indicated on Drawings and where required for 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. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.4 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.

END OF SECTION 061000

SECTION 072726

FLUID-APPLIED MEMBRANE AIR BARRIERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. High-build air barriers, vapor retarding.

1.2 DEFINITIONS

A. Air-Barrier Accessory: A transitional component of the air barrier that provides continuity.

B. Air-Barrier Assembly: The collection of air-barrier materials and accessories applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

C. Air-Barrier Material: A primary element that provides a continuous barrier to the movement of air.

1.3 ACTION SUBMITTALS

A. Product Data: Include manufacturer's written instructions for evaluating, preparing, and treating each substrate; technical data; dry film thickness; and tested physical and performance properties of products.

1. High-build air barriers, vapor retarding.

B. Shop Drawings: For air-barrier assemblies.

1. Show locations and extent of air-barrier materials, accessories, and assemblies specific to Project conditions.
2. Include details for substrate joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each air-barrier assembly, for tests performed by a qualified testing

agency.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Remove and replace liquid materials that cannot be applied within their stated shelf life.

B. Protect stored materials from direct sunlight.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended in writing by air-barrier manufacturer.

1. Protect substrates from environmental conditions that affect air-barrier performance.
2. Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain primary air-barrier materials and air-barrier accessories from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Air-Barrier Performance: Air-barrier assembly and seals with adjacent construction to be capable of performing as a continuous air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air-barrier assemblies to be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations , tie-ins to installed waterproofing, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.

B. Air-Barrier Assembly Air Leakage: Maximum 0.04 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft., when tested in accordance with ASTM E2357.

C. Air Permeance: Maximum 0.004 cfm/sq. ft. of surface area at 1.57 lbf/sq. ft. pressure difference; ASTM E2178.

D. Ultimate Elongation: Minimum 500 percent; ASTM D412, Die C.

E. Adhesion to Substrate: Minimum 16 lbf/sq. in. when tested in accordance with ASTM D4541.

F. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.

G. UV Resistance: Can be exposed to sunlight for 90 days in accordance with manufacturer's written instructions.

2.3 HIGH-BUILD AIR BARRIERS, VAPOR RETARDING

A. High-Build, Vapor-Retarding Air Barrier, Modified Bituminous Type (Weather/Air Barrier): Modified bituminous membrane with an installed dry film thickness, according to manufacturer's written instructions, of35 mils or thicker over smooth, void-free substrates.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Carlisle Construction Materials; Carlisle Companies
b. Henry, a Carlisle Company (formerly Henry Company and Carlisle Coatings & Waterproofing Inc. brands)
c. Tremco Incorporated

B. Vapor Permeance: Maximum 0.1 perm; ASTM E96/E96M, Procedure A, Desiccant Method.

2.4 ACCESSORY MATERIALS

A. Provide primers, transition strips, termination strips, joint reinforcing fabric and strips, joint sealants, counterflashing strips, flashing sheets and metal termination bars, termination mastic, substrate patching materials, adhesives, tapes, foam sealants, lap sealants, and other accessory materials that are recommended in writing by air-barrier manufacturer to produce a complete air-barrier assembly and that are compatible with primary air-barrier material and adjacent construction to which they may seal.

B. Primer: Liquid waterborne primer recommended for substrate by air-barrier material manufacturer.

C. Stainless Steel Sheet: ASTM A240/A240M, Type 304, 0.0187 inch thick, and Series 300 stainless steel fasteners.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other

contaminants.

2. Verify that substrates have cured and aged for minimum time recommended in writing by air-barrier manufacturer.
3. Verify that substrates are visibly dry and free of moisture.
4. Verify that masonry joints are flush and completely filled with mortar.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

A. Clean, prepare, treat, fill, and seal substrate and joints and cracks in substrate in accordance with manufacturer's written instructions and details. Provide clean, dust-free, and dry substrate for air-barrier application.

B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.

C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate-patching material.

E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.

F. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.

G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

3.3 INSTALLATION OF ACCESSORIES

A. Install accessory materials in accordance with air-barrier manufacturer's written instructions and details to form a seal with adjacent construction and ensure continuity of air and water barrier.

1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
2. Install transition strip on roofing membrane or base flashing so that a minimum of 3 inches of coverage is achieved over each substrate.
3. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
4. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.

B. At end of each working day, seal top edge of strips and transition strips to substrate with termination mastic.

C. Apply joint sealants forming part of air-barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

D. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.

E. Seal top of through-wall flashings to air barrier with an additional 6-inch- wide, transition strip.

F. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.

G. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches beyond repaired areas in strip direction.

3.4 INSTALLATION OF PRIMARY AIR-BARRIER MATERIAL

A. Apply air-barrier material to form a seal with strips and transition strips and to achieve a continuous air barrier in accordance with air-barrier manufacturer's written instructions and details. Apply air-barrier material within manufacturer's recommended application temperature ranges.

1. Unless manufacturer recommends in writing against priming, apply primer to substrates at required rate and allow it to dry.
2. Limit priming to areas that will be covered by air-barrier material on same day. Reprime areas exposed for more than 24 hours.
3. Where multiple prime coats are needed to achieve required bond, allow adequate drying time between coats.

B. High-Build Air Barriers: Apply continuous unbroken air-barrier material to substrates according to the following thickness. Apply air-barrier material in full contact around protrusions such as masonry ties.

1. Vapor-Retarding, High-Build Air Barrier: Total dry film thickness as recommended in writing by manufacturer to comply with performance requirements, but not less than 35 mils, applied in one coat.

C. Do not cover air barrier until it has been tested and inspected by testing agency.

D. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.

3.5 CLEANING AND PROTECTION

A. Protect air-barrier system from damage during application and remainder of construction period, in accordance with manufacturer's written instructions.

1. Protect air barrier from exposure to UV light and harmful weather exposure as recommended in writing by manufacturer. If exposed to these conditions for longer than recommended, remove and replace air barrier or install additional, full-thickness, air-barrier application after repairing and preparing the overexposed materials in accordance with air-barrier manufacturer's written instructions.
2. Protect air barrier from contact with incompatible materials and sealants not approved by air-barrier manufacturer.

B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

C. Remove masking materials after installation.

END OF SECTION 072726

SECTION 078413 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Penetration firestopping systems.
2. Penetrations in fire-resistance-rated walls.
3. Penetrations in horizontal assemblies.
4. Exposed penetration firestopping systems.

B. Related Requirements:

1. Section 078443 "Joint Firestopping" for joints in or between fire-resistance-rated construction, at exterior curtain-wall/floor intersections, and in smoke barriers.
2. Section 079200 "Joint Sealants" for non-fire-resistance-rated joint sealants.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: For each penetration firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing and inspecting agency.

1. Engineering Judgments: Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping system, submit illustration, with modifications marked, approved by penetration firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly developed in accordance with current International Firestop Council (IFC) guidelines. Obtain approval of authorities having jurisdiction prior to submittal.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Listed System Designs: For each penetration firestopping system, for tests performed by a qualified testing agency.

1.5 CLOSEOUT SUBMITTALS

A. Installer Certificates: From Installer indicating that penetration firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Entity that has received UL's "Firestop Movement Certification," which demonstrates that manufacturer's firestopping products designated with M-Ratings are based on exposure to cyclic movement and UL 1479 fire test evaluation when tested in accordance with ASTM E3037.

1.7 MOCKUPS

A. Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Build mockup of each penetration firestopping system type required for Project, including supporting construction substrates, attachments, and accessories.
2. Where one penetration firestopping system type may be used for different penetrating items or in different wall or floor constructions, install one assembly for each different combination.
3. Obtain approval of mockups from authorities having jurisdiction before proceeding.
4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations by Change Order.
5. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not install penetration firestopping systems when ambient or substrate temperatures are outside limits permitted by penetration firestopping system manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.

B. Install and cure penetration firestopping system materials in accordance with manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.9 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping systems can be accessed and installed in accordance with specified firestopping system design.

B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate

penetration firestopping systems.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain penetration firestopping systems for each type of opening indicated by a single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics:

1. A qualified testing agency, acceptable to authorities having jurisdiction, will perform penetration firestopping system tests.
2. Test in accordance with testing standards referenced in "Penetration Firestopping Systems" Article. Provide rated systems complying with the following requirements:

a. Penetration firestopping systems installed with products bearing the classification marking of a qualified testing agency.

1) UL in its online directory "Product iQ."

B. Provide components for each penetration firestopping system that, upon curing, do not re-emulsify, dissolve, leach, break down, or otherwise deteriorate over time from exposure to atmospheric moisture, sweating pipes, ponding water, or other forms of moisture characteristic during and after construction.

C. Provide components for each penetration firestopping system that do not contain ethylene glycol.

D. Provide components for each penetration firestopping system that are sufficiently flexible to accommodate movement, such as pipe vibration, water hammer, thermal expansion, and other normal building movement without damage.

E. Provide components for each penetration firestopping system that are appropriately tested for the thickness and type of insulation utilized.

2.3 PENETRATION FIRESTOPPING SYSTEMS

A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems must be compatible with one another, with the substrates forming openings, and with penetrating items if any.

B. Penetrations in Fire-Resistance-Rated Walls: Penetration firestopping systems with ratings

determined in accordance with ASTM E814 or UL 1479.

1. F-Rating: Not less than the fire-resistance rating of the wall penetrated.
2. Membrane Penetrations: Install recessed fixtures such that the required fire resistance will not be reduced.

C. Penetrations in Horizontal Assemblies: Penetration firestopping systems with ratings determined in accordance with ASTM E814 or UL 1479.

1. F-Rating: At least one hour, but not less than the fire-resistance rating of the floor penetrated.
2. T-Rating: At least one hour, but not less than the fire-resistance rating of the floor. The following floor penetrations do not require a T-rating:

    a. Those within the cavity of a wall.
    b. Floor, tub, or shower drains within a concealed space.
    c. 4-inch or smaller metal conduit penetrating directly into metal-enclosed electrical switchgear.

3. W-Rating: Provide penetration firestopping systems with a Class 1 W-rating in accordance with UL 1479.

D. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested in accordance with ASTM E84 or UL 723.

2.4 ACCESSORIES

A. Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated, including but not limited to:

1. Permanent forming/damming/backing materials.
2. Substrate primers.
3. Collars.
4. Steel sleeves.

2.5 FILL MATERIALS

A. Cast-in-Place Firestopping Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer sleeve lined with an intumescent strip, a flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.

B. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.

C. Firestopping Devices: Factory-assembled collars formed from galvanized steel and lined with

intumescent material sized to fit specific diameter of penetrant.

D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced intumescent elastomeric sheet bonded to galvanized-steel sheet.

E. Intumescent Putties: Nonhardening, water-resistant, intumescent putties containing no solvents or inorganic fibers.

F. Intumescent Wrap Strips: Single-component intumescent elastomeric strips for use around combustible penetrants.

G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.

H. Pillows/Bags: Compressible, removable, and reusable intumescent pillows encased in fire-retardant polyester or glass-fiber cloth. Where exposed, and when required by a listed system, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed or dislodged.

I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants.

K. Thermal and Endothermic Wraps: Flexible, insulating, and fire-resistant protective wraps tested and listed for up to 2-hour fire ratings in accordance with ASTM E814 or UL 1479; for protecting membrane penetrations of utility boxes, critical electrical circuits, communications lines, and fuel lines, and for thermal barrier and circuit integrity protection in accordance with ASTM E1725 or UL 1724.

L. Fire-Rated Cable Sleeve Kits: Complete kits designed for new or existing cable penetrations through walls which accept standard accessories.

M. Fire-Rated Cable Pathways: Single or gangable device modules composed of a steel raceway with integral intumescent material and requiring no additional action in the form of plugs, twisting closure, putty, pillows, sealant, or otherwise to achieve fire and air-leakage ratings.

1. Fire-rated cable pathway devices are the preferred product for data, video, and communications cable penetrations. Install these devices in locations where frequent cable moves, add-ons, and changes will occur. Such devices must be:

    a. Capable of retrofit around existing cables.
    b. Designed so that two or more devices can be ganged together.
    c. Maintenance-free so no action is required to activate the smoke- and fire-sealing mechanism.

2. Where fire-rated cable pathway devices are not practical, openings within walls and floors designed to accommodate data, video, and communications cabling must be

provided with re-enterable products specifically designed for retrofit, such as retrofit devices for cable bundles, firestopping putty, plugs, or pillows.

N. Retrofit Device for Cable Bundles: Factory-made, intumescent, collar-like device for firestopping existing over-filled cable sleeves and capable of being installed around projecting sleeves and cable bundles.

O. Wall-Opening Protective Materials: Intumescent, non-curing putty pads or self-adhesive inserts for protection of electrical switch and receptacle boxes.

P. Fire-Rated HVAC Retaining Angles: Steel angle system with integral intumescent firestopping gasket for use around rectangular steel HVAC ducts without fire dampers.

Q. Firestopping Plugs: Flexible, re-enterable, intumescent, foam-rubber plug for use in blank round openings and cable sleeves.

R. Fire-Rated Cable Grommet: Molded two-piece grommet made of plenum-grade polymer and foam inner core for sealing small cable penetrations in gypsum walls up to 1/2 inch in diameter.

S. Closet Flange Gasket: Molded, single-component, flexible, intumescent gasket for use beneath a water closet (toilet) flange in floor applications.

2.6 MIXING

A. Penetration Firestopping Materials: For those products requiring mixing before application, comply with penetration firestopping system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Before installing penetration firestopping systems, clean out openings in accordance with manufacturer's written instructions and with the following requirements:

1. Remove foreign materials from substrate surfaces that could interfere with adhesion of

penetration firestopping materials.
2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping materials. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form-release agents from concrete.

B. Prime substrates in accordance with penetration firestopping system manufacturer's written installation instructions, using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

3.3 INSTALLATION

A. General: Install penetration firestopping systems in accordance with manufacturer's written installation instructions and published drawings for products and applications.

B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not forming permanent components of firestopping.

C. Install fill materials by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items to achieve required fire-resistance ratings.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inch strokes.

1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 ft. from end of wall and at intervals not exceeding 30 ft..

B. Penetration Identification: Identify each penetration firestopping system with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of penetration firestopping system edge so labels are visible to anyone seeking to remove penetrating items or firestopping systems. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.
3. Designation of applicable testing and inspecting agency.
4. Date of installation.
5. Manufacturer's name.
6. Installer's name.

3.5 CLEANING AND PROTECTION

A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping system manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping material and install new materials to produce systems complying with specified requirements.

END OF SECTION 078413

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Nonstaining silicone joint sealants.
3. Urethane joint sealants.
4. Mildew-resistant joint sealants.
5. Latex joint sealants.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site .

1.3 ACTION SUBMITTALS

A. Product Data:

1. Silicone joint sealants.
2. Nonstaining silicone joint sealants.
3. Urethane joint sealants.
4. Mildew-resistant joint sealants.
5. Butyl joint sealants.
6. Latex joint sealants.

B. Samples for Initial Selection: Manufacturer's standard color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

A. Preconstruction Laboratory Test Schedule: Include the following information for each joint sealant and substrate material to be tested:

1. Joint-sealant location and designation.
2. Manufacturer and product name.
3. Type of substrate material.
4. Proposed test.
5. Number of samples required.

B. Preconstruction Laboratory Test Reports: For each joint sealant and substrate material to be tested from sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation are needed for adhesion.

C. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

A. Manufacturers' special warranties.

B. Installer's special warranties.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Authorized representative who is trained and approved by manufacturer.

B. Testing Agency Qualifications: Qualified in accordance with ASTM C1021 to conduct the testing indicated.

1.7 MOCKUPS

A. 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.

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Laboratory Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Adhesion Testing: Use ASTM C794 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Compatibility Testing: Use ASTM C1087 to determine sealant compatibility when in contact with glazing and gasket materials.
3. Stain Testing: Use ASTM C1248 to determine stain potential of sealant when in contact with masonry substrates.
4. Submit manufacturer's recommended number of pieces of each type of material, including joint substrates, joint-sealant backings, and miscellaneous materials.
5. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
6. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures, including use of specially formulated primers.
7. Testing will not be required if joint-sealant manufacturers submit data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, staining of, and compatibility with joint substrates and other materials matching those submitted.

1.9 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.

1.10 WARRANTY

A. Special Installer's Warranty: 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: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants 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 stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.

2. Disintegration of joint substrates from 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. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range .

2.2 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. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. GE Construction Sealants; Momentive Performance Materials Inc.
    b. Pecora Corporation
    c. Sika Corporation - Building Components
    d. The Dow Chemical Company

2.3 NONSTAINING SILICONE JOINT SEALANTS

A. Nonstaining Joint Sealants: No staining of substrates when tested in accordance with ASTM C1248.

2.4 URETHANE JOINT SEALANTS

A. Urethane, S, P, 25, T, NT: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type S, Grade P, Class 25, Uses T and NT.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Pecora Corporation
    b. Polymeric Systems, Inc.; PPG Industries, Inc.

c. Sherwin-Williams Company (The)

2.5 MILDEW-RESISTANT JOINT SEALANTS

A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 25, Use NT.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. GE Construction Sealants; Momentive Performance Materials Inc.
b. Pecora Corporation
c. Sika Corporation - Building Components
d. The Dow Chemical Company
e. Tremco Incorporated

2.6 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Pecora Corporation
b. PPG Paints; PPG Industries, Inc.
c. Sherwin-Williams Company (The)
d. Tremco Incorporated

2.7 JOINT-SEALANT BACKING

A. Sealant Backing Material: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) Type O (open-cell material) , 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.

2.8 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 performance of the Work.

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 C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type 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 in accordance with 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 in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.

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, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200

SECTION 081113

HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standard exterior hollow metal doors and frames.
2. Standard interior hollow metal doors and frames.

B. Related Requirements:

1. Section 087100 "Door Hardware" for door hardware for hollow metal doors.

1.2 COORDINATION

A. Coordinate installing anchors for hollow metal frames, including sleeves, concrete inserts, and anchor bolts.

B. Coordinate requirements for installing door hardware, including electrified door hardware, and access control and security systems.

1.3 DEFINITIONS

A. Minimum Steel Sheet Thickness: Minimum thickness of base metal without coatings in accordance with ANSI/SDI A250.8.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, core descriptions, and finishes.
2. Include information indicating compliance with performance requirements indicated.

B. Shop Drawings:

1. Elevations of each door type.
2. Details of doors, including vertical- and horizontal-edge details and base-metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and base-metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each wall opening condition.
6. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
7. Details of frame anchors, joints, field splices, and connections.
8. Details of accessories.
9. Details of moldings, removable stops, and glazing.

C. Product Schedule: For hollow metal doors and frames, prepared by or under the supervision of supplier, using same reference numbers for details and openings used on the Drawings and in schedules. Coordinate with final door hardware schedule.

1.6 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For tests performed by a qualified testing agency for the following:

1. Fire-rated door assemblies.
2. Thermally rated door assemblies.

B. Oversize Construction Certification: For assemblies required to be fire-rated that exceed limitations of labeled assemblies.

C. Field Quality-Control Reports: For hollow metal doors and frames.

D. Qualification Statements: For field testing and inspecting agency and Fire-Rated Door Inspector Egress Door Inspector.

1.7 CLOSEOUT SUBMITTALS

A. Record Documents: For fire-rated door assemblies, list of door numbers and applicable room name and number to which door provides access.

1.8 QUALITY ASSURANCE

A. Fire-Rated Door Inspector Qualifications: Documented as complying with requirements in NFPA 80 and having Door and Hardware Institute's Certified Fire + Egress Door Assembly Inspector (CFDAI) credentials.

B. Egress Door Inspector Qualifications: Documented as complying with requirements in NFPA 101 and having Door and Hardware Institute's Certified Fire + Egress Door Assembly Inspector (CFDAI) credentials.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow metal doors and frames palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic, canvas, or other material that can entrap moisture.

1. Provide additional protection to prevent damage to factory-applied color finishes.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow metal doors and frames vertically under cover at Project site with head up. Place on minimum 4-inch- high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

D. Immediately remove and replace damaged or wet packaging or protective material.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain hollow metal doors and frames from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Fire-Rated Door Assemblies: Complying with requirements in NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated on Drawings, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.

1. Temperature-Rise Limit: Where indicated on Drawings, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F above ambient after 30 minutes of standard fire-test exposure.
2. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.

B. Sidelite and Transom Frames: Assemblies complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated on Drawings, based on testing in accordance with ASTM E119 or UL 263.

C. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control based on testing in accordance with UL 1784 by a qualified testing agency acceptable to authorities having jurisdiction.

D. Thermally Rated Door Assemblies: Provide door assemblies with U-factor of not more than

0.37 deg Btu/F x h x sq. ft. when tested in accordance with ASTM C1363 or ASTM E1423.

2.3 STANDARD EXTERIOR HOLLOW METAL DOORS AND FRAMES (MTL)

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Ceco Door; AADG, Inc.; ASSA ABLOY
2. Curries, AADG, Inc.; ASSA ABLOY Group
3. Republic Doors and Frames; an Allegion brand
4. Steelcraft; Allegion plc

B. Exterior Extra-Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 3; ANSI/SDI A250.4, Level A.

1. Steel Sheet: Minimum A40 metallic coating.
2. Doors: 1-3/4 inches thick.

    a. Faces: Steel sheet; minimum 0.053-inch base-metal thickness.
    b. Edge Construction: Model 2, Seamless.
    c. Edge Bevel: Provide manufacturer's standard beveled or square edges.
    d. End Closures: Steel sheet; minimum 0.042-inch base-metal thickness. Flush top channel sealed against water penetration and flush bottom channel with weep-hole openings to permit moisture to escape.
    e. Cores: Polyisocyanurate.
    f. Fire-Rated Cores: Manufacturer's standard core required for fire rating and temperature rise rating indicated.

3. Frames: Steel sheet; minimum 0.053-inch base-metal thickness.

    a. Construction: Full-profile welded and thermally broken.

4. Exposed Finish: Prime painted.

2.4 STANDARD INTERIOR HOLLOW METAL DOORS AND FRAMES (HM)

A. Interior Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 2; ANSI/SDI A250.4, Level B.

1. Steel Sheet: Uncoated.
2. Doors: 1-3/4 inches thick.

    a. Faces: Steel sheet; minimum 0.042-inch base-metal thickness.
    b. Edge Construction: Model 2, Seamless.
    c. Edge Bevel: Provide manufacturer's standard beveled or square edges.
    d. End Closures: Steel sheet; minimum 0.042-inch base-metal thickness. Flush top channel and inverted bottom channel.

e. Cores: Kraft-paper honeycomb.
f. Fire-Rated Cores: Manufacturer's standard core required for fire rating and temperature rise rating indicated.

3. Frames: Steel sheet; minimum 0.053-inch base-metal thickness.

a. Construction: Full-profile welded.
b. Sidelite and Transom Frames: Fabricated from same thickness material as adjacent door frame.

4. Exposed Finish: Prime painted.

2.5 ACCESSORIES

A. Door Vision Lite Frames: Steel sheet matching door face material; minimum 0.032-inch base-metal thickness.

1. Profile: Flush type, with beveled stops.
2. Corner Construction: Mitered and welded.
3. Fasteners: Countersunk.
4. Fixed-Stop Location: Secure (key) side of door.
5. Fire-Rated Doors: Comply with requirements in NFPA 80.

B. Frame Anchors: ANSI/SDI 250.4; steel sheet; minimum base-metal thickness required by door and frame standard indicated.

1. Interior Locations: ASTM A1008/A1008M or ASTM A1011/A1011M; hot-dip galvanized in accordance with ASTM A153/A153M, Class B.
2. Exterior-Wall Anchors: ASTM A653/653M, A40 metallic coating.
3. Jamb Anchors: Of minimum size and type required by door and frame standard indicated, and suitable for performance level indicated.

a. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches of frame height above 7 ft..
b. Postinstalled Expansion Anchor: Minimum 3/8-inch- diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer.

4. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.

2.6 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.

C. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B.

D. Inserts, Bolts, and Fasteners: Hot-dip galvanized in accordance with ASTM A153/A153M.

E. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow metal frames of type indicated.

F. Mineral-Fiber Insulation: ASTM C665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E136 for combustion characteristics.

G. Glazing: Comply with requirements in Section 088000 "Glazing."

2.7 FABRICATION

A. Door Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.

B. Hollow Metal Frames:

1. Welded Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections, provide alignment plates or angles, at each joint, fabricated from metal of same or greater thickness as frames.
2. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints fabricated from same material as door frame. Fasten members at crossings and to jambs by welding , or by rigid mechanical anchors.
3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
4. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers. Keep holes clear during construction.

    a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

5. Thermally Broken Frames: Provide manufacturer's standard frame construction with a split running continuously along the frame length, filled with an insert of low-thermal conducting material joining the two portions.

C. Hardware Preparation: Factory prepare hollow metal doors and frames to receive templated mortised hardware, and electrical wiring; include cutouts, reinforcement, mortising, drilling, and tapping in accordance with ANSI/SDI A250.6, the door hardware required, and templates.

1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door

hardware.

2. Comply with ANSI/SDI A250.14 for preparing hollow metal doors and frames for hardware.

D. Door Vision Lite Frames:

1. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
2. Rabbets: Coordinate width between fixed and removable stops with glazing and installation types indicated.
3. Fastener Spacing: Not more than 9 inches o.c. and not more than 2 inches from each corner.

2.8 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. 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.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, 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. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.

B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION OF STANDARD EXTERIOR HOLLOW METAL DOORS AND FRAMES

A. Install in accordance with ANSI/SDI A250.8 and ANSI/SDI A250.11.

B. Install hollow metal doors and frames plumb, rigid, properly aligned, and securely fastened in place. Comply with approved Shop Drawings and with manufacturer's written instructions.

C. Mineral-Fiber Insulation: Solidly pack mineral-fiber insulation inside frames.

D. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow metal door and frame manufacturer's written instructions.

3.4 INSTALLATION OF STANDARD INTERIOR HOLLOW METAL DOORS AND FRAMES

A. Install in accordance with ANSI/SDI A250.8 and ANSI/SDI A250.11.

B. Fire-Rated Hollow Metal Doors and Frames: Install in accordance with NFPA 80.

C. Smoke- and Draft-Control Hollow Metal Doors and Frames: Install in accordance with NFPA 105.

D. Install hollow metal doors and frames plumb, rigid, properly aligned, and securely fastened in place. Comply with approved Shop Drawings and with manufacturer's written instructions.

E. Mineral-Fiber Insulation: Solidly pack mineral-fiber insulation inside frames.

F. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow metal door and frame manufacturer's written instructions.

3.5 FIELD QUALITY CONTROL

A. Inspection Agency: Engage a qualified inspector to perform tests and inspections and to furnish reports to Architect.

B. Fire-Rated Door Acceptance Testing: Test and inspect fire-rated doors in accordance with NFPA 80.

C. Smoke- and Draft-Control Door Acceptance Testing: Test and inspect smoke- and draft-control door assemblies in accordance with NFPA 105.

D. Egress-Door Acceptance Testing: Test and inspect egress doors in accordance with NFPA 101.

E. Repair or remove and replace installations where testing and inspections indicate noncompliance with specified requirements.

F. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.

G. Inspection Report: Prepared and submitted in writing to Architect and Contractor within 24 hours after testing.

3.6 ADJUSTING

A. Remove and replace defective work, including frames that are warped, bowed, or otherwise

defective.

B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

C. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint in accordance with manufacturer's written instructions.

END OF SECTION 081113

SECTION 083613

SECTIONAL DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Steel sectional doors.

B. Related Requirements:

1. Section 055000 "Metal Fabrications" for miscellaneous steel supports.
2. Section 099113 "Exterior Painting" and Section 099123 "Interior Painting" for finish painting of factory-primed steel doors.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components, profile door sections, and finishes.
2. For power-operated doors, include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.

B. Shop Drawings: For each installation and for components not dimensioned or detailed in manufacturer's product data.

1. Include plans, elevations, sections, and mounting details.
2. Include details of equipment assemblies. Indicate dimensions, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include points of attachment and their corresponding static and dynamic loads imposed on structure.
4. Include diagrams for power, signal, and control wiring.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Sample Warranties: For manufacturer's warranty .

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sectional doors to include in maintenance manuals.

B. Manufacturer's warranty.

C. Finish warranty.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Entity that employs installers and supervisors who are trained and approved by manufacturer for both installation and maintenance of units required for this Project.

B. Regulatory Requirements: Comply with provisions in the ICC A117.1 applicable to sectional doors.

1.6 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of sectional doors 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. Failure of components or operators before reaching required number of operation cycles.
c. Faulty operation of hardware.
d. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use; rust through.
e. Delamination of exterior or interior facing materials.

2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Source Limitations: Obtain sectional doors from single source from single manufacturer.

1. Obtain operators and controls from sectional door manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. General Performance: Provide sectional doors that comply with performance requirements

specified without failure from defective manufacture, fabrication, installation, or other defects in construction and without requiring temporary installation of reinforcing components.

B. Structural Performance, Exterior Doors: Capable of withstanding the design wind loads.

1. Design Wind Load: As indicated on Drawings.
2. Testing: In accordance with ASTM E330/E330M or DASMA 108 for garage doors and complying with DASMA 108 acceptance criteria.
3. Deflection Limits: Design sectional doors to withstand design wind loads without evidencing permanent deformation or disengagement of door components.

    a. Deflection of door sections in horizontal position (open) shall not exceed 1/120 of door width.
    b. Deflection of horizontal track assembly shall not exceed 1/240 of door height.

4. Operability under Wind Load: Design sectional doors to remain operable under design wind load, acting inward and outward.

C. Operation Cycles: Door components and operators capable of operating for not less than 25,000 operation cycles. One operation cycle is complete when door is opened from closed position to the open position and returned to closed position.

D. Air Infiltration: Maximum rate of 0.4 cfm/sq. ft. when tested in accordance with ASTM E283 or DASMA 105.

E. U-Value: 0.149 Btu/sq. ft. x h x deg F.

2.3 SECTIONAL DOORS

A. Steel Sectional Doors (Sect): Provide sectional door formed with hinged sections and fabricated so that finished door assembly is rigid and aligned with tight hairline joints; is free of warp, twist, and deformation; and complies with requirements in DASMA 102.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Clopay Building Products
    b. Overhead Door Corporation
    c. Wayne Dalton; a division of Overhead Door Corporation

2. Steel Door Sections: ASTM A653/A653M, zinc-coated G60 zinc coating.
3. Door-Section Thickness: 2 inches.

    a. Section Faces:

        1) Thermal-Break Construction: Provide sections with continuous thermal-break construction separating the exterior and interior faces of door.
        2) Exterior Face: Fabricated from single sheets, not more than 24 inches high;

with horizontal meeting edges rolled to continuous, interlocking, keyed, rabbeted, shiplap, or tongue-in-groove, weather- and pinch-resistant seals and reinforcing flange return.

3) Steel Sheet Thickness: 0.040-inch nominal coated thickness.
4) Surface: Manufacturer's standard, ribbed.

b. Interior Face: Enclose insulation completely within steel exterior facing and interior facing material, with no exposed insulation. Provide the following interior-facing material:

1) Zinc-Coated 0.022 inch.

4. End Stiles: Enclose open ends of sections with channel end stiles formed from galvanized-steel sheet not less than 0.040-inch nominal coated thickness and welded to door section.
5. Intermediate Stiles: Provide intermediate stiles formed from not less than 0.040-inch-thick galvanized-steel sheet, cut to door section profile, and welded in place. Space stiles not more than 48 inches apart.
6. Section Reinforcing: Horizontal and diagonal reinforcement as required to stiffen door and for wind loading. Provide galvanized-steel bars, struts, trusses, or strip steel, formed to depth and bolted or welded in place.

a. Bottom Section: Reinforce section with a continuous channel or angle conforming to bottom-section profile and allowing installation of astragal (weatherseal).
b. Hardware Locations: Provide reinforcement for hardware attachment.

7. Thermal Insulation: Insulate interior of steel sections with door manufacturer's standard CFC-free insulation of type indicated below:

a. Board Insulation: polyurethane, secured to exterior face sheet.
b. Foamed-in-Place Insulation: Polyurethane, foamed in place to completely fill interior of section and pressure bonded to face sheets to prevent delamination under wind load.
c. Fire-Resistance Characteristics: Maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, in accordance with ASTM E84.

B. Track: Manufacturer's standard, galvanized-steel, standard-lift track system. Provide complete system including brackets, bracing, and reinforcement to ensure rigid support of ball-bearing roller guides.

1. Material: Galvanized steel, ASTM A653/A653M, minimum G60 zinc coating.
2. Size: As recommended in writing by manufacturer for door size, weight, track configuration and door clearances indicated on Drawings.
3. Track Reinforcement and Supports: Provide galvanized-steel members to support track without sag, sway, and vibration during opening and closing of doors. Slot vertical sections of track spaced 2 inches apart for door-drop safety device.

a. Vertical Track: Incline vertical track to ensure weathertight closure at jambs. Provide continuous reverse angle attached to track and wall.

b. Horizontal Track: Provide continuous reinforcing angle from curve in track to end of track, attached to track and supported at points by laterally braced attachments to overhead structural members.

C. Weatherseals: Replaceable, adjustable, continuous, compressible weather-stripping gaskets of flexible vinyl, rubber, or neoprene fitted to bottom top and jambs of door.

D. Hardware: Heavy-duty, corrosion-resistant hardware, with hot-dip galvanized, stainless steel, or other corrosion-resistant fasteners, to suit door type.

1. Hinges: Heavy-duty, galvanized-steel hinges of not less than 0.079-inch nominal coated thickness at each end stile and at each intermediate stile, in accordance with manufacturer's written recommendations for door size.

a. Attach hinges to door sections through stiles and rails with bolts and lock nuts or lock washers and nuts. Use rivets or self-tapping fasteners where access to nuts is impossible.
b. Provide double-end hinges where required for doors more than 16 ft. wide unless otherwise recommended by door manufacturer in writing.

2. Rollers: Heavy-duty rollers with steel ball bearings in case-hardened steel races, mounted to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Match roller-tire diameter to track width.

a. Roller-Tire Material: Case-hardened steel.

3. Push/Pull Handles: Equip each door with galvanized-steel lifting handles on each side of door, finished to match door.

E. Locking Device:

1. Locking Device Assembly: Fabricate with cylinder lock, spring-loaded deadbolt, operating handle, cam plate, and adjustable locking bars to engage through slots in tracks.

a. Lock Cylinders: Cylinders complying with Section 087100 "Door Hardware" requirements.
b. Keying: Keyed to building keying system.
c. Keys: Two for each cylinder.

F. Counterbalance Mechanism:

1. Torsion Spring: Adjustable-tension torsion springs complying with requirements of DASMA 102 for number of operation cycles indicated, mounted on torsion shaft.
2. Cables: Galvanized-steel, multistrand, lifting cables with cable safety factor of at least 5 to 1.
3. Cable Safety Device: Include a spring-loaded steel or bronze cam mounted to bottom door roller assembly on each side and designed to automatically stop door if lifting cable breaks.
4. Bracket: Provide anchor support bracket as required to connect stationary end of spring to

the wall and to level the shaft and prevent sag.

5. Bumper: Provide spring bumper at each horizontal track to cushion door at end of opening operation.

G. Electric Door Operator: Electric door operator assembly of size and capacity recommended by door manufacturer for door and operation cycles specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, control stations, control devices, integral gearing for locking door, and accessories required for proper operation.

1. Operator Type: Manufacturer's standard for door requirements.
2. Motor: Reversible-type with controller (disconnect switch) for interior, clean, and dry motor exposure. Use adjustable motor-mounting bases for belt-driven operators.

    a. Motor Size: As required to start, accelerate, and operate door in either direction from any position, at a speed not less than 8 in./sec. and not more than 12 in./sec., without exceeding nameplate ratings or service factor.
    b. Electrical Characteristics:

        1) Phase: Single phase.
        2) Volts: 208 V.

3. Obstruction Detection: Automatic external entrapment protection consisting of automatic safety sensor capable of protecting full width of door opening. Activation of device immediately stops and reverses downward door travel.

    a. Monitored Entrapment Protection: Photoelectric sensor designed to interface with door-operator control circuit to detect damage to or disconnection of sensor and complying with requirements in UL 325.

4. Control Station: Surface mounted, three-position (open, close, and stop) control.

    a. Operation: Push button.
    b. Interior-Mounted Unit: Full-guarded, surface-mounted, standard-duty, weatherproof-type, NEMA IA 10030, Type 4 enclosure.

5. Emergency Manual Operation: Push-up type designed so required force for door operation does not exceed 25 lbf.

H. Metal Finish: Comply with NAAMM/NOMMA 500 for recommendations for applying and designating finishes.

1. Factory Prime Steel Finish: Compatible with field-applied finish and in manufacturer's standard color. Comply with coating manufacturer's written instructions for cleaning, pretreatment, application, and minimum dry film thickness.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF SECTIONAL DOORS

A. Install sectional doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; in accordance with manufacturer's written instructions.

B. Tracks:

1. Fasten vertical track assembly to opening jambs and framing with fasteners spaced not more than 24 inches apart.
2. Hang horizontal track assembly from structural overhead framing with angles or channel hangers attached to framing by welding or bolting, or both. Provide sway bracing, diagonal bracing, and reinforcement as required for rigid installation of track and door-operating equipment.

C. Accessibility: Install sectional doors, switches, and controls along accessible routes in compliance with regulatory requirements for accessibility.

D. Power-Operated Doors: Install automatic garage doors openers in accordance with UL 325.

3.3 SYSTEM STARTUP

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks in accordance with manufacturer's written instructions.
2. Test and adjust controls and safety devices. Replace damaged and malfunctioning controls and equipment.

3.4 ADJUSTING

A. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.

B. Lubricate bearings and sliding parts as recommended by manufacturer.

C. Adjust doors and seals to provide weather-resistant fit around entire perimeter.

D. Touchup Painting Galvanized Material: Immediately after welding galvanized materials, clean welds and abraded galvanized surfaces and repair galvanizing to comply with ASTM A780/A780M.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain sectional doors.

END OF SECTION 083613

SECTION 085113

ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aluminum windows.

1.2 DEFINITIONS

A. Combination Assemblies: An assembly formed by a combination of two or more separate fenestration products whose frames are mulled together utilizing a combination mullion or reinforcing mullion.

B. Combination Mullions: A horizontal or vertical member formed by joining two or more individual fenestration units together without a mullion stiffener.

C. Reinforcing Mullions: A horizontal or vertical member with an added continuous mullion stiffener and joining two or more individual fenestration units along the sides of the mullion stiffener.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review and discuss finishing of aluminum windows that is required to be coordinated with finishing of other aluminum work for color and finish matching.
3. Review, discuss, and coordinate interrelationship of aluminum windows with other exterior wall components. Include provisions for anchoring, flashing, weeping, sealing perimeters, and protecting finishes.
4. Review and discuss sequence of work required to construct a watertight and weathertight exterior building envelope.
5. Inspect and discuss condition of substrate and other preparatory work performed by other trades.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes.

B. Shop Drawings:

1. Plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

C. Samples for Initial Selection: Manufacturer's standard color sheets, showing full range of available colors for each type of exposed finish.

D. Samples for Verification: Actual sample of finished products for each type of exposed finish:

1. Exposed Aluminum Finishes: Manufacturers' standard size.
2. Exposed Hardware: Full-size units.

E. Product Schedule: For aluminum windows. Use same designations indicated on Drawings.

F. Delegated Design Submittals: For reinforcing mullions, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

A. Test and Evaluation Reports:

1. Product Test Reports: For each aluminum window, for tests performed by qualified testing agency.

B. Qualification Statements: For manufacturer and Installer.

C. Delegated Design Engineer Qualifications: For reinforcing mullions.

D. Sample warranties.

1.6 CLOSEOUT SUBMITTALS

A. Warranty Documentation:

1. Manufacturers' special warranties.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum windows that

meet or exceed performance requirements indicated and of documenting this performance by test reports and calculations.

B. Installer Qualifications: Authorized representative who is trained and approved by aluminum window manufacturer.

C. Delegated Design Engineer Qualifications: A professional engineer who is legally qualified to practice in state where Project is located and who is experienced in providing engineering services of the type indicated.

D. Testing Agency Qualifications: An FGIA-accredited testing agency for testing indicated.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver aluminum windows to Project site in original, unopened packages and store them in accordance with manufacturer's written instructions. Protect aluminum windows against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

B. Handle aluminum windows in a manner that prevents damage before, during, and after installation.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not install aluminum windows outside of limits recommended in writing by manufacturer.

1.10 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Failure to meet performance requirements.
b. Structural failures, including excessive deflection, water leakage, condensation, and air infiltration.
c. Faulty operation of movable sash and hardware.
d. Deterioration of materials and finishes beyond normal weathering.
e. Failure of insulating glass.

2. Warranty Period:

a. Window: 10 years from date of Substantial Completion.
b. Glazing Units: 10 years from date of Substantial Completion.
c. Hardware: Three years from date of Substantial Completion.
d. Aluminum Finish: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain aluminum windows from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design reinforcing mullions.

B. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

1. Window Certification: FGIA certified with label attached to each window.

C. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:

1. Minimum Performance Class: CW.
2. Minimum Performance Grade: 30.
3. Mulled Window Systems: Evaluate and rate combination assemblies as single systems as determined by AAMA 450 in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 requirements.

D. Energy Performance: Certified and labeled by manufacturer for energy performance as follows:

1. Thermal Transmittance (U-factor): As determined in accordance with NFRC 100:

a. Fixed Windows: Not more than 0.45 Btu/sq. ft. x h x deg F.
b. Operable Windows: Not more than 0.45 Btu/sq. ft. x h x deg F.

2. Solar Heat-Gain Coefficient (SHGC): As determined in accordance with NFRC 200:

a. Fixed Windows: Not more than 0.33.
b. Operable Windows: Not more than 0.33 as determined in accordance with NFRC 200.

3. Condensation-Resistance Factor: Provide aluminum windows tested for thermal performance in accordance with AAMA 1503, showing a CRF of .

E. Thermal Movements: Provide aluminum windows, including anchorage, which allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F ambient; 180 deg F material surfaces.

2.3 ALUMINUM WINDOWS (WX)

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. EFCO Corporation; Architectural Metals; Apogee Enterprises, Inc.
2. Graham Architectural Products Corporation
3. Kawneer Company, Inc.; Arconic Corporation
4. Wausau Window and Wall Systems; Apogee Wausau Group, Inc.
5. YKK AP America Inc.

B. Provide manufacturer's standard aluminum window assemblies consisting of frames, sashes, glass, hardware, fasteners, and all components and accessories as required for a complete installation.

C. Operating Types: Provide the following operating types in locations indicated on Drawings:

1. Casement: Outswing.
2. Single hung.
3. Fixed.

D. Frames and Sashes: Aluminum extrusions of alloy, temper, and strength complying with AAMA/WDMA/CSA 101/I.S.2/A440.

1. Thermally Broken Construction: Fabricate frames, sashes, and muntins with an integral, concealed, low-conductance thermal barrier located between exterior materials and window members exposed on interior side in a manner that eliminates direct metal-to-metal contact.

E. Insulating-Glass Units: ASTM E2190.

1. Glass: ASTM C1036, Type 1, Class 1, q3.

a. Tint: Clear.
b. Kind: Fully tempered .

2. Lites: Two.
3. Filling: Fill space between glass lites with argon.
4. Low-E Coating: Sputtered on second surface.

F. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.

G. Hardware, General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely

lock windows, and sized to accommodate sash weight and dimensions.

1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range.

H. Window Hardware: Casement.

1. Gear-Type Rotary Operators: Complying with AAMA 901 when tested in accordance with ASTM E405, Method A. Provide operators that function without requiring the removal of interior screens or using screen wickets.

    a. Type and Style: As selected by Architect from manufacturer's full range of types and styles.

2. Hinges: Non-friction type, not less than two per sash.
3. Lock: Lever handle and cam-action lock with keeper.
4. Limit Devices: Concealed support arms with adjustable, limited, hold-open limit devices designed to restrict sash opening.

    a. Limit clear opening to 4 inches for ventilation; with custodial key release.

I. Hung Window Hardware:

1. Counterbalancing Mechanism: Complying with AAMA 902, concealed, of size and capacity to hold sash stationary at any open position.
2. Locks and Latches: Allow unobstructed movement of the sash across adjacent sash in direction indicated and operated from the inside only.
3. Tilt Latch: Releasing latch allows sash to pivot about horizontal axis to facilitate cleaning exterior surfaces from the interior.

J. Weather Stripping: Provide manufacturer's standard full-perimeter weather stripping for each operable sash unless otherwise indicated.

K. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.

1. Exposed Fasteners: Avoid exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

L. Mullions: Provide manufacturer's standard combination and reinforcing mullions and cover plates matching window units, complete with anchors for support to structure. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections. Provide reinforcing mullions and cover plates capable of withstanding design wind loads of window units.

2.4 ACCESSORIES

A. Subsills: Thermally broken, extruded-aluminum subsills in configurations indicated on

Drawings.

B. Interior Trim: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.

C. Panning Trim: Profiles in sizes and configurations indicated on Drawings.

D. Nail Fins: Manufacturer's standard mounting flanges with holes pre-punched for mechanical fasteners.

2.5 INSECT SCREENS

A. General: Fabricate insect screens to integrate with window frame. Provide screen for each operable exterior sash. Screen wickets are not permitted.

1. Type and Location: Full, inside for outswing Full, outside for double-hung sashes.

B. Aluminum Frames: Manufacturer's standard aluminum alloy complying with SMA 1201. Fabricate frames with mitered or coped joints or corner extrusions, concealed fasteners, and removable PVC spline/anchor concealing edge of frame.

1. Tubular Framing Sections and Cross Braces: Roll formed from aluminum sheet.

C. Glass-Fiber Mesh Fabric: 18-by-14 or 18-by-16 mesh of PVC-coated, glass-fiber threads; woven and fused to form a fabric mesh resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration. Comply with ASTM D3656/D3656M.

1. Mesh Color: Manufacturer's standard.

2.6 FABRICATION

A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.

B. Glaze aluminum windows in the factory.

C. Weather strip each operable sash to provide weathertight installation.

D. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.

E. Provide water-shed members above side-hinged sashes and similar lines of natural water penetration.

F. Window Assemblies: Combination. Provide window units in configuration indicated on Drawings. Provide window frames, sashes, hardware, and other trim and components necessary for a complete, secure, and weathertight installation, including the following:

1. Combination and reinforcing mullions with interior and exterior trim.
2. Interior and exterior extension and trim.

3. Exterior head and sill casings and trim.

G. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.

2.7 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM/NOMMA AMP 500 "Metal Finishes Manual for Architectural and Metal Products," for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.8 ALUMINUM FINISHES

A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.

C. Examine wall flashings, air and weather barriers, and other built-in components to ensure weathertight window installation.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E2112.

B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall

flashing and other adjacent construction to produce weathertight construction.

C. Mullions: Install combination and reinforcing mullions for combination assemblies in accordance with manufacturer's written instructions.

D. Install windows and components to drain water passing joints and condensation to the exterior.

E. Separate aluminum from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 ADJUSTING

A. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.

3.4 CLEANING AND PROTECTION

A. Clean exposed surfaces immediately after installing windows using manufacturer's written instructions. Avoid damaging finishes. Remove excess sealants, glazing materials, dirt, and other substances.

B. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

C. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately in accordance with manufacturer's written instructions.

END OF SECTION 085113

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components
3. Field verification, preparation and modification of existing doors and frames to receive new door hardware.

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 "General Requirements" sections for Allowances, Alternates, Owner Furnished Contractor Installed, Project Management and Coordination.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
   a. "Metal Doors and Frames"
6. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
7. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
8. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.02 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
   a. Comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.
   b. Review drawings and Sections from related trades to verify compatibility with specified hardware.
   c. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
   a. Wiring Diagrams: For power, signal, and control wiring and including:
      1) Details of interface of electrified door hardware and building safety and security systems.
      2) Schematic diagram of systems that interface with electrified door hardware.

3) Point-to-point wiring.
4) Risers.

3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
   a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

4. Door Hardware Schedule:
   a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
   b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
   c. Indicate complete designations of each item required for each opening, include:
      1) Door Index: door number, heading number, and Architect's hardware set number.
      2) Quantity, type, style, function, size, and finish of each hardware item.
      3) Name and manufacturer of each item.
      4) Fastenings and other pertinent information.
      5) Location of each hardware set cross-referenced to indications on Drawings.
      6) Explanation of all abbreviations, symbols, and codes contained in schedule.
      7) Mounting locations for hardware.
      8) Door and frame sizes and materials.
      9) Degree of door swing and handing.
      10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.

5. Key Schedule:
   a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
   b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
   c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
   d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
   e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
   f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:
   a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
   b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
   a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
   b. Catalog pages for each product.
   c. Final approved hardware schedule edited to reflect conditions as installed.
   d. Final keying schedule
   e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
   f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
   a. Fire door assemblies, in compliance with NFPA 80.
   b. Required egress door assemblies, in compliance with NFPA 101.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
   a. For door hardware: DHI certified AHC or DHC.
   b. Can provide installation and technical data to Architect and other related subcontractors.

c. Can inspect and verify components are in working order upon completion of installation.
d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.

4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:
   a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
   b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

2. Smoke and Draft Control Door Assemblies:
   a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
   b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.

3. Electrified Door Hardware
   a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.

4. Accessibility Requirements:
   a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

C. Pre-Installation Meetings

1. Keying Conference
   a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
      1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
      2) Preliminary key system schematic diagram.
      3) Requirements for key control system.
      4) Requirements for access control.
      5) Address for delivery of keys.

2. Pre-installation Conference

a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
b. Inspect and discuss preparatory work performed by other trades.
c. Inspect and discuss electrical roughing-in for electrified door hardware.
d. Review sequence of operation for each type of electrified door hardware.
e. Review required testing, inspecting, and certifying procedures.
f. Review questions or concerns related to proper installation and adjustment of door hardware.

3. Electrified Hardware Coordination Conference:
   a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping

B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.

C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.

D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.

B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

E. Existing Openings: Where existing doors, frames and/or hardware are to remain, field verify existing functions, conditions and preparations and coordinate to suit opening conditions and to provide proper door operation.

1.07 WARRANTY

A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.

1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.
    a. Mechanical Warranty
        1) Locks
            a) Schlage ND Series: 10 years
        2) Exit Devices
            a) Von Duprin: 10 years
        3) Closers
            a) LCN 4000 Series: 30 years
    b. Electrical Warranty
        1) Strike
            a) 3 years

1.08 MAINTENANCE

A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The Owner requires use of certain products for their unique characteristics and project suitability to ensure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications.

B. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance with section 01 25 00.

C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.

D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fabrication

1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer’s recognized installation standards for application intended.
2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with “Metal Doors and Frames”, “Flush Wood Doors”, “Stile and Rail Wood Doors” to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.

B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.

1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
2. Use materials which match materials of adjacent modified areas.
3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.

C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

D. Cable and Connectors:

1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.

2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.
3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Ives 5BB series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
   a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
   b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
   a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
   a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
9. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
   a. Steel Hinges: Steel pins
   b. Non-Ferrous Hinges: Stainless steel pins
   c. Out-Swinging Exterior Doors: Non-removable pins
   d. Out-Swinging Interior Lockable Doors: Non-removable pins
   e. Interior Non-lockable Doors: Non-rising pins

2.04 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.05 COORDINATORS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

B. Requirements:

1. Where pairs of doors are equipped with automatic flush bolts, an astragal, or other hardware that requires synchronized closing of the doors, provide bar-type coordinating device, surface applied to underside of stop at frame head.
2. Provide filler bar of correct length for unit to span entire width of opening, and appropriate brackets for parallel arm door closers, surface vertical rod exit device strikes, or other stop mounted hardware. Factory-prepared coordinators for vertical rod devices as specified.

2.06 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage ND series

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide escutcheon with lock status indicator window on top of lockset rose:
   a. Escutcheon height (including rose) 6.05 inches high by 3.68 inches wide.
   b. Indicator window measuring a minimum 3.52-inch by .60 inch with 1.92 square-inches of front facing viewing area and 180-degree visibility with a total of .236 square-inches of total viewable area.
   c. Provide snap-in serviceable window to prevent tampering. Lock must function if indicator is compromised.
   d. Provide messages color-coded with full text and symbol, as scheduled, for easy visibility.

e. Unlocked and Unoccupied message will display on white background, and Locked and Occupied message will display on red background.

3. Cylinders: Refer to "KEYING" article, herein.
4. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
5. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
6. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
8. Provide electrified options as scheduled in the hardware sets.
9. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.
   a. Vandlgard: Provide levers with vandal resistant technology for use at heavy traffic or abusive applications.
   b. Lever Design: Sparta.

2.07 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Von Duprin 99/33A series

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide grooved touchpad type exit devices, fabricated from brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match the balance of door hardware.
4. Touchpad must extend a minimum of one-half of the door width. No plastic inserts are allowed in touchpads.
5. Provide exit devices with a deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
6. Provide exit devices at pool gates with weather-resistant components that can withstand harsh conditions of various climates and corrosive cleaners used in outdoor pool environments.
7. Provide flush end caps for exit devices.
8. Provide exit devices with manufacturers’ approved strikes.
9. Provide exit devices cut to the door width and height. Install exit devices at a height recommended by the exit device manufacturer, allowable by governing building codes, and approved by the Architect.
10. Mount the mechanism case flush on the face of the doors or provide spacers to fill gaps behind the devices. Where glass trim or molding projects off the face of the door, provide glass bead kits.
11. Provide cylinder or hex-key dogging as specified at non-fire-rated openings.
12. Provide electrified options as scheduled.

13. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors, eliminating the requirement of tabs, and double tab mount for wood doors.
14. Accessibility: Require not more than 5 lb. to retract the latchbolt, per CBC 2019 11B-404.2.7 and 11B-309.4.
    a. Mechanical method: Von Duprin AX feature, where touchpad directly retracts the latchbolt with 5 lb. or less of force. Provide testing lab certification confirming that the mechanical device is independent third-party tested to meet this 5 lb. requirement.
    b. Electrical method: Von Duprin's RX-QEL feature, where lightly pressing the touchpad with 5 lb. or less of force closes an electric switch, activating quiet electric latch retraction.

15. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.
    a. Provide levers that return to within 1/2 inch (13 mm) of the door face.

2.08 ELECTRIC STRIKES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
    a. Von Duprin 6000 Series

B. Requirements:

1. Provide electric strikes designed for use with type of locks shown at each opening.
2. Provide electric strikes UL Listed as burglary resistant that are tested to a minimum endurance test of 1,000,000 cycles.
3. Where required, provide electric strikes UL Listed for fire doors and frames.
4. Provide transformers and rectifiers for each strike as required. Verify voltage with electrical contractor.

2.09 CYLINDERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
    a. Schlage Everest 29 B

B. Requirements:

1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset; manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
    a. Patented Restricted Small Format: cylinder with small format interchangeable cores (SFIC) with restricted, patented keyway.

3. Patent Protection: Cylinders/cores requiring use of restricted, patented keys, patent protected.
4. Nickel silver bottom pins.

2.10 KEYING

A. Scheduled System:

1. Existing factory registered system:
   a. Provide cylinders/cores keyed into Owner's existing factory registered keying system. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Construction Keying:
   a. Replaceable Construction Cores.
      1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
         a) 3 construction control keys
         b) 12 construction change (day) keys.
      2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.

2. Permanent Keying:
   a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
      1) Master Keying system as directed by the Owner.
   b. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
   c. Provide keys with the following features:
      1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
      2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
      3) Geographically Exclusive: Where High Security or Security cylinders/cores are indicated, provide nationwide, geographically exclusive key system complying with the following restrictions.
   d. Identification:
      1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
      2) Identification stamping provisions must be approved by the Architect and Owner.
      3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
      4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.

5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.

e. Quantity: Furnish in the following quantities.
1) Permanent Control Keys: 3.
2) Master Keys: 6.
3) Change (Day) Keys: 3 per cylinder/core that is keyed differently
4) Key Blanks: Quantity as determined in the keying meeting.

2.11 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
a. LCN 4040XP series

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter piston with 5/8-inch (16 mm) diameter double heat-treated pinion journal. QR code with a direct link to maintenance instructions.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards. Provide snap-on cover clip, with plastic covers, that secures cover to spring tube.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck. Provide graphically labelled instructions on the closer body adjacent to each adjustment valve. Provide positive stop on reg valve that prevents reg screw from being backed out.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.
11. Closers shall be capable of being upgraded by adding modular mechanical or electronic components in the field.

2.12 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.13 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:
   a. Glynn-Johnson

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.

2.14 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.15 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:

a. Ives

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.16 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Scheduled Manufacturer:

1. Zero International

B. Seals and Gasketing: Provide continuous gasketing on exterior openings, to the head and jambs, forming a continuous seal between the door and the frame. Provide smoke, light, or sound gasketing on interior doors where indicated.

1. Provide self-tapping fasteners for aluminum extruded gasketing being applied to hollow metal frames.
   a. Provide non-corrosive fasteners for all exterior applications.
   b. Provide security fasteners where indicated.

2. Provide neoprene, EPDM, silicone, or nylon brush inserts as specified in hardware sets. Provide non brush inserts of solid or sponge cell, as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.

C. Smoke Labeled Gasketing: At all smoke labeled openings, provide smoke listed perimeter gasketing assemblies complying with NFPA 105 listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for smoke control ratings indicated based on testing according to UL 1784.

D. Fire Listed Gasketing: Assemblies complying with NFPA 80 that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction for fire ratings indicated based on testing according to UL-10C.

1. Where frame-applied intumescent seals are required by the manufacturer, provide gaskets that comply with UL10C Standard for Positive Pressure Fire Tests of Door Assemblies and UBC 7-2, Fire Tests of Door Assemblies.

E. Sound-Rated Gasketing: Provide acoustic gasketing to meet Sound Transmission Class (STC) rating required.

F. Meeting-Stile Gasketing: Provide meeting-stile gasketing that fastens to the meeting stiles forming a continuous seal when doors are closed.

G. Door Sweeps or Shoes: Apply to the bottom of the door to close the gap between the door bottom and finished floor or saddle threshold.

1. Provide solid neoprene, EPDM, silicone, or nylon brush type of seal as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.

H. Automatic Door Bottoms:

1. Provide closed cell sponge, bulb neoprene. or EPDM type of seal as specified in hardware sets.
2. Door bottom to be mortised, semi mortised, or surface mount as with a minimum thickness as specified in hardware sets.

I. Rain Drips:

1. Provide overhead rain drips for out-swinging hollow metal doors that are not covered against 45 degree blowing rain. Aluminum extrusion to be a minimum of .088 inches thick and extend 2.50 inches from the face of the frame, in anodized finish to match door.
2. Door sweeps or shoes with integral rain drip must meet ADA requirements

J. Thresholds: Provide threshold units not less than 4 inches wide, formed to accommodate change in floor elevation where indicated, and fabricated to accommodate door hardware and fit door frames.

1. Threshold extrusion to be a minimum thickness as specified in hardware sets.

2.17 FINISHES

A. FINISH: BHMA 626/652 (US26D); EXCEPT:

1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Aluminum Geared Continuous Hinges: BHMA 628 (US28)
3. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
4. Protection Plates: BHMA 630 (US32D)
5. Overhead Stops and Holders: BHMA 630 (US32D)
6. Door Closers: Powder Coat to Match
7. Wall Stops: BHMA 630 (US32D)
8. Latch Protectors: BHMA 630 (US32D)
9. Weatherstripping: Clear Anodized Aluminum
10. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.

B. Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.

C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

D. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Where on-site modification of doors and frames is required:

1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
2. Field modify and prepare existing doors and frames for new hardware being installed.
3. When modifications are exposed to view, use concealed fasteners, when possible.
4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:
    a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
    b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
    c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.03 INSTALLATION

A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
4. Installation Guide for Doors and Hardware: DHI TDH-007-20

B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.

C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.

D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.

E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.

H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.

I. Lock Cylinders:

1. Install construction cores to secure building and areas during construction period.
2. Replace construction cores with permanent cores as indicated in keying section.
3. Furnish permanent cores to Owner for installation.

J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:

1. Conduit, junction boxes and wire pulls.
2. Connections to and from power supplies to electrified hardware.
3. Connections to fire/smoke alarm system and smoke evacuation system.
4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
5. Connections to panel interface modules, controllers, and gateways.
6. Testing and labeling wires with Architect's opening number.

K. Continuous Hinges: Re-locate the door and frame fire rating labels where they will remain visible so that the hinge does not cover the label once installed.

L. Door Closers & Auto Operators: Mount closers/operators on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers/operators so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.

M. Overhead Stops/Holders: Mount overhead stops/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

N. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.

O. Thresholds:

1. Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
2. Aluminum thresholds to be cut-in, and scribed around mullions, frame members, and stops. Do not butt to thresholds. Provide a continuous surface across full width of opening from jamb to jamb.
3. Where aluminum panic-type (rabbeted) thresholds with neoprene inserts are specified, undercut doors as required to properly mate with seal in threshold.

P. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.

Q. Perimeter Gasketing:

1. Apply to head and jamb, forming seal between door and frame.
2. Install gasketing in a manner eliminating need to cut any seal to install surface mounted hardware. Install compatible mounting bracket for surface mounted hardware unless minimum 1/4 inch thick solid aluminum seals are provided for mounting of surface applied hardware.

R. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

S. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.04 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
2. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.05 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items per manufacturer's instructions to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.06 DOOR HARDWARE SCHEDULE

A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.

C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.

D. Hardware Sets:

Abbreviation	Name
B/O	By Others
GLY	Glynn-Johnson Corp
IVE	H.B. Ives
LCN	LCN Commercial Division
SCH	Schlage Lock Company
VON	Von Duprin
ZER	Zero International Inc

151481 OPT0482756 Version 1

Hardware Set No. 01
For use on mark/door #(s):
102
Each to have:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	VANDL STOREROOM LOCK	ND96JD SPA	626	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH
1	EA	SURFACE CLOSER	4040XP CUSH	689	LCN
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Set No. 02
For use on mark/door #(s):
103
Each to have:

1	EA	VANDL STOREROOM LOCK	ND96JD SPA	626	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	GASKETING	488SBK PSA	BK	ZER

BALANCE OF HARDWARE EXISTING

Hardware Set No. 03
For use on mark/door #(s):
104
Each to have:

1	EA	VANDL STOREROOM LOCK	ND96JD SPA	626	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH

BALANCE OF HARDWARE EXISTING

Hardware Set No. 04
For use on mark/door #(s):
105
Each to have:

6	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	CONST LATCHING BOLT	FB51T	630	IVE
1	EA	VANDL STOREROOM LOCK	ND96JD SPA	626	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH
1	EA	SURFACE CLOSER	4040XP EDA ACTIVE LEAF	689	LCN
2	EA	KICK PLATE	8400 8" X 1" LDW B-CS	630	IVE
2	EA	WALL STOP	WS406/407CVX	630	IVE
1	EA	OVERLAPPING ASTRAGAL	PROVIDED BY DR MANFG.	600	B/O

Hardware Set No. 05
For use on mark/door #(s):
201
Each to have:

6	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CONST LATCHING BOLT	FB51T	630	IVE
1	EA	VANDL STOREROOM LOCK	ND96JD SPA	626	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH
2	EA	OH STOP & HOLDER	90F	630	GLY
2	EA	KICK PLATE	8400 8" X 1" LDW B-CS	630	IVE
1	EA	OVERLAPPING ASTRAGAL	PROVIDED BY DR MANFG.	600	B/O
2	EA	SILENCER	SR64	GRY	IVE

AT EXISTING FRAMES FIELD VERIFY AND MATCH EXISTING HINGE SIZE.

Hardware Set No. 06
For use on mark/door #(s):
203
Each to have:

6	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CONST LATCHING BOLT	FB51T	630	IVE
1	EA	FIRE EXIT HARDWARE	9975-L-NL-F-17	626	VON
1	EA	SFIC MORTISE CYL.	80-110 X XQ11-948 36-083 36-082-025	622	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH
1	EA	COORDINATOR	COR X FL	628	IVE
2	EA	MOUNTING BRACKET	MB1F	689	IVE
2	EA	SURFACE CLOSER	4040XP CUSH	689	LCN
2	EA	KICK PLATE	8400 8" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	MEETING STYLE	8217SBK PSA	BK	ZER
1	EA	OVERLAPPING ASTRAGAL	PROVIDED BY DR MANFG.	600	B/O

AT EXISTING FRAMES FIELD VERIFY AND MATCH EXISTING HINGE SIZE.

Hardware Set No. 07
For use on mark/door #(s):
207
Each to have:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	VANDL STOREROOM LOCK	ND96JD SPA	626	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 8" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE

Hardware Set No. 08
For use on mark/door #(s):
207S
Each to have:

1	EA	FIRE EXIT HDWE	99-L-BE-F-17	626	VON
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 8" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1			BALANCE OF HARDWARE EXISTING		

AT EXISTING FRAMES FIELD VERIFY AND MATCH EXISTING HINGE AND STRIKE SIZE.

Hardware Set No. 09
For use on mark/door #(s):
306
Each to have:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	PRIVACY W/IND	ND40S SPA OS-OCC	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 8" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE

Hardware Set No. 10
For use on mark/door #(s):
413
Each to have:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	ND10S SPA	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 8" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Set No. 11
For use on mark/door #(s):
EX101
Each to have:

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	PANIC HARDWARE	LD-99-NL	626	VON
1	EA	SFIC RIM CYLINDER	80-116	626	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH
1	EA	ELECTRIC STRIKE	6300 FSE 12/24 VAC/VDC	630	VON
1	EA	SURFACE CLOSER	4040XP SCUSH ST-1595 SPEC	689	LCN
1	EA	KICK PLATE	8400 8" X 1 1/2" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
1	SET	GASKETING	429AA-S	AA	ZER
1	EA	DOOR SWEEP	8198AA	AA	ZER
1	EA	THRESHOLD	655A-223	A	ZER
1	EA	POWER SUPPLY	PROVIDED BY SECURITY CONTR.		B/O
1	EA	CREDENTIAL READER	PROVIDED BY SECURITY CONTR.		B/O
1	EA	DR POSITION SWITCH	PROVIDED BY SECURITY CONTR.		B/O

AT EXISTING FRAMES FIELD VERIFY AND MATCH EXISTING HINGE SIZE.
INSTALL PERIMETER WEATHER SEALS BEFORE DOOR CLOSER AND MOUNTING BRACKET.

Hardware Set No. 12
For use on mark/door #(s):
EX106 EX207
Each to have:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	FIRE EXIT HDWE	99-L-F-17	626	VON
1	EA	SFIC RIM CYLINDER	80-116	626	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	KICK PLATE	8400 8" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	DOOR BOTTOM	365AA	AA	ZER

Hardware Set No. 13
For use on mark/door #(s):
EX205
Each to have:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	VANDL STOREROOM LOCK	ND96JD SPA	626	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	WALL STOP	WS406/407CVX	630	IVE
1	EA	RAIN DRIP	141AA X DOOR WIDTH	AA	ZER
1	SET	GASKETING	429AA-S	AA	ZER
1	EA	DOOR BOTTOM	365AA	AA	ZER
1	EA	DOOR SWEEP	8198AA	AA	ZER
1	EA	THRESHOLD	655A-223	A	ZER

Hardware Set No. 14
For use on mark/door #(s):
EX309
Each to have:

1	EA	FIRE EXIT HDWE	99-L-F-17	626	VON
1	EA	SFIC RIM CYLINDER	80-116	626	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	KICK PLATE	8400 8" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	DOOR BOTTOM	365AA	AA	ZER

BALANCE OF HARDWARE EXISTING

Hardware Set No. 15
For use on mark/door #(s):
EX413
Each to have:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	VANDL STOREROOM LOCK	ND96JD SPA	626	SCH
1	EA	FSIC CORE	91-161 EV B	626	SCH
1	EA	SURFACE CLOSER	4040XP	689	LCN
1	EA	KICK PLATE	8400 8" X 1 1/2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CVX	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

Hardware Set No. RU
For use on mark/door #(s):
EX102
Each to have:

1	EA		ALL HARDWARE BY DOOR MFR	B/O

END OF SECTION

SECTION 088000

GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Monolithic glass.
2. Insulating glass.
3. Miscellaneous glazing materials.

B. Related Requirements:

1. Section 085113 "Aluminum Windows."

1.2 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 in accordance with ASTM C1036.

C. IBC: International Building Code.

D. Interspace: Space between lites of an insulating-glass unit.

1.3 COORDINATION

A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances to achieve proper safety margins for glazing retention under each design load case, load case combination, and service condition.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Glass Samples: For each type of the following products; 12 inches square.

1. Insulating glass.

C. Glazing Accessory Samples: For sealants, in 12-inch lengths.

D. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

A. Product Certificates: For glass.

B. Product Test Reports: For fabricated glass, 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.

C. Preconstruction adhesion and compatibility test report.

D. Qualification Statements: For Installer.

E. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

A. Fabricated-Glass Manufacturer Qualifications: A qualified manufacturer of fabricated glass units who is approved and certified by primary glass manufacturer.

B. Installer Qualifications: A qualified glazing contractor for this Project who is certified under the North American Contractor Certification Program and who employs glazing technicians certified under the Architectural Glass and Metal Technician (AGMT) certification program.

C. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.

D. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.

1.7 PRECONSTRUCTION TESTING

A. Preconstruction Adhesion and Compatibility Testing: 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 C1087 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 use of specially formulated primers.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials in accordance with manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. Comply with insulating-glass manufacturer's written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

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 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 SOURCE LIMITATIONS

A. Source Limitations for Glazing Accessories: For each product and installation method, obtain from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. General: Installed glazing systems to withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to 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. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.

C. 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 insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
3. U-Factors: Center-of-glazing values, in accordance with NFRC 100 and based on most current non-beta version of LBL's WINDOW computer program, expressed as Btu/sq. ft. x h x deg F.
4. SHGC and Visible Transmittance: Center-of-glazing values, in accordance with NFRC 200 and based on most current non-beta version of LBL's WINDOW computer program.
5. Visible Reflectance: Center-of-glazing values, in accordance with NFRC 300.

2.3 GLASS, GENERAL

A. Glazing Publications: Comply with written instructions 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: "Glazing Manual."
2. AAMA Publications: AAMA GDSG-1 and AAMA TIR A7.
3. IGMA Publication for Insulating Glass: IGMA TM-3000.

B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC. Label indicates 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 thickness indicated.

1. Minimum Glass Thickness for Exterior Lites: 6 mm.

D. Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass as needed to comply with "Performance Requirements" Article. 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.

2.4 MONOLITHIC GLASS

A. Clear Annealed Float Glass (GL-2T): ASTM C1036, Type I, Class 1 (clear), Quality-Q3.

B. Fully Tempered Float Glass: ASTM C1048, 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. Reflective- and Low-E-Coated Vision Glass (GL-3T): ASTM C1376.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cardinal Glass Industries, Inc.
b. Pilkington North America; NSG Group
c. Vitro Architectural Glass

D. Reflective- and Low-E-Coated Spandrel Glass: ASTM C1376, Kind CS.

2.5 INSULATING GLASS

A. Insulating Glass: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified in accordance with ASTM E2190.

1. Sealing System: Dual seal, with manufacturer's standard primary and secondary sealants.

2.6 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 of industry colors.

2.7 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, recommended in writing by manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks:

1. Type: Silicone with Shore A durometer hardness of 85, plus or minus 5.
2. Type recommended in writing by sealant or glass manufacturer.

D. Spacers:

1. Type: Neoprene blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
2. Type recommended in writing by sealant or glass manufacturer.

E. Edge Blocks:

1. Type: Silicone with Shore A durometer hardness per manufacturer's written instructions.
2. Type recommended in writing by sealant or glass manufacturer.

F. Cylindrical Glazing Sealant Backing: ASTM C1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.8 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 in accordance with 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.

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 in writing by gasket manufacturer.

3.4 INSTALLATION OF GLAZING SEALANT

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.

3.5 CLEANING

A. Immediately after installation, remove nonpermanent labels and clean surfaces.

B. 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.

3.6 PROTECTION

A. 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 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.

B. Remove and replace glass that is damaged during construction period.

3.7 INSULATING GLASS SCHEDULE

A. Low-E-Coated, Clear Insulating Glass Type: GL-3T.

1. Overall Unit Thickness: 1 inch.
2. Minimum Thickness of Each Glass Lite: 6 mm.
3. Outdoor Lite: Fully tempered float glass.
4. Interspace Content: Argon.
5. Indoor Lite: Fully tempered float glass.
6. Low-E Coating: Pyrolytic on second surface.
7. Winter Nighttime U-Factor: 0.29 maximum.
8. Summer Daytime U-Factor: 0.28 maximum.
9. Visible Light Transmittance: 53 percent minimum.
10. SHGC: 0.44 maximum.
11. Safety glazing required.

END OF SECTION 088000

SECTION 090190.52

MAINTENANCE REPAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preparatory cleaning materials.
2. Paint materials.

B. Related Requirements:

1. Section 013516 "Alteration Project Procedures" for general remodeling, renovation, repair, and maintenance requirements.
2. Section 099113 "Exterior Painting," Section 099123 "Interior Painting," Section 099300 "Staining and Transparent Finishing," and Section 099600 "High-Performance Coatings" for Paint materials and systems for construction.

1.2 DEFINITIONS

A. DSD: Degree of surface deterioration.

B. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 SEQUENCING

A. Perform maintenance repainting in the following sequence, which includes Work specified in this and other Sections.

1. Dismantle existing surface-mounted objects and hardware except items indicated to remain in place. Tag items with location identification and protect from damage.
2. Verify that temporary protections have been installed.
3. Examine condition of surfaces to be painted.
4. Remove existing paint to the degree required for each substrate and surface condition of existing paint.
5. Apply paint system.

6. Reinstall dismantled surface-mounted objects and hardware unless otherwise indicated.

1.5 ACTION SUBMITTALS

A. Product Data: For each specified system and assembly, including components and accessories.

1. Include recommendations for product application and use.
2. Include test data substantiating that products comply with requirements.

1.6 INFORMATIONAL SUBMITTALS

A. Preconstruction Test Reports: For cleaning materials, paint coatings and systems.

1.7 MOCKUPS

A. Prepare mockups of maintenance repainting processes for each type of coating system and substrate indicated and each color and finish required to demonstrate aesthetic effects and to set quality standards for materials and execution. Duplicate appearance of approved Sample submittals.

1. Locate mockups on existing surfaces where directed by Architect.
2. Surface-Preparation Mockups: On existing surfaces using applicable specified methods of cleaning and other surface preparation, provide mockup sample of at least 100 sq. ft..
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations by Change Order.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing of cleaning materials, compatibility of paint coatings and systems for each indicated type of painted surface.

1. Use test areas as indicated and representative of proposed materials and existing construction.
2. Propose changes to materials and methods to suit Project.

1.9 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 daily.

1.10 FIELD CONDITIONS

A. Weather Limitations: Proceed with maintenance repainting only when existing and forecasted weather conditions are within the environmental limits set by each manufacturer's written instructions and specified requirements.

B. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

C. Do not apply paint 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. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer for surface preparation and during paint application and drying periods.

PART 2 - PRODUCTS

2.1 PREPARATORY CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F.

C. Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), 1/2 cup of laundry detergent that contains no ammonia, 5 quarts of 5 percent sodium hypochlorite bleach, and 15 quarts of warm water for every 5 gal. of solution required.

D. Mildewcide: Commercial proprietary mildewcide or a job-mixed solution prepared by mixing 1/3 cup of household detergent that contains no ammonia, 1 quart of 5 percent sodium hypochlorite bleach, and 3 quarts of warm water.

2.2 PAINT MATERIALS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Benjamin Moore & Co.
2. The Pittsburgh Paints Company

B. Basis-of-Design Product: Subject to compliance with requirements, provide Insert manufacturer's name; product name or designation or comparable product by one of the following:

1. Benjamin Moore & Co.

2. The Pittsburgh Paints Company

2.3 PATCHING MATERIALS

A. Patching Compound, General: Formulation specifically manufactured for repairs in damaged substrate materials as specified within tooling time required for the detail of work and site conditions; designed for filling voids that have deteriorated from weathering and decay, capable of filling deep holes, and spreading to feather edge.

B. Metal-Patching Compound: Two-part, polyester-resin, metal-patching compound; knife-grade formulation.

C. Cementitious Patching Compound: Repair materials specifically formulated and manufactured for filling type of cementitious substrates and for sanding or tooling prior to repainting; as recommended in writing by compound manufacturer for exposure to weather and traffic.

D. Gypsum-Plaster Patching Compound: Finish coat plaster and bonding compound in accordance with ASTM C842.

PART 3 - EXECUTION

3.1 PROTECTION OF EXISTING SURFACES

A. Comply with each manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

1. Cover adjacent surfaces with materials that are proven to resist chemical solutions being used unless the solutions will not damage adjacent surfaces. Use protective materials that are UV resistant and waterproof. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.
2. Do not apply chemical solutions during winds of sufficient force to spread them to unprotected surfaces.
3. Neutralize and collect alkaline and acid wastes before disposal.
4. Dispose of runoff from operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

3.2 MAINTENANCE REPAINTING, GENERAL

A. Maintenance Repainting Appearance Standard: Completed work is to have a uniform appearance as viewed by Architect from building interior at 5 ft. away from painted surface and from building exterior at 20 ft. away from painted surface.

B. Execution of the Work: In repainting surfaces, disturb them as minimally as possible and as follows:

1. Remove failed coatings and corrosion and repaint.
2. Verify that substrate surface conditions are suitable for repainting.
3. Allow other trades to repair items in place before repainting.

C. Mechanical Abrasion: Where mechanical abrasion is needed for the Work, use gentle methods, such as scraping and lightly hand sanding, that will not abrade softer substrates, reducing clarity of detail.

D. Heat Processes: Do not use torches, heat guns, or heat plates.

3.3 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for maximum moisture content and other conditions affecting performance of painting work. Comply with paint manufacturer's written instructions for inspection.

B. Maximum Moisture Content of Substrates: Do not begin application of coatings unless moisture content of exposed surface is below the maximum value recommended in writing by paint manufacturer and not greater than the following maximum values when measured with an electronic moisture meter appropriate to the substrate material:

1. Concrete: 12 percent.
2. Gypsum Board: 12 percent.
3. Gypsum Plaster: 12 percent.
4. Masonry (Clay and CMU): 12 percent.
5. Portland Cement Plaster (Stucco): 12 percent.
6. Wood: 15 percent.

C. Alkalinity: Do not begin application of coatings unless surface alkalinity is within range recommended in writing by paint manufacturer. Conduct alkali testing with litmus paper on exposed plaster, cementitious, and masonry surfaces.

D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

1. If existing surfaces cannot be prepared to an acceptable condition for proper finishing by using specified surface-preparation methods, notify Architect in writing.

E. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

1. Application of coating indicates acceptance of surfaces and conditions.

3.4 APPLICATION OF PREPARATORY CLEANING MATERIALS

A. General: Use the gentlest, appropriate method necessary to clean surfaces in preparation for painting. Clean all surfaces, corners, contours, and interstices.

B. Detergent Cleaning: Wash surfaces by hand using clean rags, sponges, and bristle brushes. Scrub surface with detergent solution and bristle brush until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet. Rinse with water applied by clean rags or sponges.

C. Solvent Cleaning: Use solvent cleaning to remove oil, grease, smoke, tar, and asphalt from painted or unpainted surfaces before other preparation work. Wipe surfaces with solvent using clean rags and sponges. If necessary, spot-solvent cleaning may be employed just prior to commencement of paint application, provided enough time is allowed for complete evaporation. Use clean solvent and clean rags for the final wash to ensure that all foreign materials have been removed. Do not use solvents, including primer thinner and turpentine, that leave residue.

D. Mildew Removal: Clean off existing mildew by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. Rinse with water applied by clean rags or sponges.

E. Mechanical Rust Removal:

1. Remove rust with specified abrasives for ferrous-metal cleaning. Clean to bright metal.
2. Wipe off residue with mineral spirits and either steel wool or soft rags.
3. Dry immediately with clean, soft cloths. Follow direction of grain in metal.
4. Prime immediately to prevent rust. Do not touch cleaned metal surface until primed.

3.5 SUBSTRATE REPAIR

A. General: Repair substrate surface defects that are inconsistent with the surface appearance of adjacent materials and finishes.

B. Metal Substrates:

1. Preparation: Treat repair locations by wire-brushing and solvent cleaning. Use mechanical rust removal method to clean off rust.
2. Defects in Metal Surfaces: Repair non-load-bearing defects in existing metal surfaces, including dents and gouges more than 1/16 inch deep or 1/2 inch across and all holes and cracks by filling with metal-patching compound and sanding smooth. Remove burrs and protruding fasteners.
3. Priming: Prime iron and steel surfaces immediately after repair to prevent flash rusting. Stripe paint corners, crevices, bolts, welds, and sharp edges. Apply two coats to surfaces that are inaccessible after completion of the Work.

C. Cementitious Material Substrates:

1. General: Repair defects including dents and chips more than 1/4 inch in size and all holes and cracks by filling with cementitious patching compound and sanding smooth. Remove protruding fasteners.

D. Wood Substrates:

1. Repair wood defects including dents and gouges more than 1/8 inch in size and all holes and cracks by filling with wood-patching compound and sanding smooth. Reset or remove protruding fasteners.
2. Where existing paint is allowed to remain, sand irregular buildup of paint, runs, and sags to achieve a uniformly smooth surface.

E. Gypsum-Plaster and Gypsum-Board Substrates:

1. Repair defects including dents and chips more than 1/8 inch in size and all holes and cracks by filling with gypsum-plaster patching compound and sanding smooth. Remove protruding fasteners.
2. Rout out surface cracks to remove loose, unsound material; fill with patching compound and sand smooth.

3.6 APPLICATION OF PAINT MATERIALS, GENERAL

A. Comply with manufacturers' written instructions for application methods unless otherwise indicated in this Section.

B. Prepare surfaces to be painted in accordance with the Surface-Preparation Schedule and with manufacturer's written instructions for each substrate condition.

C. Apply a transition coat over incompatible existing coatings.

D. Metal Substrates: Stripe paint corners, crevices, bolts, welds, and sharp edges before applying full coat. Apply two coats to surfaces that are inaccessible after completion of the Work. Tint stripe coat different than the main coating and apply with brush.

E. Blending Painted Surfaces: When painting new substrates patched into existing surfaces or touching up missing or damaged finishes, apply coating system specified for the specific substrate. Apply final finish coat over entire surface from edge to edge and corner to corner.

3.7 FIELD QUALITY CONTROL

A. Paint Material Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for composition and dry film thickness.

1. Paint Composition: The following procedure may be performed at any time and as often as Owner deems necessary during the period when paints are being applied:

a. Testing agency will sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence

of Contractor.

b. Testing agency will perform tests for compliance of paint materials with product requirements.
c. If test results show materials being used do not comply with product requirements, Contractor will remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

2. Dry Film Thickness:

a. Contractor will touch up and restore painted surfaces damaged by testing.
b. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written instructions, Contractor will pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written instructions.

3.8 CLEANING

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.

3.9 PROTECTION

A. 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.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.10 SURFACE-PREPARATION SCHEDULE

A. General: Before painting, prepare surfaces for painting in accordance with applicable requirements specified in this schedule.

1. Examine surfaces to evaluate each surface condition in accordance with paragraphs below.
2. Where existing degree of soiling prevents examination, preclean surface and allow it to dry before making an evaluation.
3. Repair substrate defects in accordance with "Substrate Repair" Article.

B. Surface Preparation for Sound Surfaces: MPI DSD 0.

1. Surface Condition: Existing paint film in good condition and tightly adhered.
2. Paint Removal: Not required.
3. Preparation for Painting: Wash surface by detergent cleaning; use solvent cleaning where needed. Roughen or degloss cleaned surfaces to ensure paint adhesion in accordance with paint manufacturer's written instructions.

C. Surface Preparation for Slightly Deteriorated Surfaces: MPI DSD 1.

1. Surface Condition: Paint film cracked or broken but adhered. Surface may include visual (aesthetic) defects that do not affect film's protective properties.
2. Paint Removal: Scrape by hand-tool cleaning methods to remove loose paint until only tightly adhered paint remains.
3. Preparation for Painting: Wash surface by detergent cleaning; use other cleaning methods for small areas of bare substrate if required. Roughen, degloss, and sand the cleaned surfaces to ensure paint adhesion and a smooth finish in accordance with paint manufacturer's written instructions.

END OF SECTION 090190.52

SECTION 092216

NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Nonstructural steel framing.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Include layout, spacings, sizes, thicknesses, and types of nonstructural steel framing and fastening and anchorage details.
2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, and attachments to adjoining work.

1.3 INFORMATIONAL SUBMITTALS

A. Product Certificates: For code-compliance certification of studs and track.

B. Evaluation Reports: From ICC-ES showing compliance with Project requirements, for the following:

1. Studs and track.
2. High-strength steel studs and track.
3. Equivalent corrosion-resistant coating on steel framing.
4. Firestop track.
5. Power-actuated anchors.

1.4 QUALITY ASSURANCE

A. Code-Compliance Certification of Studs and Track: Provide documentation that framing members are certified in accordance with product-certification program of the Steel Framing Industry Association.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

B. Protect materials from corrosion, deformation, and other damage during delivery, storage, and handling in accordance with AISI S202.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: Where indicated on Drawings, provide assemblies incorporating nonstructural steel framing identical to those of assemblies tested for fire resistance in accordance with ASTM E119 by an independent testing agency.

B. Horizontal Deflection: For non-composite wall assemblies, limited to 1/240 of the wall height based on the following horizontal loading:

1. Horizontal Loading: 5 lbf/sq. ft..

2.2 NONSTRUCTURAL STEEL FRAMING

A. Framing Members, General: Comply with requirements in AISI S220 for conditions indicated on Drawings.

1. Protective Coating: ASTM A653/A653M, G40 hot-dip galvanized or coating with demonstrated equivalent corrosion resistance. Galvannealed products are unacceptable.

a. Equivalent Corrosion-Resistant Coating: Evaluation report acceptable to authorities having jurisdiction demonstrates corrosion resistance equivalent to specified protective coating.

B. Studs and Track (Mtl Stud): Conventional members, roll-formed into standard shapes without surface deformations to stiffen framing members.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Jaimes Industries, Inc.

2. Minimum Base-Steel Thickness: As indicated on Drawings and As required by performance requirements for horizontal deflection.
3. Minimum Yield Strength: 33 ksi.
4. Depth: As indicated on Drawings.

C. Slip-Type Head Joints: Where indicated on Drawings.

1. Slotted Deflection Track (Track): Steel sheet top track manufactured with deep flanges that allow positive attachment to studs through long slots and prevent deflection of structure above from cracking finishes applied to framing; in base-steel thickness not less than that of studs and in width to accommodate depth of studs.

    a. Flange Length: 2-1/2 inches.

2.3 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. Adjustable Wall-Furring Brackets: Steel sheet in minimum 0.0329-inch- base-steel thickness with serrated edges for attaching furring channels to exterior masonry or concrete walls.

1. Protective Coating: ASTM A653/A653M, G40, hot-dip galvanized.

C. Post-Installed Anchors: Fastener systems with an evaluation report, acceptable to authorities having jurisdiction, as appropriate for the substrate.

1. Securing Hangers:

    a. Acceptance Criteria: ICC-ES AC193 AC58.
    b. Type: torque-controlled, adhesive anchor.
    c. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated on Drawings.

D. Power-Actuated Anchors: Fastener systems with an evaluation report, acceptable to authorities having jurisdiction, based on ICC-ES AC70.

E. Isolation Strip at Exterior Walls: Provide the following:

1. Asphalt-Saturated Organic Felt: ASTM D226/D226M, Type I (No. 15 asphalt felt), nonperforated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, substrates, and conditions, with Installer present, 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 required to other trades for installation in advance of time needed for coordination and construction.

B. Coordination with Sprayed Fire-Resistive Materials:

1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling track to surfaces indicated on Drawings to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of nonstructural steel framing. Do not reduce thickness of fire-resistive materials below that required for fire-resistance ratings indicated on Drawings. Protect adjacent fire-resistive materials from damage.

3.3 INSTALLATION OF NONSTRUCTURAL STEEL FRAMING, GENERAL

A. Installation Standard: ASTM C754.

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 framing members. Frame both sides of joints independently.

3.4 INSTALLATION OF NONSTRUCTURAL STEEL FRAMING

A. Install framing system components at spacings indicated on Drawings, but not greater than spacings required by referenced installation standards for assembly types.

1. Single-Layer Application: As required by horizontal deflection performance requirements but not less than 16 inches o.c. unless otherwise indicated on Drawings.
2. Multilayer Application: As required by horizontal deflection performance requirements but not less than 16 inches o.c. unless otherwise indicated on Drawings.

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 track at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated on Drawings 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 on Drawings.
    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 unless otherwise indicated on Drawings.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated on Drawings. Install framing below sills of openings to match framing required above door heads.

E. Installation Tolerances for Nonstructural Steel Framing:

1. Framing Members: 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 092216

SECTION 092900

GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board.

B. Related Requirements:

1. Section 092216 "Non-Structural Metal Framing" for nonstructural steel framing and suspension systems that support gypsum board panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Locations and installation of control and expansion joints, including plans, elevations, sections, and attachment details.

1.3 MOCKUPS

A. Notify A/E and Owner when gypsum board is completely hung and finish compound is sanded smooth. A/E and Owner shall review gypsum wall board installation before priming and painting. Proceed with coating application only after unsatisfactory conditions have been corrected. This review does not constitute approval of deviations from the Contract Documents unless A/E’s specifically approves such deviations in writing.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C840 requirements or manufacturer's written instructions, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, moisture damaged, or mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain each type of gypsum board and joint finishing material from single source with resources to provide products of consistent quality in appearance and physical properties.

2.2 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings in accordance with ASTM E119; tested by a qualified testing agency.

2.3 GYPSUM BOARD, GENERAL

A. Size: Provide panel products in maximum lengths and widths available that will minimize joints in each area and that correspond with support system specified or indicated on Drawings.

2.4 INTERIOR GYPSUM BOARD

A. Gypsum Board, Type X (GYP BD): ASTM C1396/C1396M.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. [**American Gypsum**]
b. [**CertainTeed; SAINT-GOBAIN**]
c. [**Georgia-Pacific Gypsum LLC**]
d. [**Gold Bond Building Products, LLC provided by National Gypsum Company**]
e. [**PABCO Gypsum**]
f. [**Panel Rey**]
g. [**USG Corporation**]
h. <**Insert manufacturer's name**>

2. Thickness: As indicated on Drawings.

3. Long Edges: Tapered.

B. Trim for Interior Gypsum Board: ASTM C1047.

1. Material: Galvanized-steel sheet or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet.
2. Shapes:

a. Cornerbead.
b. L-Bead: L-shaped; exposed long flange receives joint compound.
c. U-Bead: J-shaped; exposed short flange does not receive joint compound.
d. Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and removable strip covering slot opening.

C. Joint Treatment Materials for Interior Gypsum Board: Comply with ASTM C475/C475M requirements.

1. Joint Compound: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

a. Prefilling: At open joints , rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
b. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
c. Fill Coat: For second coat, use drying-type, all-purpose compound.
d. Finish Coat: For third coat, use setting-type, sandable topping compound.
e. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound.

2.5 AUXILIARY MATERIALS

A. Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Steel Drill Screws: ASTM C1002 unless otherwise specified or indicated on Drawings.

1. Use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

C. Sound-Attenuation Blankets: ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers as follows:

1. Non-Fire-Resistance-Rated Assemblies: slag or rock wool.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION AND FINISHING OF GYPSUM BOARD, GENERAL

A. Comply with ASTM C840 requirements.

B. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

C. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

D. Form expansion (control) joints with space between edges of adjoining gypsum panels.

E. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.

F. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

G. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

H. Install sound-attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 INSTALLATION OF INTERIOR GYPSUM BOARD

A. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated on Drawings.
2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise specified or indicated on Drawings or required by fire-resistance-rated assembly, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.

3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

B. Application of Laminating Adhesive to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written instructions and temporarily brace or fasten gypsum panels until fastening adhesive has set.

C. Trim for Interior Gypsum Board: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim in accordance with manufacturer's written instructions.

1. Cornerbead: Install at outside corners unless otherwise specified or indicated on Drawings.
2. LC-Bead: Install at exposed panel edges.
3. U-Bead: Install where indicated on Drawings.
4. Expansion (Control) Joint: Install control joints in accordance with ASTM C840 and in specific locations approved by Architect for visual effect.

D. Base-of-Wall PVC Moisture Barrier Trim: Install at base of wall unless otherwise specified or indicated on Drawings.

E. Joint Treatment Materials for Interior Gypsum Board: Treat joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare panel surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

1. Prefill open joints , rounded or beveled edges, and damaged surface areas.
2. Apply joint tape over panel joints, except for trim products specifically indicated as not intended to receive tape.

F. Finish interior gypsum board panels to comply with levels indicated below and in accordance with ASTM C840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated on Drawings.
2. Level 2: Panels that are substrate for tile.
3. Level 3: Where indicated on Drawings.

a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

4. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.

a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

5. Level 5: Where indicated on Drawings.

a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3.4 PROTECTION

A. Protect adjacent surfaces from joint compound and promptly remove from floors and other non-gypsum board surfaces. Repair surfaces stained, marred, or otherwise damaged during gypsum board installation and finishing.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that have gotten wet, moisture damaged, or mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093013

CERAMIC TILING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Porcelain tiles.
2. Glazed wall tiles.
3. Thresholds.
4. Waterproof membranes.
5. Setting materials.
6. Grout materials.
7. Metal flooring transitions.

B. Related Requirements:

1. Section 079200 "Joint Sealants" for sealing of movement joints in tile surfaces.

1.2 DEFINITIONS

A. General: Definitions in ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.

B. Face Size: Actual tile size, excluding spacer lugs.

C. Large Format Tile: Tile with at least one edge 15 inches or longer.

D. Module Size: Actual tile size plus joint width indicated.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of specified product.

B. Shop Drawings: Show locations, plans, and elevations, of each type of tile and tile pattern. Show widths, details, and locations of movement joints in tile substrates and finished tile surfaces. Show thresholds.

C. Samples for Initial Selection: For tile, grout, and accessories involving color selection or shade variation.

D. Samples for Verification:

1. Full-size units of each type and composition of tile and for each color and finish required.
2. Full-size units of each type of trim and accessory for each color and finish required.
3. Metal flooring transitions 6-inch lengths.

1.4 INFORMATIONAL SUBMITTALS

A. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

B. Product Certificates: For each type of product, including product use classification.

C. Product Test Reports:

1. Tile-setting and -grouting products.
2. Certified porcelain tile.

D. Slip-Resistance Test Reports: For each type of floor tile, from a qualified independent testing agency.

E. Field Quality Control Reports: Water test reports of membrane in wet areas.

F. Qualification Statements: For Installer.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Extra Stock Material: Furnish extra materials, from the same production run, to Owner that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size specified.
2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated for Project.

1.6 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer employs only Ceramic Tile Education Foundation Certified Installers or installers recognized by the U.S. Department of Labor as Journeyman Tile Layers for Project.
2. Installer employs at least one installer for Project that has completed the Advanced Certification for Tile Installers (ACT) certification for installation of large format tile.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.

B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

D. Store liquid materials in unopened containers and protected from freezing.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Tile: Obtain tile of each type from single source or producer.

1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.

B. Accessory Products: Obtain each of the following products specified in this Section from a single manufacturer:

1. Stone thresholds.
2. Backer units.

2.2 CERAMIC TILE SYSTEM, GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.

C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

E. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

2.3 PORCELAIN TILES

A. Porcelain Tile (CT-2):

1. Basis-of-Design Product: Subject to compliance with requirements, provide Daltile; Choice- Weathered White Square 12x12 Matte or comparable product by one of the following:

a. Crossville, Inc.
b. Florida Tile, Inc.

2. Type: Glazed.
3. Certification: Tile certified by the Porcelain Tile Certification Agency.
4. Face Size: 11-13/16 by 11-13/16 inches.
5. Thickness: 5/16 inch.
6. Product Use Classification: Interior, Wet (IW).
7. Tile Color, Glaze, and Pattern: As indicated on the drawings.
8. Grout Color: As selected by Architect from manufacturer's full range.

2.4 GLAZED WALL TILES

A. Glazed Wall Tile (CT-1/CT-3):

1. Basis-of-Design Product: Subject to compliance with requirements, provide Daltile-Classic Color Wheel Colletion-Glazed Ceramic or comparable product by one of the following:

a. American Olean; a brand of Dal-Tile Corporation

2. Module Face Size: 6 by 6 inches.
3. Face Size Variation: Rectified.
4. Thickness: 5/16 inch.
5. Tile Color and Pattern: As indicated on the drawings.
6. Grout Color: As selected by Architect from manufacturer's full range.
7. Mounting: Loose tiles.
8. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable

and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:

a. Base for Thinset Mortar Installations: Straight, module size 6 by 6 inches.
b. Wainscot Cap for Thinset Mortar Installations: Surface bullnose, module size 3 by 6 inches.
c. External Corners for Portland Cement Mortar Installations: Bullnose shape with radius of at least 3/4 inch unless otherwise indicated.
d. External Corners for Thinset Mortar Installations: Surface bullnose; same size as adjoining flat tile.
e. Internal Corners: Field-butted square corners. For coved base and cap, use angle pieces designed to fit with stretcher shapes.

2.5 THRESHOLDS

A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.

1. Profile: Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch or less above adjacent floor surface.

B. Solid-Surface Thresholds: Homogeneous-filled plastic resin complying with ISFA-02-01.

1. Type: Provide Standard type.
2. Colors and Patterns: As selected by Architect from manufacturer's full range.

2.6 WATERPROOF MEMBRANES

A. General: Manufacturer's standard product , selected from the following, that complies with ANSI A118.10 and ANSI A118.12 and is recommended in writing by manufacturer for application indicated. Include reinforcement and accessories recommended in writing by manufacturer.

B. Waterproof Membrane, Fluid Applied (CT-2): Liquid-latex rubber or elastomeric polymer.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ARDEX Americas: ARDEX 8+9™ Rapid Waterproofing and Crack Isolation Compound or comparable product by one of the following:
2. Reinforcement: Continuous fabric reinforcement.

2.7 SETTING MATERIALS

A. Standard Dry-Set Mortar (Thinset) (CT-X): ANSI A118.1.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Laticrete International, Inc.: LATICRETE 272 Mortar or comparable product by one of the

following:

2. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to other requirements in ANSI A118.1.

2.8 GROUT MATERIALS

A. Sand-Portland Cement Grout: ANSI A108.10, consisting of white or gray cement and white or colored aggregate as required to produce color indicated.

B. Standard Cement Grout (CT-X): ANSI A118.6.

1. Manufacturers: Subject to compliance with requirements, [**provide products by the following**][**provide products by one of the following**][**available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following**]:

a. [**ARDEX Americas**]
b. [**Boiardi Products Corporation; a QEP company**]
c. [**Bostik; Arkema**]
d. [**C-Cure**]
e. [**Custom Building Products**]
f. [**H.B. Fuller Construction Products Inc. / TEC**]
g. [**Laticrete International, Inc.**]
h. [**MAPEI Corporation**]
i. [**Parex, a Sika brand**]
j. [**Sakrete; CRH Americas, Oldcastle APG**]
k. [**Siena Tile & Stone Installation Products; Omega Products International**]
l. [**Sika Corporation**]
m. [**Southern Grouts & Mortars, Inc**]
n. [**Summitville Tiles, Inc.**]
o. <**Insert manufacturer's name**>

2.9 MISCELLANEOUS MATERIALS

A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting and adhesive materials for installations indicated.

B. Vapor-Retarder Membrane: Polyethylene sheeting, ASTM D4397, 4.0 mils thick.

C. Metal Flooring Transitions (Metal): Profile designed specifically for flooring applications; height to match tile and setting-bed thickness.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Schluter Systems L.P.: SCHIENE or comparable product by one of the following:
2. Profile: L-shaped.
3. Material and Finish: Metallic or combination of metal and PVC or neoprene base;

polished chrome anodized aluminum exposed-edge material.

D. Temporary Protective Coating: Formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products and easily removable after grouting is completed without damaging grout or tile.

E. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

F. Grout Sealer: Grout manufacturer's standard product for sealing grout joints that does not change color or appearance of grout.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
2. Verify that concrete substrates for tile floors installed with thinset mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.

    a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
    b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.

3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove coatings, including curing compounds or other coatings, that are incompatible with tile-setting materials.

B. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thinset mortar with trowelable leveling and patching compound specifically recommended in writing

by tile-setting material manufacturer.

C. Where indicated, prepare substrates to receive waterproof membrane by applying a reinforced mortar bed that complies with ANSI A108.1 and is sloped 1/4 inch per foot toward drains.

D. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

E. Substrate Flatness:

1. For tile shorter than 15 inches, confirm that structure or substrate is limited to variation of 1/4 inch in 10 ft. from the required plane, and no more than 1/16 inch in 12 inches when measured from tile surface high points.
2. For large format tile, tile with at least one edge 15 inches or longer, confirm that structure or substrate is limited to 1/8 inch in 10 ft. from the required plane, and no more than 1/16 inch in 24 inches when measured from tile surface high points.

3.3 INSTALLATION OF CERAMIC TILE SYSTEM, GENERAL

A. Waterproof Membranes: Install waterproof membrane with crack isolation to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.

1. Allow waterproof membrane to cure and verify by testing that it is watertight before installing tile or setting materials over it.

B. Crack Isolation Membranes: Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.

1. Allow crack isolation membrane to cure before installing tile or setting materials over it.

C. Setting and Grout Materials: Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

1. Add materials, water, and additives in accurate proportions.
2. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

D. Install tile in accordance with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of ANSI A108 series that are referenced in TCNA installation methods and specified in tile installation schedules, and apply to types of setting and grouting materials used.

1. For the following installations, follow procedures in ANSI A108 series of tile installation

standards for providing 95 percent mortar coverage:

a. Tile floors in wet areas.
b. Tile floors consisting of tiles 8 by 8 inches or larger.
c. Tile floors consisting of rib-backed tiles.

2. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
3. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
4. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
5. Where accent tile differs in thickness from field tile, vary setting-bed thickness so that tiles are flush.
6. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.

   a. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
   b. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.

7. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.

E. Movement Joints: Provide movement joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated on Drawings. Form joints during installation of setting materials, mortar beds, and tile. Keep joints free of dirt, debris, and setting materials prior to filling with sealants. Do not saw-cut joints after installing tiles.

1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.

F. Thresholds: Install stone and solid surface thresholds in same type of setting bed as adjacent floor unless otherwise indicated.

1. Do not extend waterproof membrane under thresholds set in standard dry-set mortar (thinset). Fill joints between such thresholds and adjoining tile set on waterproof membrane with elastomeric sealant.

G. Metal Flooring Transitions: Install at locations indicated.

3.4 ADJUSTING

A. Remove and replace tile that is damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.

3.5 CLEANING

A. On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove grout residue from tile as soon as possible.
2. Clean grout smears and haze from tile in accordance with tile and grout manufacturer's written instructions. Use only cleaners recommended in writing by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

3.6 PROTECTION

A. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended in writing by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.

B. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

C. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

3.7 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

A. Interior Floor Installations, Concrete Subfloor:

1. TCNA F125-Full: Thinset mortar on crack isolation membrane.

a. Ceramic Tile Type: CT-2.
b. Mortar: Modified dry-set mortar (thinset).
c. Grout: Standard cement grout.

1) Type: Sanded.

d. Crack Isolation Membrane: Fabric-reinforced, fluid-applied membrane.
e. Joint Width: 3/16 inch.
f. Movement Joints: Types located on Drawings.

B. Interior Wall Installations, Masonry or Concrete:

1. TCNA W202I: Thinset mortar .

    a. Ceramic Tile Type: CT-1 & CT-3.
    b. Mortar: Standard dry-set mortar (thinset).
    c. Grout: Standard cement grout.

        1) Type: Sanded.

    d. Joint Width: 3/16 inch.
    e. Movement Joints: Types located on Drawings.

END OF SECTION 093013

SECTION 095113

ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Acoustical panels.
2. Exposed metal suspension system.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of specified product.

B. Samples for Initial Selection: For components with factory-applied finishes.

C. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:

1. Acoustical Panels: Set of 6-inch- square Samples of each type, color, pattern, and texture.
2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch- long Samples of each type, finish, and color.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Ceiling suspension-system members.
2. Structural members to which suspension systems will be attached.
3. Method of attaching hangers to building structure.

a. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.

4. Carrying channels or other supplemental support for hanger-wire attachment where

conditions do not permit installation of hanger wires at required spacing.

5. Size and location of initial access modules for acoustical panels.
6. Items penetrating finished ceiling and ceiling-mounted items including the following:

    a. Lighting fixtures.
    b. Diffusers.
    c. Grilles.
    d. Speakers.
    e. Sprinklers.
    f. Access panels.
    g. Perimeter moldings.

7. Show operation of hinged and sliding components covered by or adjacent to acoustical panels.
8. Minimum Drawing Scale: 1/4 inch = 1 ft..

B. Product Test Reports: For each acoustical panel ceiling, for tests performed by a qualified testing agency.

C. Evaluation Reports: For each acoustical panel ceiling suspension system and anchor and fastener type, from ICC-ES.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For finishes to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials , from the same production run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Acoustical Panels: Full-size panels equal to 2 percent of quantity installed.
2. Suspension-System Components: Quantity of each exposed component equal to 2 percent of quantity installed.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Source Limitations for Ceiling System: Obtain each type of acoustical panel and its supporting suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: Class A in accordance with ASTM E1264.
2. Smoke-Developed Index: 50 or less.

2.3 ACOUSTICAL PANEL CEILINGS

A. Acoustical Panels (ACT-X): Provide manufacturer's standard panels in accordance with ASTM E1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Armstrong World Industries: Calla or comparable product by one of the following:

a. Armstrong World Industries: Calla

2. Classification: Provide panels as follows:

a. Type and Form: Type A, Form A2.2; Wet-formed mineral fiber with acoustically transparent membrane..
b. Pattern: G (smooth).

3. Color: White.
4. Light Reflectance: Not less than 0.85.
5. Ceiling Attenuation Class: Not less than 35.
6. Noise Reduction Coefficient: Not less than 0.85.

7. Articulation Class: Not less than 170.
8. Edge/Joint Detail: Square.
9. Thickness: 1 inch.
10. Modular Size: As indicated on Drawings.
11. Antimicrobial Treatment: Manufacturer's standard broad spectrum, antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested in accordance with ASTM D3273, ASTM D3274, or ASTM G21 and evaluated in accordance with ASTM D3274 or ASTM G21.

B. Exposed Metal Suspension System (ACT-X):

1. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories in accordance with ASTM C635/C635M and designated by type, structural classification, and finish indicated.
2. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch- wide metal caps on flanges.

    a. Structural Classification: Heavy -duty system.
    b. End Condition of Cross Runners: Override (stepped) or butt-edge type.
    c. Face Design: Flat, flush.
    d. Cap Material: Cold-rolled steel.
    e. Cap Finish: Painted white.

2.4 ACCESSORIES

A. Attachment Devices: Size for five times the design load indicated in ASTM C635/C635M, Table 1, "Direct Hung," unless otherwise indicated.

1. Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing in accordance with ASTM E488/E488M or ASTM E1512 as applicable, conducted by a qualified testing and inspecting agency.

    a. Corrosion Protection, Carbon Steel: Components zinc plated in accordance with ASTM B633, Class SC 1 (mild) service condition.

B. Wire Hangers, Braces, and Ties: Provide wires as follows:

1. Zinc-Coated, Carbon-Steel Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper.
2. Size: Wire diameter sufficient for its stress at three times hanger design load 0.106-inch-diameter wire.

C. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.

D. Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.

B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.

B. Layout openings for penetrations centered on the penetrating items.

3.3 INSTALLATION OF ACOUSTICAL PANEL CEILINGS

A. Install acoustical panel ceilings in accordance with ASTM C636/C636M and manufacturer's written instructions.

B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or

power-actuated fasteners that extend through forms into concrete.

6. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
7. Do not attach hangers to steel deck tabs.
8. Do not attach hangers to steel roof deck. Attach hangers to structural members.
9. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
10. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.

D. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

E. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.

1. Arrange directionally patterned acoustical panels as follows:

a. As indicated on reflected ceiling plans.

2. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
3. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

3.4 ERECTION TOLERANCES

A. Suspended Ceilings: Install main and cross runners level to a tolerance of 1/8 inch in 12 ft., non-cumulative.

3.5 CLEANING

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.

B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095113

SECTION 096513

RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Thermoplastic rubber base.
2. Rubber molding accessories.
3. Vinyl molding accessories.

B. Related Requirements:

1. Section 024119 "Selective Demolition" for removing existing floor coverings.
2. Section 096519 "Resilient Tile and Plank Flooring" for modular resilient flooring.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of specified product.

1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
2. Include manufacturer's written installation instructions for each type of substrate.

B. Samples for Initial Selection: For each type of exposed product.

C. Samples for Verification: For each type of exposed product indicated and for each color, texture, and pattern required in manufacturer's standard-size Samples, but not less than 12 inches long.

1.3 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For resilient base and accessory products, for tests performed by a qualified testing agency.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Extra Stock Material: Furnish extra materials , from the same production run, to Owner that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish not less than 10 linear ft. for every 500 linear ft. or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.6 FIELD CONDITIONS

A. Installation Temperature Requirements: Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. Post-Installation Temperature Requirements: After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: As determined by testing identical products in accordance with ASTM E648 or ASTM E662 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

2.2 RESILIENT BASE

A. Thermoplastic Rubber Base (RB-X):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Armstrong Flooring, Inc.
b. Shaw Industries Group, Inc.; Berkshire Hathaway Company
c. Tarkett USA

2. Classification: ASTM F1861, Type TP (rubber, thermoplastic), Group I (solid, homogeneous).
3. Style and Location:

    a. Style A, Straight: Provide in areas with carpet.
    b. Style B, Cove: Provide in areas with resilient floor coverings.

4. Thickness: 0.125 inch.
5. Height: 4 inches.
6. Lengths: Coils in manufacturer's standard length.
7. Outside Corners: Job formed.
8. Inside Corners: Job formed.
9. Colors: As indicated on the drawings.

2.3 RESILIENT MOLDING ACCESSORIES

A. Rubber Molding Accessories Transition strip:

1. Accessory Description: transition strips.
2. Profile and Dimensions: As indicated on Drawings.

B. Locations: Provide resilient molding accessories in areas indicated on Drawings.

C. Colors and Patterns: As indicated on the drawings.

2.4 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended in writing by resilient-product manufacturer for resilient products and substrate conditions indicated.

C. Metal Edge Strips: Nominal 2 inches wide, of height required to protect exposed edges of flooring, and in maximum available lengths to minimize running joints.

1. Material: Extruded aluminum with mill finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Prepare substrates in accordance with manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces in accordance with ASTM F710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
4. Moisture Testing: Perform tests so that each test area does not exceed 1000 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

    a. Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
    b. Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install resilient products until materials are the same temperature as space where they are to be installed.

1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 INSTALLATION OF RESILIENT BASE

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.

    a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.

    a. Miter or cope corners to minimize open joints.

3.4 INSTALLATION OF RESILIENT MOLDING ACCESSORIES

A. Comply with manufacturer's written instructions for installing resilient molding accessories.

B. Butt resilient molding accessories to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.5 CLEANING

A. Comply with manufacturer's written instructions for cleaning resilient products.

B. Perform the following operations immediately after completing resilient-product installation:

1. Remove adhesive and other blemishes from surfaces.

3.6 PROTECTION

A. Comply with manufacturer's written instructions for protecting resilient products.

B. After post-installation cleaning, immediately protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

C. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation of exterior substrates and application of the following:

1. Primers.
2. Water-based finish coatings.
3. Solvent-based finish coatings.
4. Floor sealers and paints.

B. Related Requirements:

1. Section 051200 "Structural Steel Framing" for shop priming structural steel substrates.
2. Section 055000 "Metal Fabrications" for shop priming metal fabrications.
3. Section 055113 "Metal Pan Stairs" for shop priming metal pan stairs.
4. Section 055119 "Metal Grating Stairs" for shop priming metal grating stairs.
5. Section 055213 "Pipe and Tube Railings" for shop priming pipe and tube railings.
6. Section 099123 "Interior Painting."
7. Section 099300 "Staining and Transparent Finishing" for surface preparation and application of wood stains and transparent finishes on exterior wood substrates.
8. Section 099600 "High-Performance Coatings" for tile-like coatings.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include preparation requirements and application instructions.
2. Indicate VOC content.

B. Samples for Initial Selection: For each type of topcoat product.

C. Samples for Verification: For each type of paint system and each color and gloss of topcoat. Submit actual paint drawdowns as specified below for verification Samples.

1. Submit Samples on rigid backing, 8 inches square.
2. Apply coats on Samples in steps to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in applicable exterior painting schedule articles to cross-reference paint systems specified in this Section. Include color designations.

1.3 CLOSEOUT SUBMITTALS

A. Coating Maintenance: Provide coating maintenance manual including area summary with finish schedule, area detail designating location where each product/color/finish was used, product data pages, material safety data sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match paint products applied and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint Products: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 MOCKUPS

A. Apply mockups of each paint system indicated and each color and finish selected to verify selections made under Sample submittals, demonstrate aesthetic effects, and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations by Change Order.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacture’s label with the following information:

1. Product name and type (description).
2. Batch date.
3. Color number.

4. VOC content.
5. Environmental handling requirements.
6. Surface preparation requirements.
7. Application instructions.

B. 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.

1.7 FIELD 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.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain each paint product from single source from single manufacturer.

1. Manufacturer's Designations listed on a separate color schedule are for color reference only and do not indicate prior approval.
2. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

2.2 EXTERIOR PAINTS, GENERAL

A. Exterior Paints: Subject to compliance with requirements, provide Sherwin-Williams Company; products indicated or comparable product from one of the following: .

1. Benjamin Moore Corporation.
2. PPG Architectural Finishes, Inc.
3. Tnemec Company, Inc.

B. Comparable Products: Comparable products of approved manufacturers will be considered in accordance with Section 016000 "Product Requirements," and the following:

1. Products are approved by manufacturer in writing for application specified.
2. Products meet performance and physical characteristics of basis of design products including published ratio of solids by volume, plus or minus two percent.

C. Material Compatibility:

1. Materials for use within each paint system must be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer based on testing and field experience.
2. Products are approved by manufacturer in writing for application specified.

D. VOC Content: For field applications, provide paints and coatings that complies with VOC content limits of authorities having jurisdiction.

E. Colors: As indicated in a color schedule on Drawings.

2.3 PRIMERS

A. Exterior Wood Preservative: Solvent-based, zinc or copper naphthenate, penetrating antifungal treatment for exterior wood.

2.4 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform test 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.

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 the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.

C. Verify suitability of substrates, including surface conditions and compatibility, with finishes and

primers. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and 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.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems specified in this Section.

D. Concrete Substrates: Remove release agents, curing compounds, 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. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

F. Steel Substrates: Remove loose rust, loose mill scale, loose shop primer, and other loose foreign matter. Clean using methods recommended in writing by paint manufacturer .

G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed substrates.

H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

I. Aluminum Substrates: Remove loose surface oxidation.

J. Wood Substrates:

1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
2. Sand surfaces that will be exposed to view and remove sanding dust.

3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

K. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 APPLICATION OF EXTERIOR PAINT PRODUCTS

A. Apply paints in accordance with manufacturer's written instructions and as recommended in "MPI Manual".

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.
3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
4. Paint entire exposed surface of window frames and sashes.
5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
6. Primers specified in applicable exterior painting schedule articles may be omitted on items that are factory primed or factory finished if compatible with intermediate and topcoat coatings and acceptable to intermediate and topcoat paint manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. 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.

E. Painting, Fire-Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed to view:

a. Equipment, including panelboards and switch gear.
b. Uninsulated metal piping.
c. Uninsulated plastic piping.
d. Pipe hangers and supports.
e. Metal conduit.
f. Plastic conduit.
g. Tanks that do not have factory-applied final finishes.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written instructions, apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written instructions.
3. Cost of retesting is Contractor's responsibility.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
3. Allow empty paint cans to dry before disposal.
4. Collect waste paint by type and deliver to recycling or collection facility.

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, CONCRETE SUBSTRATES

A. Vertical (Nontraffic) Surfaces:

1. Latex System:

a. Prime Coat: Primer sealer, latex.

1) S-W Loxon Concrete & Masonry Primer Sealer, LX02W50, at 8.0 mils wet, 3.2 mils dry.

b. Intermediate Coat: Matching topcoat.
c. Topcoat: Exterior latex paint, low sheen.

1) S-W A-100 Exterior Latex Satin, A82 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

3.7 EXTERIOR PAINTING SCHEDULE, CEMENTITIOUS SUBSTRATES

A. Cementitious Composition Board Substrates: Siding.

1. Latex System :

a. Prime Coat: Manufacturer's universal primer.
b. Intermediate Coat: Matching topcoat.
c. Topcoat: Exterior acrylic:latex paint, low sheen.

1) S-W A Exterior Latex Satin, A82 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

3.8 EXTERIOR PAINTING SCHEDULE, MASONRY SUBSTRATES

A. CMU Substrates:

1. Latex System:

a. Prime Coat: Latex block filler.
b. Intermediate Coat: Matching topcoat.

1) S-W Pro Industrial Heavy Duty Block Filler, B42 Series (16.0-21.0 mil wet, 8.0-10.5 mil dry).

c. Topcoat: Exterior latex paint, .

1) S-W A-100 Exterior Latex Satin, A82 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

3.9 EXTERIOR PAINTING SCHEDULE, METAL SUBSTRATES

A. Steel and Iron Substrates:

1. Water-Based, Light Industrial Coating System: Standard System for Hollow Metal Doors and Frames, and Coiling Doors.

a. Prime Coat: Primer, rust-inhibitive, water based: .
b. S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10 mils wet, 2.0 to 4.0 mils dry.
c. Intermediate Coat: Matching topcoat.
d. Topcoat: Exterior, water-based, , semigloss.

1) S-W Pro Industrial Acrylic Semi-Gloss Coating, B66-650 Series, at 2.5 to

4.0 mils dry, per coat.

2. Water-Based Alkyd System: Standard system for handrails, exposed structural steel, steel lintels, and pipe bollards.

a. Prime Coat: Primer, rust-inhibitive, water based: .

1) S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10 mils wet, 2.0 to 4.0 mils dry.

b. Intermediate Coat: Matching topcoat.
c. Topcoat: Exterior water-based alkyd- urethane, paint, semigloss.

1) S-W Pro Industrial Waterbased Alkyd Urethane Semi-Gloss, B53-1150 Series, at 4.0 mils wet, 1.4 mils dry, per coat.

B. Galvanized Metal Substrates:

1. Water-Based Alkyd Urethane System: High performance system for doors, frames, and handrails.

a. Prime Coat: Water-based, rust-inhibitive, primer.

1) S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10 mils wet, 2.0 to 4.0 mils dry.

b. Intermediate Coat: Matching topcoat.
c. Topcoat: Exterior water-based alkyd Urethane paint, semigloss.

1) S-W Pro Industrial Water based Alkyd Urethane Semi-Gloss, B53-1150 Series, at 4.0 mils wet, 1.4 mils dry, per coat.

3.10 EXTERIOR PAINTING SCHEDULE, WOOD SUBSTRATES

A. Dressed-Wood Substrates: Wood trim Architectural woodwork Windows.

1. Latex over Latex Primer System:

a. Prime Coat: Exterior, latex wood primer.

1) S-W Exterior Latex Wood Primer, B42W8041, at 4.0 milswet, 1.4 mils dry, per coat.

b. Intermediate Coat: Matching topcoat.
c. Topcoat: Exterior latex paint, low sheen.

1) S-W A-100 Exterior Latex Satin, A82 Series, at 4.0 milswet, 1.5 mils dry, per coat.

END OF SECTION 099113

SECTION 099123

INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation of interior substrates and application of the following:

1. Primers.
2. Water-based finish coatings.
3. Floor sealers and paints.

B. Related Requirements:

1. Section 051200 "Structural Steel Framing" for shop priming structural steel substrates.
2. Section 055000 "Metal Fabrications" for shop priming metal fabrications.
3. Section 055213 "Pipe and Tube Railings" for shop priming pipe and tube railings.
4. Section 099113 "Exterior Painting."

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include preparation requirements and application instructions.
2. Indicate VOC content.

B. Samples for Initial Selection: For each type of topcoat product.

C. Samples for Verification: For each type of paint system and each color and gloss of topcoat. Submit actual paint drawdowns as specified below for verification Samples.

1. Submit Samples on rigid backing, 8 inches square.
2. Apply coats on Samples in steps to show each coat required for system.
3. Label each coat of each Sample.

D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in applicable interior painting schedule articles to cross-reference paint systems specified in this Section. Include color designations and VOC content.

1.3 CLOSEOUT SUBMITTALS

A. Coating Maintenance Manual: Provide coating maintenance manual including area summary with finish schedule, area detail designating location where each product/color/finish was used, product data pages, material safety data sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match paint products applied and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint Products: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 MOCKUPS

A. Apply mockups of each paint system indicated and each color and finish selected to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations by Change Order.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 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.

B. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling,

storing, unpacking, protecting, and installing. Packaging shall bear the manufacturer's label with the following information:

1. Product name and type (description).
2. Batch date.
3. Color number.
4. VOC content.
5. Enviromental handling requirements.
6. Surface preparation requirements
7. Application instructions.

1.7 FIELD 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 of less than 5 deg F above the dew point; or to damp or wet surfaces.

C. Lead Paint: It is not expected that lead paint will be encountered in the Work. If suspected lead paint is encountered, do not distrub; immediately notify Architect and Owner.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain each paint product from single source from single manufacturer.

1. Manufacturer's designations listed on a separate color schedule are for color reference only and do not indicate prior approval.

2.2 INTERIOR PAINTS, GENERAL

A. Interior Paints: Subject to compliance with requirements, provide one of the products listed in product types below and applicable interior painting schedule articles for the paint category indicated.

B. Material Compatibility:

1. Materials for use within each paint system must be 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 topcoat manufacturer for use in paint system and on substrate indicated.

C. VOC Content: For field applications that are inside the weatherproofing system, verify paints

and coatings comply with VOC content limits of authorities having jurisdiction and the following VOC content limits:

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 50 g/L.
3. Primers, Sealers, and Undercoaters: 100 g/L.
4. Rust-Preventive Coatings: 100 g/L.
5. Zinc-Rich Industrial Maintenance Primers: 100 g/L.
6. Pretreatment Wash Primers: 420 g/L.
7. Floor Coatings: 50 g/L.
8. Shellacs, Clear: 730 g/L.
9. Shellacs, Pigmented: 550 g/L.

D. Colors: As indicated in a color schedule.

2.3 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedures:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying coatings 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.

2.4 PAINT PRODUCTS (P-X)

A. Comparable Products: Comparable products of approved manufacturers will be considered in accordance with Section 016000 "Product Requirements," and the following:

1. Products are approved by manufacturer in writing for application specified.

    a. Products meet performance and physical characteristics of basis of product including published ratio of solids by volume, plus or minus two percent.

B. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company (The) or comparable product by one of the following:

1. Benjamin Moore
2. PPG

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 the Work. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.

1. Report, in writing, conditions that may affect application, appearance, or performance of paint.
2. Application of coating indicates accpetance of surfaces and conditions.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Cementitious Composition Board: 12 percent.
3. Masonry (Clay and CMU): 12 percent.
4. Wood: 15 percent.
5. Gypsum Board: 12 percent. Verify that finishing compound is dry and sanded smooth.
6. Plaster: 12 percent. Verify that plaster is fully cured.

C. Verify suitability of substrates, including surface conditions and compatibility, with finishes and primers. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and 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.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie

coat as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, 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.

1. Concrete Floors: Remove oil, dust, grease, dirt, and other foreign materials. Comply with SSPC-SP-13/NACE 6 or ICRI 03732.

E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints to be painted exceeds that permitted in manufacturer's written instructions.

F. Steel Substrates: Remove loose rust, loose mill scale, loose shop primer, and other loose foreign matter. Clean using methods recommended in writing by paint manufacturer .

G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

H. Galvanized Metal Substrates: Remove grease and oil residue from galvanized metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

I. Aluminum Substrates: Remove loose surface oxidation.

J. Wood Substrates:

1. Scrape and clean knots. Before applying primer, apply coat of wood-knot sealer.
2. Sand surfaces that will be exposed to view and remove sanding dust.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

K. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 APPLICATION OF INTERIOR PAINT PRODUCTS

A. Apply paints in accordance with manufacturer's written instructions and to recommendations in "MPI Manual".

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. Paint entire exposed surface of window frames and sashes.
5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
6. Primers specified in the applicable interior painting schedule articles may be omitted on items that are factory primed or factory finished if compatible with intermediate and topcoat coatings and acceptable to intermediate and topcoat paint manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. 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.

E. Painting Fire-Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed to view in equipment rooms:

    a. Equipment, including panelboards and switch gear.
    b. Uninsulated metal piping.
    c. Uninsulated plastic piping.
    d. Pipe hangers and supports.
    e. Metal conduit.
    f. Plastic conduit.
    g. Tanks that do not have factory-applied final finishes.
    h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.

2. Paint the following work where exposed to view in occupied spaces:

    a. Equipment, including panelboards.
    b. Uninsulated metal piping.
    c. Uninsulated plastic piping.
    d. Pipe hangers and supports.
    e. Metal conduit.
    f. Plastic conduit.
    g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    h. Other items as directed by Architect.

3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

A. Dry-Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry-film thickness.

1. Touch up and restore painted surfaces damaged by testing.
2. If test results show that dry-film thickness of applied paint does not comply with paint manufacturer's written recommendations, apply additional coats as needed to provide dry-film thickness that complies with paint manufacturer's written recommendations.
3. Cost of retesting is Contractor's responsibility.

3.5 CLEANING

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
3. Allow empty paint cans to dry before disposal.

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.

3.6 PROTECTION

A. 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.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.7 INTERIOR PAINTING SCHEDULE, CONCRETE SUBSTRATES

A. Vertical (Nontraffic) Surfaces:

1. Latex System:

a. Prime Coat: Latex, interior.

1) S-W Loxon Concrete & Masonry Primer Sealer, LX02W0050, at 0.8 mils wet, 3.2 mils dry.

b. Intermediate Coat: Matching topcoat.

c. Topcoat: Interior latex paint, eggshell.

1) S-W ProMar 200 Zero VOC Latex Eg-Shel, B20 Series, at 4.0 mils wet, 1.7 mils dry, per coat.

d. Topcoat: Interior latex paint, semi-gloss.

1) S-W ProMar 200 Zero VOC Latex Semi-gloss, B31 Series, at 4.0 mils wet, 1.6 mils dry, per coat.

2. Water-Based Light Industrial Coating System:

a. Prime Coat: primer sealer, latex, interior:

1) S-W Loxon Concrete & Masonry Primer Sealer, LX02W50, at 8.0 mills wet, 3.2 mils dry.

b. Intermediate Coat: Light industiral coating, interior, water based, matching topcoat.
c. Topcoat: Interior, water-based light industrial coating, interior, water based, eggshell.

1) S-W Pro Industiral Pre-Catalized Water Based Epoxy, K45 Series, at 4.0 mils wet 1.5 mils dry, per coat.

d. Topcoat: Light industrial coating, interior, water baed, semi-gloss:

1) S-W Pro Industrical Pre-Catalyzed Water Based Epoxy, K46-1150/2150 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

B. Horizontal (Traffic) Surfaces:

1. Water-Based Concrete Floor Sealer System: Seal.

a. First Coat: Matching topcoat.
b. Topcoat: Water-based concrete floor sealer.

1) H&C Clearishield water-based natural look clear concrete sealer

3.8 INTERIOR PAINTING SCHEDULE, MASONRY SUBSTRATES

A. CMU Substrates:

1. Institutional Low-Odor/VOC Latex System: P-XX, typical.

a. Block Filler: Latex block filler, latex, interior/exterior.

1) S-W Pro Industrial Heavy Duty Block Filler, B42 Series (16.0-21.0 mil wet, 8.0-10.5 mil dry).

b. Intermediate Coat: Matching topcoat.
c. Topcoat: Interior, latex, institutional low-odor/VOC paint, eggshell.

1) S-W ProMar 200 Zero VOC Latex Eg-Shel, B20 Series, at 4.0 mils wet, 1.7 mils dry, per coat.

d. Topcoat: Interior, latex, institutional low-odor/VOC paint, semi-gloss:

1) S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31 Series, at 4.0 mils wet, 1.6 mils dry, per coat.

2. Water-Based Light Industrial Coating System: P-XX, at corridors, stairwells, and restrooms.

a. Block Filler: Latex block filler, latex, interior/exterior.
b. S-W Pro Industrial Heavy Duty Block Filler, B42 Series (16.0-21.0 mil wet, 8.0-10.5 mil dry).
c. Intermediate Coat: Matching topcoat.
d. Topcoat: Interior, water-based light industrial coating, eggshell.

1) S-W Pro Industiral Pre-Catalyzed Water Based Epoxy, K45 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

e. Topcoat: Interior, water-based light industrial coating, semi-gloss:

1) S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-1150/2150 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

3.9 INTERIOR PAINTING SCHEDULE, METAL SUBSTRATES

A. Metal Substrates:

1. Waterbased Acrylic System: P-XX, Typical unless otherwise noted.

a. Prime Coat: Primer, rust-inhibitive, water based:

1) S-W Pro Industrial Pro-Cryl Universal Primer, B66 Series, at 5.0 to 10 mils wet, 2.0 to 4.0 mils dry.

b. Intermediate Coat: Matching topcoat.
c. Topcoat: Water-based Acrylic, semi-gloss, interior:

1) S-W Pro Industrial Acrylic Semi-gloss Coating, B66 Series, at 2.5 to 4.0 mils dry per coat.

2. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, rust-inhibitive, Water-based.

1) S-W Pro Industrial Pro-Cryl Universal Primer, B66 Series, at 5.0 to 10 mils wet, 2.0 to 4.0 mils dry.

b. Intermediate Coat: Matching topcoat.
c. Topcoat: Interior, water-based light industrial coating, semigloss.

1) S-W Pro Industrical Waterbased Alkyd Urethane Enamel, Semi-Gloss, B53-1150 Series, at 1.4 to 1.7 mils dry, per coat.

3. Water-Based Dry-Fall System:

a. Prime Coat: Matching topcoat.
b. Topcoat: Dry fall, water-based, flat .

1) S-W Pro Industrical Waterborne Acrylic Dryfall Flat, B42 Series, at 6.0 mils wet, 1.5 mils dry.

c. Topcoat: Dry fall, water-based, eggshell:

1) S-W Pro Industrial Waterborne Acrylic DryFall Eg-Shel, B42-82, at 6.0 mils wet, 1.9 mils dry.

3.10 INTERIOR PAINTING SCHEDULE, GYPSUM-BASED SUBSTRATES

A. Gypsum Board and Plaster Substrates:

1. Latex over Latex Sealer System: P-XX, typical.

a. Prime Coat: Interior latex primer sealer.

1) S-W ProMar 200 Zero VOC Latex Flat, B30 Series, at 4.0 mils wet, 1.6 mils dry, per coat.

b. Intermediate Coat: Matching topcoat.
c. Topcoat: Interior latex paint, flat:

1) S-W ProMar 200 Zero VOC Latex Flat, B30 Series, at 4.0 mils wet, 1.6 mils dry, per coat.

d. Topcoat: Interior latex paint, eggshell:

1) S-W ProMar 200 Zero VOC Latex Eg-Shel, B20 Series, at 4.0 mils wet, 1.7 mils dry, per coat.

e. Topcoat: Interior latex paint, semi-gloss

1) S-W ProMar 200 Zero VOC Latex Semi-gloss, B31 Series, at 4.0 mils wet, 1.6 mils dry, per coat.

2. Water-Based Light Industrial Coating System: P-XX, at corridors, stairwells, and restrooms.

    a. Prime Coat: Interior latex primer sealer.

        1) S-W ProMar 200 Zero VOC Latex Primer, B28W2600, at 4.0 mils wet, 1.0 mils dry.

    b. Intermediate Coat: Matching topcoat.
    c. Topcoat: Interior, water-based light industrial coating, Eggshell.

        1) S-W Pro Industiral Pre-Catalyzed Waterbased Epoxy, K45 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

    d. Topcoat: Interior, water-based light industrial coating, Semi-gloss (.

        1) S-W Pro Industrial Water based Catalyzed Water based Epoxy, K46-1150/5150 Series, at 4.0 mils wet, 1.5 mils dry, per coat

END OF SECTION 099123

SECTION 101423.16

ROOM-IDENTIFICATION PANEL SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes room-identification signs that are directly attached to the building.

1.2 DEFINITIONS

A. Accessible: In accordance with the accessibility standard.

1.3 COORDINATION

A. Furnish templates for placement of sign-anchorage devices embedded in permanent construction by other installers.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For room-identification signs.

1. Include fabrication and installation details and attachments to other work.
2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
3. Show message list, typestyles, graphic elements , including raised characters and Braille, and layout for each sign at least half size.

C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.

1. Include representative Samples of available typestyles and graphic symbols.

D. Samples for Verification: For each type of sign assembly showing all components and with the required finish(es), in manufacturer's standard size unless otherwise indicated and as follows:

1. Room-Identification Signs: Full-size Sample.
2. Full-size Samples, if approved, will be returned to Contractor for use in Project.

E. Product Schedule: For room-identification signs. Use same designations indicated on Drawings

or specified.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For signs to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials , from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Variable Component Materials: 12 replaceable text inserts and interchangeable characters (letters, numbers, and graphic elements) of each type.
2. Tools: One set(s) of specialty tools for assembling signs and replacing variable sign components.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer of products.

1.9 FIELD CONDITIONS

A. Field Measurements: Verify locations of anchorage devices embedded in permanent construction by other installers by field measurements before fabrication, and indicate measurements on Shop Drawings.

1.10 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Deterioration of finishes beyond normal weathering.
b. Deterioration of embedded graphic image.
c. Separation or delamination of sheet materials and components.

2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Accessibility Standard: Comply with applicable provisions in ICC A117.1.

2.2 ROOM-IDENTIFICATION SIGNS

A. Room-Identification Sign (Signage): Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. ACE Sign Systems, Inc.
    b. Advance Corporation
    c. ASE, Inc
    d. ASI Sign Systems, Inc
    e. inpro Corporation
    f. Mohawk Sign Systems
    g. Signature Signs, Inc.
    h. Vista System, LLC

2. Laminated-Sheet Sign: Acrylic face sheet with raised graphics laminated to acrylic backing sheet to produce composite sheet.

    a. Composite-Sheet Thickness: 0.125 inch clear acrylic panel over 0.125 inch white acylic back panel which is 0.125 inch shorter on all sides.
    b. Composite-Sheet Thickness for insert signs: 0.25 inch clear acrylic panel over 1/16-inch acylic spacer over 1/4-inch acylic panel over 1/8-inch white arylic back panel which is 1/8-inch shorter on all sides.
    c. Insert Sing for Magentic strips: 1/4-inch clear acrylic panel over 1/8-inch white crylic back panel which is 1/8-inch shorter on all sides.
    d. Color: As selected by Architect from manufacturer's full range.

3. Sign-Panel Perimeter: Finish edges smooth.

    a. Edge Condition : Square cut.
    b. Corner Condition in Elevation: Square.

4. Mounting: Surface mounted to wall with two-face tape.
5. Text and Typeface: Accessible raised characters and Braille and variable content as scheduled. Finish raised characters to contrast with background color, and finish Braille to match background color.

2.3 SIGN MATERIALS

A. Acrylic Sheet: ASTM D4802, category as standard with manufacturer for each sign, Type UVF (UV filtering) and suitable for exterior applications.

B. Vinyl Film: UV-resistant vinyl film with pressure-sensitive, permanent adhesive; die cut to form characters or images as indicated on Drawings and suitable for exterior applications.

C. Paints and Coatings for Sheet Materials: Inks, dyes, and paints that are recommended by manufacturer for optimum adherence to surface and are UV and water resistant for colors and exposure indicated.

2.4 ACCESSORIES

A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following:

1. Use concealed fasteners and anchors unless indicated to be exposed.
2. For exterior exposure, furnish stainless-steel devices unless otherwise indicated.
3. Exposed Metal-Fastener Components, General:

    a. Fabricated from same basic metal and finish of fastened sign unless otherwise indicated.
    b. Fastener Heads: Use flathead screws and bolts with tamper-resistant one-way-head slots unless otherwise indicated.

4. Sign Mounting Fasteners:

    a. Concealed Studs: Concealed (blind), threaded studs welded or brazed to back of sign material or screwed into back of sign assembly unless otherwise indicated.
    b. Through Fasteners: Exposed metal fasteners matching sign finish, with type of head indicated, and installed in predrilled holes.

B. Adhesive: As recommended by sign manufacturer.

C. Two-Face Tape: Manufacturer's standard high-bond, foam-core tape, 0.045 inch thick, with adhesive on both sides.

D. Magnetic Tape: Manufacturer's standard magnetic tape with adhesive on one side.

2.5 FABRICATION

A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.

1. Preassemble signs and assemblies in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.

2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
3. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
4. Provide rabbets, lugs, and tabs necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.

B. Subsurface-Applied Graphics: Apply graphics to back face of clear face-sheet material to produce precisely formed image. Image shall be free of rough edges.

C. Signs with Changeable Message Capability: Fabricate signs to allow insertion of changeable messages as follows:

1. For snap-in changeable inserts beneath removable face sheet, furnish one suction or other device to assist in removing face sheet. Furnish initial changeable insert. Subsequent changeable inserts are by Owner.

D. Brackets:Fabricate brackets, fittings, and hardware for bracket-mounted signs to suit sign construction and mounting conditions indicated. Modify manufacturer's standard brackets as required.

1. Aluminum Brackets: Factory finish brackets with baked-enamel or powder-coat finish to match Design Professional's sample. color unless otherwise indicated.

2.6 GENERAL FINISH REQUIREMENTS

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.

1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
2. Install signs so they do not protrude or obstruct according to the accessibility standard.
3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.

B. Accessibility: Install signs in locations on walls as indicated on Drawings and according to the accessibility standard.

C. Mounting Methods:

1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.

   a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.
   b. Thin or Hollow Surfaces: Place sign in position and flush to surface, install washers and nuts on studs projecting through opposite side of surface, and tighten.

2. Two-Face Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position, and push to engage tape adhesive.

3.2 ADJUSTING AND CLEANING

A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.

B. Remove temporary protective coverings and strippable films as signs are installed.

C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 101423.16

SECTION 102800

TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Public-use washroom accessories.
2. Custodial accessories.

1.2 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.

B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.3 ACTION SUBMITTALS

A. Product Data: For each product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
2. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.

B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

1. Identify locations using room designations indicated.
2. Identify accessories using designations indicated.

1.4 INFORMATIONAL SUBMITTALS

A. Sample Warranty: For manufacturer's special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For accessories to include in maintenance manuals.

1.6 WARRANTY

A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, visible silver spoilage defects.
2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Design accessories and fasteners to comply with the following requirements:

1. Grab Bars: Installed units are able to resist 250 lbf concentrated load applied in any direction and at any point.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

A. Source Limitations: Obtain public-use washroom accessories from single source from single manufacturer.

B. Toilet Tissue (TPD):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Bobrick Washroom Equipment, Inc
b. Bradley Corporation

2. Description: Double-roll dispenser.
3. Mounting: Surface mounted.
4. Operation: Noncontrol delivery with standard spindle.
5. Capacity: Designed for 4-1/2- or 5-inch- diameter tissue rolls.
6. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin).

C. Paper Towel (PTD):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Bobrick Washroom Equipment, Inc
b. Bradley Corporation

2. Description: Pull-towel-actuated mechanism that permits controlled delivery of paper rolls in 12-inch preset lengths pf towel per pull and operates smoothly and quietly.
3. Mounting: Surface mounted.
4. Minimum Capacity: 8-inch- wide, 800-foot- long roll.
5. Material and Finish: ABS plastic, gray, with translucent front cover.
6. Lockset: Tumbler type.

D. Automatic Soap Dispenser (SD):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Bradley Corporation
b. Gamco Commercial Restroom Accessories; Bobrick Washroom Equipment, Inc.

2. Description: Automatic dispenser with infrared sensor to detect presence of hands; battery powered; designed for dispensing soap in lather form.
3. Mounting: Surface mounted.
4. Materials: ABS Plastic.
5. Refill Indicator: LED indicator.
6. Low-Battery Indicator: LED indicator.

E. Grab Bar (GB-X):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Bobrick Washroom Equipment, Inc
b. Bradley Corporation

2. Mounting: Flanges with concealed fasteners.
3. Material: Stainless steel, 0.05 inch thick.

a. Finish: Smooth, ASTM A480/A480M No. 4 finish .

4. OD: 1-1/2 inches.
5. Configuration and Length: As indicated on Drawings.

F. Sanitary-Napkin Disposal Unit (SND):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Bobrick Washroom Equipment, Inc
b. Bradley Corporation

2. Mounting: Surface mounted.
3. Door or Cover: Self-closing, disposal-opening cover .
4. Receptacle: Removable.
5. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin).

G. Mirror Unit (MX):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Bobrick Washroom Equipment, Inc
    b. Bradley Corporation

2. Frame: Stainless steel angle, 0.05 inch thick.

    a. Corners: Mitered and mechanically interlocked.

3. Size: As indicated on Drawings.
4. Hangers: Manufacturer's standard rigid, tamper and theft resistant.

H. Hook (HX):

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Bobrick Washroom Equipment, Inc
    b. Bradley Corporation

2. Description: Single-prong unit.
3. Mounting: Exposed.
4. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin).

2.3 CUSTODIAL ACCESSORIES

A. Source Limitations: Obtain custodial accessories from single source from single manufacturer.

B. Custodial Mop and Broom Holder:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Bobrick Washroom Equipment, Inc
    b. Bradley Corporation

2. Description: Unit with shelf, hooks, holders, and rod suspended beneath shelf.
3. Length: 36 inches .
4. Hooks: Six 14-gauage double hooks.
5. Mop/Broom Holders: Three, spring-loaded, rubber hat, cam type.
6. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin).

2.4 MATERIALS

A. Stainless Steel: ASTM A240/A240M or ASTM A666, Type 304, 0.031-inch- minimum nominal thickness unless otherwise indicated.

B. Steel Sheet: ASTM A1008/A1008M, Designation CS (cold rolled, commercial steel), 0.036-inch- minimum nominal thickness.

C. Galvanized-Steel Mounting Devices: ASTM A153/A153M, hot-dip galvanized after fabrication.

D. Fasteners: Screws, bolts, and other devices of same material as accessory unit, unless otherwise recommended by manufacturer or specified in this Section, and tamper and theft resistant where exposed, and of stainless or galvanized steel where concealed.

E. Mirrors: ASTM C1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

2.5 FABRICATION

A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.

B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION OF TOILET, BATH, AND LAUNDRY ACCESSORIES

A. Install accessories in accordance with manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

1. Remove temporary labels and protective coatings.

B. Grab Bars: Install to comply with specified structural-performance requirements.

3.2 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.

B. Clean and polish exposed surfaces in accordance with manufacturer's written instructions.

END OF SECTION 102800

SECTION 104416

FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.

1.3 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Failure of hydrostatic test according to NFPA 10 when testing interval required by NFPA 10 is within the warranty period.
b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

1. Provide fire extinguishers approved, listed, and labeled by FM Global.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers (FE): Type, size, and capacity for each mounting bracket indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Amerex Corporation
b. Badger Fire Protection; a Carrier company
c. Buckeye Fire Equipment Company
d. Guardian Fire Equipment, Inc
e. JL Industries; Activar Construction Products Group, Inc.
f. Kidde; Carrier Global Corporation
g. Larsen's Manufacturing Company

2. Source Limitations: Obtain fire extinguishers, fire-protection cabinets, and accessories, from single source from single manufacturer.
3. Valves: Manufacturer's standard.
4. Handles and Levers: Manufacturer's standard.
5. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B .

B. Multipurpose Dry-Chemical Type in Steel Container FE: UL-rated 2-A:10-B:C, 5-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

2.3 MOUNTING BRACKETS

A. Mounting Brackets (FE): Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or black baked-enamel finish.

1. Source Limitations: Obtain mounting brackets and fire extinguishers from single source from single manufacturer.

B. Identification: Lettering complying with authorities having jurisdiction for letter style, size,

spacing, and location. Locate as indicated by Architect.

1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.

    a. Orientation: Vertical.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

1. Mounting Height: Top of fire extinguisher to be at 42 inches above finished floor.

END OF SECTION 104416

SECTION 123640

STONE COUNTERTOP/ SILLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Window sills.

1.2 ACTION SUBMITTALS

A. Product Data:

1. For each and stone accessory product.

B. Shop Drawings:

1. Plans, sections, details, edge and backsplash profiles, and attachments to other work.
2. Locations and details of joints.

C. Samples: For each stone type, in sets not less than 12 inches square.

1. Include two or more Samples in each set and show the full range of variations in appearance characteristics expected in the completed Work.

1.3 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Indicate locations and sizes of cutouts and holes for items installed in Countertop/ sill and backsplashes.

B. Material Test Reports:

1. Stone Test Reports: For stone variety proposed for use on Project, by a qualified testing agency, indicating compliance with required physical properties, in accordance with referenced ASTM standards. Base reports on testing done within previous years.
2. Sealant Compatibility and Adhesion Test Report: From sealant manufacturer indicating that sealants will not stain or damage stone.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For stone Countertop/ sills. Include product data for stone-care products used or recommended by Installer, and names, addresses, and telephone numbers of local sources for products.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate stone Countertop/ sills similar to that required for this Project, and whose products have a record of successful in-service performance.

B. Installer Qualifications: Fabricator of stone Countertop/ sills.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store and handle stone and related materials to prevent deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breaking, chipping, and other causes.

1. Lift stone with wide-belt slings; do not use wire rope or ropes that might cause staining. Move stone, if required, using dollies with cushioned wood supports.
2. Store stone on wood A-frames or pallets with nonstaining, waterproof covers. Arrange to distribute weight evenly and to prevent damage to stone. Ventilate under covers to prevent condensation.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify dimensions of construction to receive stone Countertop/ sills by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Stone: Obtain each variety of stone, from a single quarry with resources to provide materials of consistent quality in appearance and physical properties.

1. For stone types that include same list of varieties and sources, provide same variety from same source for each.

2.2 PERFORMANCE REQUIREMENTS

A. General: Comply with recommendations in NSI's "Dimension Stone Design Manual."

B. Select stone for intended use to prevent fabricated units from containing cracks, seams, and starts that may impair structural integrity, function, or appearance.

1. Repairs that are characteristic of the varieties specified are acceptable provided they do not impair structural integrity or function and are not aesthetically unpleasing, as judged by Architect.

C. Quality Standard: Unless otherwise indicated, comply with ANSI/AWI 1236 for grades of stone Countertop/ sills indicated for construction, finishes, installation, and other requirements.

1. Grade: Premium.

2.3 MARBLE COUNTERTOP/ SILLS

A. Marble Countertop/ sill Type SILL:

1. Characteristics: Uniform, fine- to medium-grained, stone with only slight veining.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Daltile; Carrara Marble or comparable product by one of the following:

a. Coranado Stone Products.
b. Maravilla.

2. Description:

a. Nominal Thickness: Provide thickness indicated, but not less than 7/8 inch. Gage backs to provide units of identical thickness.
b. Edge Detail: Bevel.

2.4 MISCELLANEOUS MATERIALS

A. General: Use only adhesives formulated for stone and ceramic tile and that are recommended by their manufacturer for the application indicated.

B. Stone Adhesive: Epoxy formulated specifically for bonding or seaming stone to stone, with an initial set time of not more than two hours at 70 deg F.

1. Color: Clear.

C. Sealant for Countertop/ sills: Manufacturer's standard sealant that complies with applicable requirements in Section 079200 "Joint Sealants" and that will not stain the stone it is applied to.

1. Mildew-Resistant Joint Sealant: Mildew resistant, single component, nonsag, neutral curing, silicone.
2. Color: Clear.

D. Stone Joint Splines: Stainless steel or brass washers approximately 1 inch in diameter and of thickness to fit snugly in saw-cut kerf in edge of stone units.

E. Stone Cleaner: Specifically formulated for stone types, finishes, and applications indicated, as recommended by stone producer and, if a sealer is specified, by sealer manufacturer. Do not use cleaning compounds containing acids, caustics, harsh fillers, or abrasives.

F. Stone Sealer: Stone manufacturer's recommended colorless, stain-resistant sealer that does not affect color or physical properties of stone surfaces, as recommended by stone producer for application indicated.

2.5 FABRICATION

A. Fabricate stone Countertop/ sills in sizes and shapes required to comply with requirements indicated.

1. Clean sawed backs of stones to remove rust stains and iron particles.
2. Dress joints straight and at right angle to face unless otherwise indicated.
3. Cut and drill sinkages and holes in stone for anchors, supports, and attachments.
4. Provide openings, reveals, and similar features as needed to accommodate adjacent work.
5. Fabricate molded edges with machines having abrasive shaping wheels made to reverse contour of edge profile to produce uniform shape throughout entire length of edge and with precisely formed arris slightly eased to prevent snipping, and matched at joints between units. Form corners of molded edges as indicated with outside corners slightly eased unless otherwise indicated.
6. Finish exposed faces of stone to comply with requirements indicated for finish of each stone type required and to match approved Samples and mockups. Provide matching finish on exposed edges of Countertop/ sills, splashes, and cutouts.

B. Mark stone for final locations to produce assembled Countertop/ sill units with an overall uniform appearance.

C. Carefully inspect finished stone units at fabrication plant for compliance with requirements for appearance, material, and fabrication. Replace defective units.

D. Joints:

1. Fabricate Countertop/ sills without joints.
2. Joint Type, Bonded or Seamed: 1/32 inch or less in width.
3. Joint Type, Sealant Filled: 1/16 inch in width.
4. Splined Joints: Accurately cut kerfs in edges at joints for insertion of metal splines to maintain alignment of surfaces at joints . Make width of cuts slightly more than thickness of splines to provide snug fit. Provide at least three splines in each joint.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates to receive stone Countertop/ sills and conditions under which stone

Countertop/ sills will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of stone Countertop/ sills.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Advise installers of other work about specific requirements for placement of inserts and similar items to be used by stone Countertop/ sill Installer for anchoring stone Countertop/ sills. Furnish installers of other work with Drawings or templates showing locations of these items.

B. Clean dirty or stained stone surfaces by removing soil, stains, and foreign materials. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives, and rinse with clear water. Allow stone to dry before installing.

3.3 INSTALLATION OF STONE COUNTERTOP/ SILLS

A. Install Countertop/ sills over subtops with full spread of water-cleanable epoxy adhesive.

B. Install Countertop/ sills by adhering to supports with water-cleanable epoxy adhesive.

C. Do not field cut stone unless otherwise indicated. If stone Countertop/ sills/ sills or splashes require additional fabrication not specified to be performed at Project site, return to fabrication shop for adjustment.

D. Do necessary field cutting as stone is set. Use power saws with diamond blades to cut stone. Cut lines straight, true, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

E. Set stone to comply with requirements indicated. Shim and adjust stone to locations indicated, with uniform joints of widths indicated and with edges and faces aligned according to established relationships and indicated tolerances. Install anchors and other attachments indicated or necessary to secure stone Countertop/ sills in place.

F. Bond joints with stone adhesive and draw tight as Countertop/ sills are set. Mask areas of Countertop/ sills adjacent to joints to prevent adhesive smears.

1. Install metal splines in kerfs in stone edges at joints . Fill kerfs with stone adhesive before inserting splines and remove excess immediately after adjoining units are drawn into position.
2. Clamp units to temporary bracing, supports, or each other to ensure that Countertop/ sills are properly aligned and joints are of specified width.

G. Space joints with 1/16-inch gap for filling with sealant. Use temporary shims to ensure uniform spacing.

1. Install metal splines in kerfs in stone edges at joints where indicated. Fill kerfs with setting adhesive before inserting splines and remove excess immediately after adjoining

units are drawn into position.

H. Complete cutouts not finished in shop. Mask areas of Countertop/ sills adjacent to cutouts to prevent damage while cutting. Use power saws with diamond blades to cut stone. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

I. Grout joints to comply with ANSI A108.10. Remove temporary shims before grouting. Tool grout uniformly and smoothly with plastic tool.

J. Apply sealant to joints and gaps specified for filling with sealant; comply with Section 079200 "Joint Sealants." Remove temporary shims before applying sealant.

3.4 REPAIR

A. Repair damaged and defective Countertop/ sill where possible, to eliminate functional and visual defects .

B. Where not possible to repair, remove and replace stone Countertop/ sills/ sills of the following description:

1. Broken, chipped, stained, or otherwise damaged stone. Stone may be repaired if methods and results are approved by Architect.
2. Defective Countertop/ sills/sills.
3. Defective joints, including misaligned joints.

C. Replace in a manner that results in stone Countertop/ sills matching approved Samples and mockups, complying with other requirements, and showing no evidence of replacement.

3.5 ADJUSTING AND CLEANING

A. In-Progress Cleaning: Clean Countertop/ sills/ sills as work progresses. Remove adhesive, grout, mortar, and sealant smears immediately.

B. Clean stone Countertop/ sills/ sills no fewer than six days after completion of installation, using clean water and soft rags. Do not use wire brushes, acid-type cleaning agents, cleaning compounds with caustic or harsh fillers, or other materials or methods that may damage stone.

C. Sealer Application: Apply stone sealer to comply with stone producer's and sealer manufacturer's written instructions.

END OF SECTION 123640

SECTION - 14 24 03 HYDRAULIC FREIGHT ELEVATOR MODERNIZATION

PART 1 - GENERAL

1.1. SUMMARY

A. Section includes modernization of hydraulic elevators as follows:

1. One (1) freight elevator, Car [1].

B. Products Installed but Not Furnished Under This Section:

1. Internet connectivity in each elevator machine room or controller space.

C. Pit is classified as confined space.

1. Work in accordance with rules and guidelines of confined space elevator pit area.

1.2. DEFINITIONS

A. Technical terms used are defined in the latest edition of the Safety Code for Elevators and Escalators, ASME A17.1. or in this section.

B. ELEVATOR CONSULTANT or CONSULTANT refers to Lerch Bates Inc. (Lerch Bates).

C. PROVIDE means “furnish and install.”

D. MANUFACTURER means either the Original Equipment Manufacturer (OEM) or the principal manufacturer of a component or system.

E. RETAIN means, unless otherwise specified, the existing equipment is to be left in place with no alterations and no change in the original manufacturer’s designed performance or functionality. Items that are “retained” shall be thoroughly cleaned in place and adjusted to achieve originally designed function.

F. REFURBISH means, unless otherwise specified, the existing equipment is to be cleaned, repainted, repaired, and parts replaced to put the equipment into a condition to provide the same appearance, performance, and functionality as the equipment provided when it was originally installed. Unless otherwise specified, the scope of replacement of components is limited to those items currently available for purchase as replacement parts from the manufacturer or after-market suppliers approved by the manufacturer.

G. REUSE means that the Contractor shall carefully remove equipment from the existing installation, avoiding any damage or additional wear. Store in a safe location to maintain equipment in its pre-removal condition. Reinstall and incorporate into the modernized elevator installation using the same procedures and recommendations provided by the manufacturer of the equipment.

H. CALL BACK means a request from the Owner to the Contractor to provide a technician on site to evaluate an elevator that is out of service or not functioning properly, rectify the root cause of the malfunction, and place the unit back into normal service.

I. INCLUDES or INCLUDING means including the items specified but not limited solely to those items if additional work or components are required to achieve the specified outcome.

J. Words in the singular shall include the plural whenever applicable or context so indicates.

1.3. WORK INCLUDED

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A. Provide all labor, engineering, tools, transportation, services, supervision, materials, and equipment necessary for and incidental to satisfactory completion of required work as indicated in Contract Documents.

B. Provide all required staging, hoisting and movement of new equipment, reused equipment, or removal of existing equipment.

C. Applicable conditions of Owner's General, Special, and Supplemental Conditions.

D. Scope of work includes, but is not limited to, the following:

1. Coordination, scheduling, and management of work of component suppliers and subcontractors.

2. Furnish and install equipment as specified, utilizing existing and/or modified hoistways and machine rooms.

3. Containment, storage, transport, and disposal of all used hydraulic oil and jack hole clean out spoils and debris removed from the existing jack hole at no extra cost to the Owner.

4. Concrete cutting/removal around existing hydraulic jack.

5. Patch/Repair concrete around newly installed hydraulic jack.

6. Remove all debris from inside existing jack hole casing prior to installation of new hydraulic jack.

7. Remove existing jack hole casing and re-drill new jack hole in existing location.

1.4. RELATED WORK COORDINATION

A. General:

1. Coordinate the following requirements with other trades.

B. Electric:

1. Electrical service, outlets, lights, switches in elevator machine rooms and pits.

C. HVAC:

1. Provide necessary information to General Contractor and coordinate installation of equipment for elevator machine rooms.

1.5. ACTION AND INFORMATIONAL SUBMITTALS

A. Within thirty calendar days after award of contract and before beginning equipment fabrication submit field verified existing installation information for review.

1. Hydraulic Car Information:

a) Existing Total Car Weight:

1) Documented on crosshead data tag, all cars.

2) Field Verified: weigh single cars and one car per group of each identical duty type.

b) Estimated Gross Load on Jack

2. Power Confirmation Information: Field verified existing conditions at each elevator main disconnect:

a) Actual maximum available voltage and current.

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b) Verify true earth ground value.

B. Within sixty calendar days after award of contract and before beginning equipment fabrication submit planned modernization design information, shop drawings, and required material samples for review. Allow thirty calendar days for response to initial submittal.

C. Indicate equipment lists, reactions, and design information on layouts, including:

1. Car:

a) Total car weight to be included on new crosshead data tag.

b) Written confirmation that designed modernization total combined weight of car and rated load:

1) Does not vary by more than 5% from that of the original installation.

c) Verify buffer capacity via data tags or known manufacturing data.

2. Power Confirmation Information: Design for existing conditions.

a) Motor horsepower and code letter designation.

b) Motor starter in-rush current, full load running current, and demand factor.

c) Engineered power consumption based on hydraulic elevator with [HYDRAULIC UP STARTS] upstarts per hour full load.

d) Written confirmation that existing electrical provisions are adequate for post modernization installation equipment requirements.

3. Written confirmation that total planned modernization reactions on building structure do not exceed originally designed reactions by more than 5%. If installation has been altered previously and original car top data tag is missing, confirm that new reactions will not exceed existing reactions. Reaction calculations shall include:

a) Gross Load on Jack.

b) Traveling Cables.

c) Total Car Weight.

d) Car Capacity.

4. Product Data, Including:

a) Capacities, sizes, performances, operation, control, signal systems operations, safety features, finishes, and similar information.

b) Product data for car enclosures and hoistway entrances.

c) Product data for signal fixtures, lights, graphics, tactile marking plates, and details of mounting.

d) Full details of ascending car protection means and installation.

e) Two-way conversation devices.

f) Post-modernization machine room heat emissions in BTU.

D. Shop Drawings:

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1. Scaled or Fully Dimensioned Layout: Plan of machine room indicating equipment arrangement, details of car enclosures, hoistway entrances, and car/hall signal fixtures.
2. Fully Dimensioned Fixture Drawings:
    a) Car operating panels.
    b) Car floor indicators.
    c) Hall stations.
    d) Destination/landing input stations.
    e) Position indicators.
    f) Hall lanterns.
    g) Access key switch.
    h) Remote panels.

E. Samples for Initial Selection: For finishes involving surface treatment or paint or color selection per Architectural list.

F. Samples for Verification:
1. For exposed car, hoistway door and frame, and signal equipment finishes.
2. Samples of Sheet Materials: 3" (75 mm) square.
3. Running Trim Members: 4" (100 mm) lengths.
4. Include full component samples, if requested:
    a) Signal fixtures.
    b) Lighting.
    c) Graphics.
    d) Braille plates.

G. Written Maintenance Control Program (MCP) specifically designed for the equipment included under this contract.
1. Include any unique or product specific procedures or methods required to inspect or test the equipment.
2. Identify weekly, bi-weekly, monthly, quarterly, and annual maintenance procedures, including statutory and other required equipment tests.

H. Submittal review shall not be construed as an indication that submittal is correct or suitable or that the work represented by submittal complies with the Contract Documents. Compliance with Contract Documents, Code requirements, dimensions, fit, and interface with other work is Contractor's responsibility.

I. Acknowledge and/or respond to review comments within fourteen calendar days of return.
1. Promptly incorporate required changes due to inaccurate data or incomplete definition so that delivery and installation schedules are not affected.
2. Identify and cloud drawing revisions including Contractor elective revisions on each re-submittal.

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J. Contractor's revision response time is not justification for equipment delivery or installation delay.

1.6. CLOSEOUT SUBMITTALS

A. Manufacturer's Warranty:

1. Provide documentation of Manufacturer's Warranty in compliance with Contract Documents.

B. Owner's Information:

1. Provide electronic copies (flash drive or Consultant-approved equivalent) of written information necessary for proper maintenance and adjustment of equipment within 30 days following final acceptance. Final retention will be withheld until data is received and reviewed by Consultant. Include the following as minimums:

a) Straight-line wiring diagrams of "as-installed" elevator circuits with index of location and function of components. Provide one set reproducible master. Mount one set wiring diagrams on panels, racked, or similarly protected, in elevator machine room. Provide remaining set rolled and in a protective drawing tube. Maintain all drawing sets with addition of all subsequent changes. These diagrams are Owner's property.

b) Written Maintenance Control Program (MCP) specifically designed for the equipment included under this contract. Include any unique or product-specific procedures or methods required to inspect or test the equipment. In addition, identify weekly, bi-weekly, monthly, quarterly, and annual maintenance procedures, including statutory and other required equipment tests.

c) Lubrication instructions, including recommended grade of lubricants.

d) Parts catalogs for all replaceable parts, including ordering forms and instructions.

e) Instructions explaining all operating features, including all apparatus in the car and lobby control panels.

f) Maintenance Control Program documentation for all equipment.

C. Provide Owner with the following:

1. Any interface cards required for equipment maintenance, code mandated testing, and troubleshooting.

2. Four sets of keys for all switches and control features properly tagged and marked.

3. Diagnostic equipment complete with access codes, adjusters' manuals, and set-up manuals for adjustment, diagnosis, and troubleshooting of elevator system, and performance of routine safety tests.

1.7. PERMITS, TESTS, AND CERTIFICATES

A. Permits:

1. Secure and pay for all permits required for Work to be performed, including but not limited to:

a) Municipal and State permits.

b) Device or equipment removal permits.

c) Hot works permits.

2. Post, maintain, and renew all permits in compliance with local governmental requirements.

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3. Obtain final close-out of all required permits.

4. Tests and Inspections: Schedule with the AHJ and perform tests required by Governing Authority in accordance with procedure described in ASME A17.2 Guide for Inspection of Elevators, Escalators, and Moving Walks in the presence of Authorized Representative of the AHJ.

B. Certificates: Obtain, pay for, and deliver to purchaser with all temporary and final inspection certificates provided by proper governing authorities.

C. Violations: Resolve any outstanding violations on record with the AHJ on devices being removed prior to final acceptance by the purchaser.

1.8. QUALITY ASSURANCE

A. Compliance with Regulatory Agencies: Comply with most stringent applicable provisions of currently enforced codes, laws, and/or authorities, including revisions and changes in effect including, but not limited to:

1. American Society of Mechanical Engineers:

a) ASME A17.1, Safety Code for Elevators, Escalators, and Moving Walks.

b) ASME A17.2, Guide for Inspection of Elevators, Escalators, and Moving Walks.

c) ASME A17.5, Elevator and Escalator Electrical Equipment.

d) ASME A17.6, Standard for Elevator Suspension, Compensation, and Governor Systems.

e) ASME A17.7, Performance Based Safety Code for Elevators, Escalators, and Moving Walks.

2. National Fire Protection Association (NFPA):

a) NFPA 70, National Electric Code.

b) NFPA 80, Fire Doors and Windows.

c) NFPA 101, Life Safety Code.

d) NFPA 13, Installation of Sprinkler Systems.

3. International Building Code (IBC).

4. Accessibility:

a) American National Standard Institute (ANSI): A117.1, Accessible and Usable Buildings and Facilities.

5. Local Codes:

a) Dayton, Ohio.

B. Inspections: Provide access to areas where work is being performed for the consultant at any time throughout the project.

1.9. MAINTENANCE

A. WARRANTY MAINTENANCE

1. Provide preventive maintenance and 24-hour emergency callback service for one year commencing on date of final acceptance of all modernized elevators by Owner. Warranty maintenance should expire for concurrently for all elevators. Systematically examine, adjust,

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clean, and lubricate all equipment. Repair or replace defective parts using parts produced by the Contractor of installed equipment. Maintain elevator machine room, hoistway, and pit in clean condition.

2. Use competent personnel, acceptable to the Owner, supervised and employed by Contractor.

1.10. DELIVERY AND STORAGE

A. The protection of all equipment and exposed finishes shall be the responsibility of the Elevator Contractor during delivery, handling, and installation until completion of project.

B. The Elevator Contractor shall replace damaged materials with new at no additional cost for material and labor to Owner.

C. Manufacturers' original packing must adequately protect materials during delivery.

D. Deliver materials to the site ready for use in the accepted manufacturer's original and unopened containers and packaging, bearing labels as to type of material, brand name, and manufacturer's name. Delivered materials shall be identical to accepted samples.

E. Store materials in original protective packaging under cover in a dry and clean location off the ground. Remove delivered materials that are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials.

F. It is the responsibility of the Contractor to properly store and protect all materials in space provided or designated by the Owner against damage, stains, scratches, corrosion, weather, construction debris, and environmental conditions.

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PART 2 - PRODUCTS

2.1. MANUFACTURERS AND PRODUCTS

A. Approved Elevator Systems:

1. Approved subject to compliance with the requirements of the contract, provide products by one or more of the following Principal Manufacturers. Where specific product models are referenced below only those specific product models or types are approved.

a) Otis.

b) Schindler.

c) TK Elevator.

d) Canton Elevator.

e) MEI – Total Elevator Solutions.

B. Approved Elevator Components **In addition to products manufactured by the Principal Manufacturers specified above**, the following Manufacturers are approved for the specific components listed below, subject to the requirements of the contract:

1. Controllers:

a) GAL (Vantage).

b) MCE (Nidec).

c) Smart Rise.

2. Hydraulic Machines (Power Units):

a) EECO.

b) Maxton.

c) IMO.

d) Bore-Max (Vantage)

3. Hydraulic Jack Assemblies:

a) EECO.

b) D.L. Martin.

c) Nidec (Canton).

4. Freight Vertical Bi-Parting Door:

a) Vantage (Courion).

b) EMS.

c) Peelle.

5. Elevator Car Enclosures (Cab Shells):

a) Vantage (Courion).

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b) EMS.

c) Pelle.

6. Car and Hall Signal Fixtures:

a) EPCO.

b) Innovation.

c) MAD Fixtures.

d) Monitor.

e) National Elevator Cab and Doors.

7. Two-Way Audio Communication Device:

a) Janus/Rath.

b) Wurtec.

c) MAD

8. Two-Way Video/Non-Verbal Communication Devices:

a) Janus/Rath.

b) Wurtec.

c) MAD

2.2. MATERIALS

A. Steel:

1. Sheet Steel (Furniture Steel for Exposed Work): Stretcher-leveled, cold-rolled, commercial quality carbon steel, complying with ASTM A366, matte finish.

2. Sheet Steel (for Unexposed Work): Hot-rolled, commercial quality carbon steel, pickled and oiled, complying with ASTM A568/A568M-03.

3. Structural Steel Shapes and Plates: ASTM A36.

B. Stainless Steel: Type 302 or 304 complying with ASTM A240, with standard tempers and hardness required for fabrication, strength, and durability. Apply mechanical finish on fabricated work in the locations shown or specified, Federal Standard and NAAMM nomenclature, with texture and reflectivity required to match Architect’s sample. Protect with adhesive paper covering.

1. No. 4 Satin: Directional polish finish. Graining directions as shown or, if not shown, in vertical dimension.

2. No. 8 Mirror: Reflective polish finish with no visible graining.

3. Textured: 5WL as manufactured by Rigidized Metals or 5-SM as manufactured by Rimex Metals or approved equal with .050" mean pattern depth with bright directional polish (satin finish).

4. Burnished: Non-directional, random abrasion pattern.

C. Bronze: Stretcher-leveled, re-squared sheets composed of 60% copper and 40% zinc similar to Muntz Metal, Alloy Group 2, with standard temper and hardness required for fabrication, strength, and durability. Clean and treat bronze surfaces before mechanical finish. After completion of the final

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mechanical finish on the fabricated work, use a chemical cleaner to produce finish, Federal Standard, and NAAMM nomenclature, matching Architect's sample:

1. No. 4 Satin: Directional polish finish, fine-satin, clear-coated with clear-organic coating recommended by Fabricator. Provide graining direction as shown or, if not shown, in vertical dimension.

2. No. 8 Mirror: Reflective polish finish with no visible graining, bright-polished, clear-coated finish with clear-organic lacquer coating recommended by Fabricator.

3. Acid-Etched Pattern: Provide a No. 8 mirror reflective-polished background with selectively acid-etched, matte-textured, custom pattern as shown. Acid selection and dilution, if required, as recommended by Fabricator. After final finishing, coat bronze with clear-organic lacquer coating recommended by Fabricator.

D. Aluminum: Extrusions per ASTM B221; sheet and plate per ASTM B209.

E. Plastic Laminate: ASTM E84 Class A and NEMA LD3.1, Fire-Rated Grade (GP-50), Type 7, 0.050" ±.005" thick, color and texture as follows:

1. Exposed Surfaces: Color and texture selected by Architect.

2. Concealed Surfaces: Contractor's standard color and finish.

F. Fire-Retardant Treated Particle Board Panels: Minimum 3/4" thick backup for natural finished wood and plastic laminate veneered panels, edged and faced as shown, provided with suitable anti-warp backing; meet ASTM E84 Class "I" rating with a flame-spread rating of 25 or less, registered with Local Authorities for elevator finish materials.

G. Natural Finish Wood Veneer: Standard thickness, 1/40" thoroughly dried conforming to ASME/HPMA HP-1983, Premium Grade. Place veneer, tapeless spliced with grain running in direction shown, belt and polish sanded, book-matched. Species and finish designated and approved by Architect.

H. Paint: Clean exposed metal parts and assemblies of oil, grease, scale, and other foreign matter and factory paint one shop coat of standard rust-resistant primer. After erection, provide one finish coat of industrial enamel paint. Galvanized metal need not be painted.

I. Prime Finish: Clean all metal surfaces receiving a baked enamel paint finish of oil, grease, and scale. Apply one coat of rust-resistant primer followed by a filler coat over uneven surfaces. Sand smooth and apply final coat of primer.

J. Baked Enamel Finish: Prime finish per above. Unless specified "prime finish" only, apply and bake three additional coats of enamel in the selected solid color.

K. Entrance Field Paint:

1. Clean all surfaces to remove dirt and grease.

2. Sand and finish surfaces as necessary to remove pits and scratches and prepare surface for painting.

3. Apply filler to ensure smooth surface; sand and apply one coat of electrostatic enamel in the selected solid color.

L. Refinishing of natural metals: Remove existing protective finish. Buff as necessary to remove scratches. Regrain or finish as specified and protect as indicated for particular metal type.

M. Entrance Support Equipment within Hoistway: Include strut angles, headers, sill support angles, fascia, hanger covers, etc.

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1. Clean, remove, and check for corrosive activity. Replace components which exhibit severe deterioration.
2. Tighten all fastenings.

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PART 3 - PERFORMANCE AND OPERATION

3.1. PERFORMANCE REQUIREMENTS

A. Car Speed: Allowable variance from contract speed of no more than +/- 10% in the up direction and +10%/-20% in the down direction.

B. Car Capacity: Safely lower, stop, and hold rated load.

C. Car Stopping Zone: ±3/8" under any loading condition.

D. Noise and Vibration Control:

1. Airborne Noise:

a) Measured noise level of elevator equipment and its operation shall not exceed 55 dBA inside car under any condition including door operation and car ventilation exhaust blower on its highest speed.

b) Limit noise level in the machine room and control space relating to elevator equipment and its operation to no more than 80 dBA.

c) All dBA readings to be taken 3'-0" off the floor and 3'-0" from the equipment using the “A” weighted scale.

2. Vibration Control: Mechanically isolate all new elevator equipment from the building structure and other components. Minimize objectionable noise and transmission of vibrations to occupied areas of the building.

3.2. ELEVATOR OPERATION REQUIREMENTS

A. General:

1. Cars automatically slow down and stop level at floors in response to car and landing calls with stops made in sequence in the established direction of travel, regardless of order in which buttons are pressed.

2. Landing calls are canceled when the assigned car arrives at the landing.

3. Automatic Dispatch Failure: Provide auxiliary dispatch system to automatically dispatch elevators in the event of failure of the primary control system.

4. Hall Call Button Failure: Should failure of hall call button system occur, initiate operation providing predetermined service to all landings; elevators respond normally to car calls.

5. Automatic Leveling:

a) When arriving at a floor cars level to within 1/8” above or below the landing sill prior to opening doors, without travelling past the landing during leveling

b) Maintain leveling accuracy regardless of carload, direction of travel, rope slippage or stretch.

B. Door Operation:

1. Power-Operated Freight Door and Gate:

a) Door operation at landing initiated by operation of elevator call button for that floor.

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b) Obstruction of door reopening device beams during gate closing immediately stops and re-opens car gate and freight door.

c) Door reopening device detects objects:

1) Immediately adjacent to landing and car sides of door.

2) Within path of door.

3) Objects on the floor in the path of the door.

4) Straddling bi-parting door.

d) Adjustable timer holds doors open up to 300 seconds.

e) Door closing initiated upon:

1) expiration of a timer.

2) activation of door close button.

3) activation of a floor button within car.

f) Synchronize door and gate operators as follows:

1) Door and gate accelerate and decelerate smoothly.

2) Car gate closes completely before the hoistway doors begin to close.

3) Car gate does not open until hoistway doors are completely open.

g) Provide automatic closing of car doors after dwell time expires:

1) A loud audible signal and highly visible signal actuates not less than 5.0 seconds prior to initiation of door sequence.

2) Dwell time is easily adjustable between 20.0 and 300.0 second.

3) Pressing the Door Close button cancels dwell time.

4) Pressing the Door Open button restarts dwell time.

5) Dwell time set at 60.0 seconds

h) Open door and gate automatically when car arrives at a floor.

i) Provide passenger sequence operation:

1) After an adjustable time between 30 to 300 seconds, provide audible and visible warning signal and automatically close door and gate.

2) Provide dual reversing safety device for car gate.

C. Independent Service.

1. When feature is activated from within the car allow control of car only from buttons and controls inside the car.

2. Close doors by constant pressure on desired destination floor button or door close button.

D. Selective Collective Operation, Single Car:

1. Elevators operate via momentary pressure buttons to:

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a) Place hall call by selecting direction of travel at each hall landing (up and down buttons at each intermediate landing, single buttons at each terminal landing).

b) Place car call by selecting destination floor from inside the car (individual buttons for each floor served).

2. Hall calls, other than calls placed at the landing at which car is standing, start car, and cause the car to stop at first landing for which a call is registered in the direction of travel.

3. Stops are made in order in which landings are reached, irrespective of sequence in which calls are registered.

4. Car and Hall Lanterns:

a) Lanterns provide audio and visual signal upon each stop, regardless of responding to car or hall call.

b) Visual signal remains active from commencement of door opening until doors are completely closed.

E. Battery Rescue Operation:

1. Upon loss of normal power automatically lower the car to the nearest landing depending on the load in the car.

2. Upon arrival at the landing, the elevator doors shall open automatically and remain open until regular door time has expired; the elevator shall then be removed from service.

3. Upon restoration of normal power, the elevator shall automatically resume normal operation.

F. Firefighters' Emergency Operation: Provide equipment and operation in accordance with applicable code requirements. Replace all Firefighters Emergency Operation key switches that control non-modernized elevators in this building to match modernized elevators when first car in group is returned to service.

G. Battery Backup Operation for Emergency Lighting, Communication, and Alarm:

1. Car mounted battery unit with solid-state charger to operate alarm bell, car emergency lighting, and voice communication system.

2. Car lighting and communication shall be provided with a minimum of 4 hours of operation on back-up power during a loss of normal power, and a minimum of 1 hour of operation for car-mounted alarm, and any remote alarm mounted at the designated floor level.

3. Battery to be rechargeable with minimum five-year life expectancy.

4. Provide constant pressure test button in service compartment of car operating panel.

5. Provide lighting integral with portion of normal car lighting system.

H. Emergency Car Communication System Operation:

1. Comply with all requirements of ASME A17.1 2019 and IBC 2018, or later editions if adopted by the AHJ.

2. Hands-Free Communication System:

a) In Car System:

1) Hands-free two-way audio communication system in each elevator car.

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2) Automatic dialer to include automatic rollover capability if call is not answered with minimum two numbers.

3) Intercom type systems shall be capable of auto dialing out of the building to any active telephone number selected by Owner if intercom call is not answered.

4) Means to identify building and car for Authorized Personnel and Emergency Personnel on demand.

5) Activated by button in car identified with “PHONE” symbol or by external telephone call.

6) Adjacent light jewel illuminates and flashes when call is acknowledged.

3. Authorized Personnel Communication:

a) Communication system allows authorized personnel, via phone or intercom system, inside the building or at an outside location, to establish verbal communications with each elevator individually.

B) Provide car interior display video capability for entrapment assessment.

4. Communication for Deaf, Hard of Hearing and Speech Impaired:

a) Means for non-verbal communication between passengers inside the elevator car and Authorized Personnel and Emergency Personnel inside or outside of the building.

b) System allows for in car video display of custom or preselected text messages generated by Authorized Personnel or Emergency Personnel.

c) Passengers inside the elevator car respond to text messages via “Yes” and “No” buttons that generate a visible indication at the location monitored by the Authorized/Emergency Personnel.

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PART 4 - ELEVATOR ALTERATIONS

4.1. HYDRAULIC FREIGHT ELEVATORS:

ALTERATION SUMMARY		
CAR [Freight]:	**EXISTING INSTALLATION**	**MODERNIZED INSTALLATION**
Capacity:	4000 lbs.	No Change
Class of Loading:	Class A General Loading	No Change
Duty Type:	Freight	No Change
Contract Speed:	75 fpm	No Change
Hydraulic Jack Type:	In Ground	No Change
Machine Type:	Dry Type Power Unit	No Change
Machine Location:	Adjacent	No Change
Floors Served:	1, 2, 3, 4 Front	No Change
Total Entrances:	[4] Front	No Change
Car Entrance Type:	Bi-Parting Front	No Change
Hoistway Entrance Type:	Bi-Parting Front	No Change
Entrance Size:	91" Wide x 84" (7'-0") High	No Change
Minimum Clear to Underside of Canopy:	91” High	No Change

4.2. MACHINE ROOM EQUIPMENT

A. Provide and arrange equipment in existing machine room spaces.

B. Identification: Permanently identify (painted on or securely attached) machine room equipment with minimum 3" characters corresponding to elevator identification.

1. Driving machine (Power Unit).
2. Transformer, choke/filter.
3. Controller.
4. Main line disconnect switch.
5. Elevator hoistway pit equipment.

C. Hydraulic Machine (Power Unit):

1. New:

a) Assembled unit mounted on isolating pads consisting of:

1) Dry or submersible type positive displacement pump and induction motor.

2) Dry type only with motors exceeding 50 hp.

3) Master-type control valves combining:

4) Safety features.

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5) Holding, direction, bypass, stopping, manual lowering functions.

6) Shut off valve.

7) Oil reservoir with protected vent opening.

8) Oil level gauge.

9) Outlet strainer.

10) Drip pan.

11) Muffler.

D. Motor Starter:

1. Soft start type unit including:

a) Integral electronic overload protection.

b) Integral bypass.

E. Muffler:

1. In discharge oil line near pump unit.

2. Design shall dampen and absorb pulsation and noise in the flow of hydraulic fluid.

F. Piping and Oil:

1. All piping, connections and oil required for the elevator system.

2. Buried piping shall be secondarily contained with watertight Schedule 80 PVC sleeves between elevator machine room and pit.

3. A minimum of two sound isolation couplings shall be provided between the pump unit and oil line and the oil line and jack unit.

4. Provide 2-90°joints to reduce vibration and create wave diffraction.

5. Provide isolated pipe stands or hangers.

6. If existing piping meets code requirements it can be retained.

G. Shut-Off Valve:

1. Oil line shut off valve in the machine room or accessible from outside the hoistway.

2. Second valve in pit adjacent to jack unit.

H. Battery Rescue System:

1. Auxiliary power source shall be provided via 12-volt D.C. battery units installed in machine room or controller space.

2. Include solid-state charger and testing means mounted in a common metal container.

3. Battery to be rechargeable lead acid or nickel cadmium with a ten-year life expectancy.

I. Controller: UL/CSA labeled:

1. Compartment:

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a) Securely mount all assemblies, power supplies, chassis switches, relays, etc., on a substantial, self-supporting steel frame.

b) Completely enclose equipment with covers. Provide means to prevent overheating.

2. Relay Design:

a) Magnet operated with contacts of design and material to insure maximum conductivity, long life, and reliable operation without overheating or excessive wear.

b) Provide wiping action and means to prevent sticking due to fusion.

c) Contacts carrying high inductive currents shall be provided with arc deflectors or suppressors.

3. Microprocessor-Related Hardware:

a) Provide built-in noise suppression devices providing a high level of noise immunity on all solid-state hardware and devices.

b) Provide power supplies with noise suppression devices.

c) Isolate inputs from external devices (such as pushbuttons) with opto-isolation modules.

d) Design control circuits with one leg of power supply grounded.

e) Safety circuits are not to be affected by accidental grounding of any part of the system.

f) System automatically restarts when power is restored.

g) System memory is retained in the event of power failure or disturbance.

h) Equipment is provided with Electro Magnetic Interference (EMI) shielding within FCC guidelines.

4. Wiring:

a) CSA labeled copper for factory wiring.

b) Neatly route all wiring interconnections and securely attach wiring connections to studs or terminals.

5. Permanently mark components (relays, fuses, PC boards, etc.) with symbols shown on wiring diagrams.

J. Auxiliary disconnect: Provide controller or power unit mounted auxiliary, lockable “open,” disconnect if mainline disconnect is not in sight of controller and/or machine.

4.3. HOISTWAY AND PIT EQUIPMENT

A. Provide and arrange equipment in existing hoistway and pit spaces.

B. Hydraulic Jack Assembly:

1. New:

a) Single jack in ground application.

b) Cylinders:

1) Seamless steel pipe.

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2) Design head to receive unit-type packing and provide means to collect oil at cylinder head and return automatically to oil reservoir.

3) Provide secondary containment and cylinder corrosion protection in compliance with applicable code requirements.

c) Plungers:

1) Polished seamless steel tubing or pipe.

2) If plunger length exceeds 24'-0", provide two or more sections not exceeding 16'-0" in length, or coordinate installation of longer unit at the jobsite.

3) Join sections by internal threaded couplings.

4) Multiple section jack units shall be factory polished while assembled and marked.

5) Isolate plunger from car frames.

C. Jack Support:

1. New:

a) Steel pit channels to support jack assembly and transmit loads to building structure.

b) Intermediate stabilizers as required.

D. Shut-Off Valves:

1. New:

a) Manual on/off valves in oil lines adjacent to pump unit and jack units in pit.

E. Guide Rails:

1. Retain:

a) Clean rails and brackets.

b) Remove rust.

c) Repaint non-machined surfaces.

d) Check and tighten all rail and bracket fastenings.

F. Buffers, Car:

1. New:

a) Spring type with blocking and support channels.

b) Provide sign in pit indicating designed counterweight runby.

G. Access Ladders and Platforms: Provide permanent buffer and car safety access ladders and platforms if required to comply with Code requirements.

H. Terminal Stopping Devices:

1. New:

a) Normal and final devices.

I. Electrical Wiring and Wiring Connections:

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1. Conductors and Connections:
    a) Copper throughout with individual wires coded and connections on identified studs or terminal blocks.
    b) Use no splices or similar connections in wiring except at terminal blocks, control compartments, or junction boxes.
2. Conduit:
    a) Galvanized steel conduit, EMT, or duct.
    b) Flexible conduit length not to exceed 3’-0”.
3. Traveling Cables:
    a) Provide multiple traveling cables per elevator if necessary to meet conductor and data transmission requirements. Include the following:
    b) Include all conductors needed for specified elevator operation and code required spares.
    c) Provide the following additional data transmission conductors. (Draka Type ETT round travelling cable or approved equal with lifetime product warranty)
    d) Tag spares in machine room.
    e) Provide cables from controller to car top.

4.4. HOISTWAY DOOR OPERATING EQUIPMENT

A. Freight Bi-Parting Hoistway Entrance Equipment:

1. Door Guide Tracks:
    a) New:
        1) Continuous steel angles or formed steel tracks.
        2) Securely fastened to hoistway entrance frame.
2. Door Guide Shoes:
    a) New:
        1) Machined iron shoes.
        2) Four (4) shoes per door panel with not less than 2 ½” lateral contact with track per shoe.
3. Door Interlocks:
    a) New:
        1) Operable without retiring cam.
4. Hoistway Freight Door Unlocking Device:
    a) New:
        1) Unlocking device with pull chain under hinged, lockable cover.
        2) Stainless steel No. 4 cover finish at all floors.
5. Power Freight Door Operators:

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a) New:

1) Power door operator for each entrance.

2) Provide means to open doors from inside of car in the event of power failure.

3) Closing speed minimum of 0.8 fps; maximum of 1.0 fps.

B. Floor Numbers: Stencil paint 4" high floor designations in contrasting color on inside face of hoistway doors or hoistway fascia in location visible from within car.

4.5. HOISTWAY ENTRANCE FRAMES AND DOOR PANELS

A. Provide and arrange equipment in same location as existing entrances.

B. Vertical Bi-Parting Door Panels:

1. New:

a) 12 gauge formed steel plates welded into frame angles.

b) Telescoping upper section or pass-type doors as required.

c) Installation includes:

1) Safety astragals.

2) Vision pane

3) Truckable sills.

4) Load transfer angles.

C. Frame and Door Panel Finishes:

1. Entrance Frames:

a) Painted metal

2. Hoistway Door Panels:

a) Painted metal-match existing.

4.6. HOISTWAY ENTRANCE SILLS AND SUPPORT

4.7. CAR EQUIPMENT

A. Frame:

1. Retain:

a) Check and tighten all fastenings.

b) Adjust as required for plumb and square alignment.

B. Platform:

1. Retain:

a) Adjust as necessary for plumb and level alignment.

b) Reinforce if required.

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c) Check and tighten all fastenings.

C. Platform Guard:

1. New:

a) Extended platform guard with Contractor's standard finish to meet Code requirements.

b) Minimum 0.059" (1.5 mm) thick steel, or material of equivalent strength and stiffness.

c) Reinforced and braced to front of car platform.

D. Car Rail Guide Roller or Shoe Assemblies:

1. New:

a) Solid type to accommodate freight loading classification.

b) Include renewable oilless inserts.

E. Top of Car Guardrail:

1. New:

a) Provide car top railings where fall hazard exceeds 12".

b) Install guardrails, necessary hardware, and toe board to meet code requirements.

F. Car Top Control Station:

1. Mount to provide safe access and utilization while standing on car top.
2. Operating device with Up and Down direction buttons, a Run button, an Inspection/Automatic switch and Emergency Stop switch.
3. Operating device provides an audible and visible indicator that fire recall has been initiated.
4. Fix station to the car crosshead or provide portable station provided the extension cord and housing is permanently attached to the car crosshead.
5. The car will be operated by constant pressure on the appropriate directional button and the Run button simultaneously.
6. Normal operating devices will be inoperative while this device is in use.

G. Car Top Emergency Audible Signal:

1. Provide on top of each elevator.
2. Activation of Alarm Button or Emergency Stop switch will cause Emergency Audible Signal.
3. Provide auxiliary power supply to provide 1-hr. power in the event of loss of normal power.

H. Work Light and Duplex Plug Receptacle:

1. Work light on top and bottom of car.
2. Car top light mounted to provide illumination of all car top equipment.
3. GFCI protected duplex outlet. one (1) at top and one (1) at bottom of car.
4. Include on/off switch and lamp guard.

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I. Power Freight Gate Operator:

1. New:

a) Power gate operation.

b) Provide means to open gate from inside of car in the event of power failure.

c) Closing Speed: Minimum of 1.6 fps; maximum of 2.0 fps.

J. Bi-Parting Freight Car Gate:

1. New:

a) Power operated, single section.

b) Minimum 6'-0" high.

c) Minimum 12-gauge welded wire mesh welded into frame angles.

K. Bi-parting Freight Door and Gate Reopening Device:

1. New:

a) Black, fully enclosed door reopening device.

b) Full screen infrared matrix or multiple beams extending vertically inside and outside of each car gate guide track.

c) Minimum detection zone height of 7'-0" above finished floor.

L. Door Pull Chain Opening Mechanism

1. New:

a) Install at each floor with lockable cover plate.

4.8. CAR OPERATING PANEL:

A. New:

1. Car 1.

a) One (1) car operating panel(s) per car.

b) Fixed plate.

c) Metal box containing operating fixtures mounted behind the car return panel.

d) Vandal resistant.

e) Provide Exposed Pushbuttons to Initiate:

1) Car call registration.

2) Alarm.

3) Door open.

4) Door close.

5) Emergency push-to-call communication.

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6) Pushbuttons:

I. Provide minimum 3/4" diameter raised floor pushbuttons which illuminate to indicate call registration.

II. Brushed stainless buttons with illuminated LED halo.

III. Locate operating controls no higher than 48" above the car floor; no lower than 35" for emergency push-to-call button and alarm button.

IV. Identify buttons with flat stainless steel tactile symbols rear mounted.

f) Locked Firefighters' Emergency Operation Panel:

1) Openable by the same key which operates the Fire Operation switch.

2) Including the following features:

I. Phase II fire access switch.

II. Firefighters' visual indication.

III. Call cancel button.

IV. Stop switch, manually operated.

V. Door open button.

VI. Door close button.

VII. Floors served signage.

g) Service Compartment

1) Provide lockable service compartment with recessed flush door.

2) Door material and finish to match car return panel or car operating panel faceplate.

3) Include Integral flush window for displaying the elevator operating permit on inside surface of door.

4) Include the following controls in lockable service cabinet with function and operating positions identified by permanent signage or engraved legend.

I. Access switch.

II. Light switch.

III. Three position exhaust blower switch.

IV. Independent service switch.

V. Constant pressure test button for battery pack emergency lighting.

VI. 120-volt, AC, GFCI protected electrical convenience duplex outlet.

VII. Card reader override switch.

VIII. Switch to select either floor voice annunciation, floor passing tone, or chime.

IX. Keyed stop switch.

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2. Provide black paint filled (except as noted), engraved, or approved etched signage as follows with approved size and font:

a) Phase II firefighters' operating instructions on inside face of firefighters' compartment door.

b) Engrave filled red firefighters' operation on outside face of compartment door.

c) Building identification car number on main car operating panel(s).

d) Car capacity in pounds on the service cabinet door.

e) Loading classification and description on C.

f) Number of allowable passengers.

4.9. COMMUNICATION

A. Car Communication System:

1. Hands free two-way communication instrument in car:

a) Mounted behind car operating panel.

b) Button on car operating panel to initiate two-way communication from Car.

c) Match car operating panel pushbutton design.

d) System includes:

1) Auto dialer.

2) Speaker.

3) Microphone.

4) Adjacent light jewel that illuminates and flashes when call is acknowledged.

5) Call button tactile symbol, engraved signage, and Tactile marking adjacent to button mounted integral with car front return panel.

6) Rechargeable back-up battery and charging system.

7) Wiring and connections between all devices inside the car and the elevator controller.

2. Communication for Deaf, Hard of Hearing and Speech Impaired:

a) Device inside car to allow text communication between passengers in the car and Authorized and Emergency Elevator Personnel. System includes:

1) Video screen inside car to display text messages.

2) Separate pushbuttons labeled "yes" and "no".

3) Locate on the same car operating panel as the call button for the hands-free communication device.

b) Dedicated emergency communications video camera inside the elevator.

1) Mount to capture view of all passengers in the cab.

c) Device is located on the same car operating panel as the phone pushbutton.

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d) Provide shielded twisted pair wiring to communicate to machine room or equipment space network box.

3. Remote Video Monitoring System:

a) Dedicated video camera inside elevator car to allow Authorized Personnel to remotely observe passengers at any location on the car floor.

b) Includes all wiring, conduit, fiber optic strands, encoders, routers, internet connections, cloud-based services required to allow Authorized Personnel to access video signal.

4.10. CAR ENCLOSURE AND INTERIOR FINISHES

A. Unless specifically identified as “Retain,” “Reuse,” or “Refurbish,” provide new equipment. Contractor may, with Consultant approval, provide new equipment in lieu of refurbishing existing. See Section 00 80 00, Supplemental Conditions.

B. Car Enclosure (Cab Shell):

1. New:

a) Provide new car enclosure as specified.

C. Cab Wall and Ceiling Enclosure:

1. New:

a) Provide freight 14 ga side and back RAL 7010 and 14 ga top white.

D. Lighting:

1. New:

a) TB LED Lighting (Tubes)

b) Coordinate with emergency lighting requirements.

c) Provide emergency lighting integral with portion of normal car lighting system.

d) Recessed LED down lights with on/off switch in car operating panel. Recess mount fixture flush with inside surface of car top. Provide steel guard on car top over fixture.

E. Ventilation:

1. New:

a) Two-speed type OE exhaust blower.

b) Mount to car canopy on isolated rubber grommets.

c) Meet noise requirements specified herein.

F. Car Finish Floor Covering:

1. New:

a) Provided and furnished furnished by Contractor.

b) Service/Freight Elevator, Cars [1]:1/4" aluminum diamond plate over 3/4" thick marine plywood sub-floor.

4.11. HALL CONTROLS

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A. Freight Door Control Stations:

1. New:

a) Vandal resistant “door open,” “door close,” and “stop” pushbuttons for control of power operated vertical bi-parting doors at each landing call pushbutton fixture.

b) Pushbuttons integral with hall control station.

c) Pushbutton design to match car operating panel pushbuttons.

d) Provide any cutting and patching required.

e) “in Use” light which illuminates when hall call is registered.

B. Communication Operability Signals:

1. Audible and illuminated visual signals indicating telephone line or other means of communication are not operable.

2. At designated landing for each group of elevators or single elevator.

C. Phase I Fire Service Key Switch and Signage:

1. At designated landing for each group of elevators or single elevator.

2. Included in hall pushbutton fixture.

4.12. CAR ARRIVAL AND TRAVEL DIRECTION SIGNALS

A. Car Position Indicator:

1. New:

a) Alpha-numeric digital indicator type.

b) Floor designations and direction arrows a minimum of 2" high to indicate floor served and direction of car travel.

c) Vandal resistant fixture and faceplate.

d) Locate on car operating panel.

e) When a car leaves or passes a floor, illuminate indication representing position of car in hoistway.

f) Illuminate proper direction arrow to indicate direction of travel.

4.13. SIGNAL FIXTURE FACEPLATE FINISHES

A. All Fixtures:

1. stainless steel satin finish.

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PART 5 - EXECUTION

5.1. SITE CONDITION INSPECTION

A. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify no irregularities exist which affect execution of the specified work.

B. Inform Consultant of any irregularities in writing prior to commencing work.

C. Do not proceed with installation until work in place conforms to project requirements.

5.2. INSTALLATION

A. Hydraulic Jack Hole Clean Out:

1. After removal of the existing hydraulic jack assembly, remove all debris from the existing jack hole to allow the plumb installation of the new hydraulic jack assembly.

a) Remove any accumulated debris, corrosion, and obstructions from the hydraulic jack holes.

b) Clean the jack hole thoroughly to ensure a smooth and unobstructed surface.

c) Inspect the jack hole for corrosion, wear, or damage, and document the findings. Notify Consultant immediately if it is found that the condition of the existing jack hole structure, including the casing and casing plug, is not adequate for re-use.

d) Verify that the existing jack hole is within hydraulic jack manufacturers' tolerances for location, diameter, and plumbness.

e) Contractor is responsible for the containment, storage, transport, and disposal of all spoils and debris removed from the existing jack hole at no extra cost to the Owner.

B. Install all new equipment as follows:

1. in accordance with Contractor's instructions, referenced codes, specifications, and approved submittals.

2. with clearances in accordance with referenced codes, and specifications.

3. to be easily maintained and/or removed.

4. to afford maximum accessibility, safety, and continuity of operation.

C. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.

1. All exposed equipment and metal work installed as part of this work which does not have architectural finish.

2. Machine room equipment, and pit equipment.

3. Neatly touch up damaged factory-painted surfaces with original paint color.

4. Protect machine-finish surfaces against corrosion.

D. Paint machine room and pit floors.

5.3. FIELD QUALITY CONTROL

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A. Work at jobsite will be checked during course of installation. Full cooperation with reviewing personnel is mandatory. Accomplish corrective work required prior to performing further installation.

B. Perform complete “Acceptance” level pre-testing as specified in the latest edition of ASME A17.2 “Guide for Inspection of Elevators, Escalators, and Moving Walks” prior to AHJ witnessed acceptance testing. Complete any adjustments, repairs, or replacements necessary to achieve code compliant operation including but not limited to:

1. Car emergency communications. Inform Owner and Consultant of any noted failures of Owner provided and maintained equipment or systems.

2. Phase I and II Firefighters’ Emergency Operation. Phase I initiated by smoke sensing devices.

3. Power car door operation including door closing force, reopening device, and restricted opening.

C. Have Code Authority acceptance inspection performed and complete corrective work.

D. Provide access to installed equipment and elevator personnel assistance for Consultant’s final observation and review requirements.

5.4. ADJUSTMENTS

A. Static balance car to equalize pressure of guide shoes on guide rails.

B. Verify that weights of existing or altered cars, counterweights, and compensation comply with traction machine manufacturers’ requirements and do not exceed total weights indicated on approved submittals. See Section 01 30 00, Submittals.

C. Lubricate all equipment in accordance with Contractor’s instructions.

D. Adjust motors, power conversion units, brakes, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks, and safety devices to achieve required performance levels.

5.5. CLEANUP

A. Keep work areas orderly and free from debris during progress of project. Remove packaging materials daily.

B. Elevator hoistways and all equipment therein shall be cleaned and left free of rust, filings, welding slag, rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt, and dust, including walls, building beams, sill ledges, and hoistway divider beams.

C. Care shall be to not to mark, soil, or otherwise deface existing or new surfaces. Clean and restore such surfaces to their original condition.

D. Clean down surfaces and areas which require final painting and finishing work. Cleaning includes removal of rubbish, broom cleaning of floors, removal of any loose plaster or mortar, dust, and other extraneous materials from finish surfaces, and surfaces which will remain visible after the work is complete.

E. Paint machine room walls and floors.

F. Remove all loose materials and filings resulting from work.

G. Clean machine room equipment and floor.

H. Clean car, car enclosure, entrances, operating and signal fixtures.

5.6. FINAL COMPLIANCE REVIEW

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A. Review procedure shall apply for individual elevators, portions of groups of elevators, and completed groups of elevators accepted on an interim basis, or elevators and groups of elevators completed, accepted, and placed in operation.

B. Contractor shall perform review and evaluation of all aspects of its work prior to requesting Consultant's final review. Work shall be considered ready for Consultant's final contract compliance review when all Contractor's tests are complete, all deficiencies noted by the AHJ have been rectified, and all elements of work or a designated portion thereof are in place and the elevator is deemed ready for service as intended.

C. Contractor shall perform review and evaluation of all aspects of its work prior to requesting consultant's review.

D. Furnish labor, materials, and equipment necessary for Consultant's review. Notify Consultant five working days in advance when ready for final review of elevator or group of elevators.

E. Consultant's written list of observed deficiencies of materials, equipment, and operating systems will be submitted to Contractor for corrective action. Consultant's review shall include as a minimum:

1. Workmanship and equipment compliance with Contract Documents.

2. Contract speed, capacity, floor-to-floor times, and door performance compliance with Contract Documents.

3. Performance of following is satisfactory:

a) Starting, accelerating, running.

b) Decelerating, stopping accuracy.

c) Equipment noise levels.

d) Signal fixture utility.

e) Overall ride quality.

f) Performance of door control devices.

g) Operations of emergency two-way communication device.

h) Operations of firefighters' service.

i) Operations of remote monitoring devices.

j) Operations of emergency brake device.

F. Test Results:

1. In all test conditions, obtain specified contract speed, performance times, stopping accuracy without re-leveling, and ride quality to satisfaction of Owner and Consultant. Tests will be conducted under both no load and full load condition.

END OF SECTION

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