SPECIFICATIONS

BID PACKAGE FOR

BOARD OF COUNTY COMMISSIONERS CLARK COUNTY, OHIO
FAMILY SERVICES VISITATION BUILDING RENOVATIONS PROJECT

Located at:
Family Services Home Road Complex
525 E. Home Rd.
Springfield, Ohio 45503

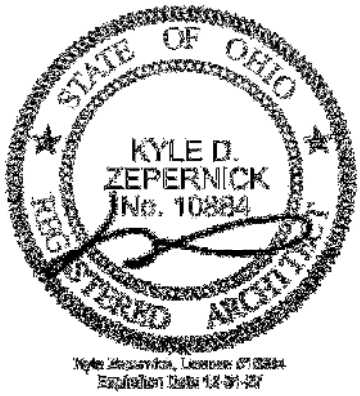
FOR THE

Board of County Commissioners Clark County, Ohio
3130 East Main St.
Springfield, OH 45503

Prepared by:
The Oregon Group Architects, Inc.
300 S. Patterson Blvd.
Dayton, Ohio 45402

p: 937.228.1511
w: www.oregongroup.com

Bid Documents
September 10, 2026



NOTICE TO BIDDERS
CLARK COUNTY FAMILY SERVICES VISITATION BUILDING RENOVATIONS

Sealed bids will be received by the Board of Clark County Commissioners, Office of the Clerk, 3130 East Main Street, Springview Building, 3rd Floor, Springfield, Ohio 45503, **UNTIL THURSDAY, OCTOBER 22, 2026 AT 11:00 A.M., LOCAL TIME** for the Clark County Family Services Visitation Building Renovations (the "Project"). Contract documents, which include additional details and required forms, terms, and conditions for the Project, are on file and available from ARC Reprographics Document Solutions at the following address:

424 E. Third Street
Dayton, Ohio 45402
(937) 277-7930
Email: Dayton@e-arc.com
Approximate Cost: $230.00 (hard copy)

PLEASE NOTE: BIDS DELIVERED/ RECEIVED AFTER THE SUBMITTAL TIME (EXACTLY 11:00 A.M. ON THE COMMISSION CLOCK) WILL NOT BE ACCEPTED.

The estimate of probable cost for this project is $1,100,000.00.

All contractors and subcontractors involved with the project will, to the extent practicable use Ohio Products, materials, services, and labor in the implementation of this project. Additionally, contractor compliance with the equal employment opportunity requirements of the Ohio Administrative Code Chapter 123, the Governor's Executive Order of 1972, and the Governor's Executive Order 84-9 shall be required.

DOMESTIC STEEL USE REQUIREMENTS AS SPECIFIED IN SECTION 153.011 OF THE REVISED CODE APPLY TO THIS PROJECT. COPIES OF SECTION 153.011 OF THE REVISED CODE CAN BE OBTAINED FROM ANY OF THE OFFICES OF THE DEPARTMENT OF ADMINISTRATIVE SERVICES.

The Pre-Bid Meeting will be Wednesday, September 30, 2026 at 2:00 p.m. at the Family Services Gymnasium Building (adjacent to Visitation Building), 525 E. Home Road, Springfield, Ohio 45503.

ONE ORIGINAL AND SIX COPIES of the bid must be submitted to the Clerk's Office, Board of County Commissioners, Springview Building, 3rd Floor, 3130 East Main Street, Springfield, Ohio 45503 ***NO LATER THAN THURSDAY, OCTOBER 22, 2026, AT 11:00 A.M. LOCAL TIME.*** Bids will be opened by the Clerk in public session at approximately 11:10 A.M. local time, in Springview Building, 3rd Floor, 3130 East Main Street, Springfield, Ohio. Bids shall be clearly marked on the outside of the envelope in the lower left hand corner as **"Bid for the Clark County Family Services Visitation Building Renovations Project"**. The name and address of the bidder must also appear on the outside of the envelope.

Each bid must be accompanied by a bid guaranty in accordance with the Instructions to Bidders. ***FAILURE TO SUBMIT A PROPER BID GUARANTEE WILL AUTOMATICALLY INVALIDATE THE BID***. Successful bidder will be required to post an acceptable Performance Bond in accordance with the Instructions to Bidders. If successful bidder fails to enter into a proper contract or defaults in any portion of his bid, the bid guarantee shall be forfeited as liquidated damages. Bid guaranties of unsuccessful bidders will be returned following award of bid.

The successful bidder will be required to pay not less than the minimum wage rates established by the Department of Industrial Relations of the State of Ohio in accordance with all provisions of the Prevailing Wage Act of the State of Ohio, ORC Sections 4115.03 and 4115.16 and related requirements.

The apparent successful bidder on any contract exceeding $100,000.00 requiring prevailing wages must submit its two most recent financial statements that have been compiled, reviewed or audited by a licensed Certified Public Accountant within seven days after bid opening date and must certify compliance with the County's financial requirements/tests, a copy of which are included in the bid documents.

Attention of the bidders is called to the following: compliance with the County's Equal Opportunity Policy; and signing of a Non-Collusion Affidavit, a Personal Property Tax Statement, a Non-Discrimination Provision, an Affidavit in Compliance with ORC 3515.13, and Quality Contracting Standards, which are to be included and returned with the bid. Bidders must also meet the insurance requirements of the County. **PLEASE NOTE:** the County is exempt from all Federal, State, Local and/or Excise Taxes.

You may view this notice on the Board of Clark County Commissioners web site by going to www.clarkcountyohio.gov and clicking on the Notices/Hearings link or you may enter http://www.clarkcountyohio.gov/bids.aspxm. You may also view this notice on the State of Ohio Public Notice web site by going to http://publicnoticeohio.com/.

THE BOARD OF COUNTY COMMISSIONERS OF CLARK COUNTY, OHIO RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS; AND THE BOARD ALSO RESERVES THE RIGHT TO WAIVE ANY DEFECT IN A BID WHICH DOES NOT MATERIALLY ALTER THE BID ITEM.

In the event that anything in this Notice is in conflict with any other Contract Document, this Notice shall control, except that: (1) Bidders shall provide the labor, equipment or materials of the better quality or greater quantity of Work; (2) Bidders shall comply with the most stringent requirements; and (3) if a bidder notifies the Design Professional of the conflict at least seven (7) days prior to the bid opening, the Owner's representative may authorize an addendum to be issued, and the terms of such addendum shall control.

By Order of the Board of County Commissioners
Clark County, Ohio
Angela Clos, Clerk

NEWS-SUN: SEPTEMBER 20, 2026, SEPTEMBER 27, 2026

NOTICE TO BIDDERS

Sealed bids will be received by the Board of Commissioners for Clark County, Ohio, as provided in this notice, for the **Family Services Visitation Building Renovations Project** (the "Project"). Contract documents, which include additional details of the Project, are on file and available from Arc Reprographics-Dayton at the following address:

424 E. Third Street
Dayton, OH 45402
937-277-7930

Bids shall be enclosed in a sealed envelope addressed to The Board of County Commissioners Clark County, Ohio, Attn: Angela Clos, Clerk, 3130 East Main St., Springview Building, 3rd Floor, Springfield, OH 45503, and plainly marked on the outside "CLARK COUNTY FAMILY SERVICES VISITATION BUILDING RENOVATION BID." Bids will be received until 11:00 a.m., local time, Thursday, October 22, 2026.

All bids must include a Bid Guaranty, as described in the Instructions to Bidders. Prevailing wage rates apply. No bidder may withdraw its bid within 60 days after the opening; the County reserves the right to waive irregularities, reject any or all bids, and conduct necessary investigations to determine bidder responsibility.

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General Conditions of the Contract for the Project (AIA Document A201 - 2007), as modified
Non-Collusion Affidavit
Revised Quality Contracting Standards Policy for Construction Projects
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Wage Rates

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01 31 00	Project Management and Coordination
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02 41 16	Selective Demolition
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04 05 11 Mortar and Masonry Grout
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08 11 13 Hollow Metal Doors and Frames
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END OF SECTION

INSTRUCTIONS TO BIDDERS

A. BIDDER'S PLEDGE AND AGREEMENT

1. Each Bidder acknowledges that this is a public project involving public funds and that the Owner expects and requires each successful Bidder to 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 and Design Professional; (b) it will use its best efforts to cooperate with the Owner and 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.

B. EXAMINATION OF CONTRACT DOCUMENTS AND SITE CONDITIONS AND RELIANCE UPON TECHNICAL DATA

1. 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 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 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 Design Professional.

2. 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 shall 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.

3. The Bidder may rely upon the general accuracy of any technical data included in the Project Manual (e.g., 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;

    (b) other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

(c) 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.

4. No allowance will be made subsequently for any omission, error, or negligence of the Bidder.

5. All Bidders shall be familiar with the existing conditions in the material and labor market, as well as the conditions related to the Work, and the fact that a bid is submitted will be construed by the Owner as an agreement by the Bidder to carry out the Work in full conformance with the Specifications and other Contract Documents, notwithstanding the existing conditions.

6. Each Bidder shall be responsible for coordinating its Work with the Work of the other bid packages that require integration with the Bidder's Work.

7. Failure of a Bidder to attend the pre-bid meeting, which failure to attend results in the Bidder not fully being familiar with the existing conditions and Project requirements, shall not be considered a basis for additional compensation to the successful Bidder for the Work. Each Bidder will be deemed to have actual knowledge of all information provided or discussed at the pre-bid meeting.

C. OWNER & DESIGN PROFESSIONAL

1. The Owner is:

   Board of County Commissioners Clark County, Ohio
   3130 East Main St.
   Springfield, OH 45503

   The Owner's Representative is Jennifer Hutchinson.

2. The Design Professional (referred to as the "Design Professional" or "Architect" in the Contract Documents) is:

   The Oregon Group Architects, Inc.
   300 S. Patterson Blvd.
   Dayton, Ohio 45402
   kzepernick@oregongroup.com

   The Design Professional's Representative is Kyle Zepernick.

D. PROJECT

1. The Project is the Clark County Family Services Visitation Building Renovations Project Re-Bid (the "Project"), located at 525 E. Home Rd., Springfield, OH all in accordance with the Contract Documents. **The Project will be substantially complete by June 9, 2027.**

2. Ohio prevailing wage rates apply to this Project. The timely submission of original Certified Payroll Reports and other required Prevailing Wage submittals are a material term of the Contract Documents. To the extent that the Contractor fails to complete and submit original Certified Payroll Reports and other required Prevailing Wage submittals, including any and all original Certified Payroll Reports and other required Prevailing Wage submittals of Contractor's subcontractors, the Owner may withhold payments otherwise due to the Contractor until such time as the proper original records have been submitted.

E. WORK

Lump sum bids will be received for the following scopes of work and as further described in the Contract Documents: (1) General Trades.

F. ESTIMATE OF COST

1. The total estimated construction cost for the base bid Work for the Project is $1,100,000.00.

G. CONTRACT DOCUMENTS

The Contract Documents consist of the following documents:

1. Notice to Bidders
2. Instructions to Bidders
3. Bid Form
4. Bid Guaranty and Contract Bond Form
5. Contract Bond Form
6. Contractor's Personal Property Tax Affidavit
7. Supplement to AIA Document A305, Contractor Qualification Statement
8. Owner-Contractor Agreement
9. General Conditions of the Contract for the Project (AIA Document A201 - 2007), as modified
10. Project Drawings
11. Project Specifications
12. Statement of Claim Form
13. Contractor's Payment Application Checklist
14. Addenda issued during the bid period
15. Modifications issued after the execution of the contract, including:
    i. A written amendment to the Agreement signed by both parties;
    ii. A Change Order;
    iii. A Work Change Directive; or,
    iv. A written order for a minor change of the Work issued by the Design Professional in accordance with the General Conditions

The Contract Documents, including Drawings and Specifications, are on file for public inspection at: the office of the Architect, Oregon Group Architects, Inc; 300 S. Patterson Blvd., Dayton, OH. Phone 937-228-1511.

Contract Documents may be purchased from the printer at the estimated cost of $230.00 from Arc Reprographics Dayton. Each Bidder is responsible for shipping cost or providing a shipping number for billing to the bidders account. Bidders shall use complete sets of Contract Documents in preparing bids. Neither the Owner nor Design Professional assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents.

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

H. PRE-BID MEETING

A pre-bid meeting will be held on Wednesday, September 30, 2026 at 2:00 PM, local time, at the Family Services Gymnasium Building, 525 E. Home Road, Springfield, OH 45503. Bidders are strongly encouraged to attend this meeting. Gymnasium Building is immediately adjacent to the Visitation Building.

I. PREPARATION OF BIDS

1. All bids must be submitted on the Bid Form furnished with the Contract Documents.

2. All blank spaces shall be filled in, in ink or typewritten, 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.

3. 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 in any material manner.

4. Each Bidder shall submit one original and six copies of its bid to the Owner. The Bid Form shall be signed with the name of the person signing on behalf of the Bidder 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.

5. Each Bid shall be enclosed in a sealed opaque envelope with the Bidder's name and the title of the Project printed in the upper left hand corner and addressed as follows: The Board of County Commissioners Clark County, Ohio, Attn: Angela Clos, 3130 East Main St., 3rd Floor, Springview Building, Springfield, OH 45503. The Bidder shall be responsible for delivering its Bid to this office and address for the bid opening before 11:00 a.m. (local time) on October 22, 2026.

   If the Bid is delivered by other than personal delivery (e.g., U.S. Mail or Federal Express), it shall be enclosed in a separate envelope with the notation “SEALED BID ENCLOSED FOR CLARK COUNTY FAMILY SERVICES VISITATION BUILDING RENOVATIONS BID – DELIVER IMMEDIATELY TO ANGELA CLOS” on the face of the envelope, with the date and time of the bid opening written on the envelope. Each Bidder is responsible for delivery of its Bid to the designated office prior to the deadline for accepting bids.

6. The completed Bid Form shall be accompanied by the following documents:

   a. Bid Guaranty (see Paragraph I.8 below).

7. The Bidder shall take the following precautions in preparing its bid:

   a. Sign the bid form and check to ensure all blank spaces have been filled in with requested information and that the specified accompanying documents (listed in Paragraph I.6 above) have been included in a sealed opaque envelope addressed as described in item 5 above.

   b. When the Bid Form requests pricing for one or more Alternates, indicate whether the sum stated for the Alternate is an addition or deduction. If no indication is given as to whether the amount stated is an addition to or a deduction from the Base Bid amount, the amount stated will be conclusively presumed to be an addition to the Base Bid amount, unless the wording for the Alternate indicates that it is a deduct item.

   c. When the Bid Form provides for quoting a unit price, the Bidder should quote the unit price as set forth in the Contract 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 I.8.a below. If the Bid Guaranty is in the form of the Bid Guaranty and Contract Bond, the amount may be left blank; if an amount is inserted, it should equal the total of the base bid and all add alternates included. If an amount is inserted, then the failure to state an amount equal to or greater than the total of the base bid and all add alternates that are accepted shall make the bid non-responsive if the Owner selects alternates not included in the amount, in which case the Bid may not be considered for award of a contract.

f. Make sure that the appropriate bid package and scope of work is inserted in the correct space on the Bid Guaranty and Contract Bond Form. Failure to include work covered by the bid submitted may make the bid non-responsive, in which case it may not be considered for award of a contract for the Work.

g. Combination Bids. The Owner may provide the option of submitting one or more combination bids on the Bid Form.

(1) When there is an option for submitting a combination bid on the Bid Form, a Bidder desiring to submit a combination bid for two or more bid packages is requested to include both of the following on the Bid Form:

(a) the combination bid amount in the space provided, identifying the bid packages included in the combination bid amount; AND

(b) separate base bids for each bid package, including alternates, included in the combination bid in the places provided on the Bid Form for the individual bid packages.

NOTE: The individual cost amounts of each base bid need not total the combination bid amount.

8. Bonds and Guarantees

a. Bid Guaranty: Bidder shall furnish a Bid Guaranty, as 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 Guaranty and Contract Bond included in the Contract Documents; 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. The Bid amount shall be the total of all sums bid, including all add alternates with no deduction for any deduct alternates. **NOTE: AIA Bid Bond forms are not acceptable.**

b. Contract Bond: If the successful Bidder submitted a certified check, cashier's check, or irrevocable letter of credit in an amount equal to 10% of the bid (including all alternates) as its Bid Guaranty, the successful Bidder shall furnish a Contract Bond using the Contract Bond form included 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 ("Surety") 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 to do business in the State of Ohio, and a financial statement of the Surety.

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

g. The name, address and telephone and fax numbers of the Surety and the Surety's Agent should be typed or printed on each bond.

J. METHOD OF AWARD

1. 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.

2. 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. The Owner will award a single contract for each of the bid packages listed above or one or more combined contracts for combinations of the Bid Packages. Bidders must furnish all information requested on or accompanying the Bid Form. Failure to do so may result in disqualification of the bid.

3. Determination of the Bidder Submitting 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 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 Bidder submitted the lowest and best bid for each bid package include the factors set forth below. The Owner, in its discretion, may consider and give such weight to these factors 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.

   The Owner may consider the Bidder's prior experience on other 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.

   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 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 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. Credentials and previous similar experience of Contractor and proposed management team, including but not limited to Project Manager, Superintendent, and Foreman;

i. Company safety record;

j. The foregoing information with respect to each of the Subcontractors and Suppliers that the Bidder intends to use on the Project;

k. 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;

l. The Owner's prior experience with the Bidder's surety;

m. Bidder's workforce;

n. The Bidder's interest in the Project as evidenced by its attendance at any pre-bid meetings or conferences for bidders; and/or

o. Depending upon the type of the work, other essential factors, as the Owner may determine and as are described in the specifications for the Work.

4. Upon the request of the Owner, but no later than within three (3) business days after the Owner's identification of the apparent low bidder, the apparent low bidder will complete and submit to the Architect a completed Contractor's Qualification Statement (using the form included in the Project Manual), and thereafter will provide the Architect with such additional information as the Owner and/or Architect may request regarding the Bidder's qualifications. Additionally, upon request from the Owner and/or Architect, any other Bidder will promptly complete and submit to the Architect a completed Contractor's Qualification Statement and thereafter will provide the Architect with such additional information as the Owner and/or Architect may request regarding the Bidder's qualifications. A Bidder will submit any requested information within three (3) business days of the date of the request or such other time period as the Architect provides the Bidder.

5. The failure to submit requested information on a timely basis may result in the determination that the Bidder is not the lowest and best bidder.

6. 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.

7. Within three (3) business days of receipt of the bids or such longer time as may be permitted in writing by the Design Professional, the apparent low Bidder will submit the following information and completed forms:

    a. The list of all proposed Subcontractors and suppliers; and

b. The breakdown of Labor and Material for the Project, including the sum thereof; and
c. Any forms required by any loan or grant that may be providing funding for the Project.

After approval by the Owner and Design Professional of the list of proposed Subcontractors, suppliers, and manufactures submitted by the successful Bidder, the list shall not be changed unless written approval of the change is authorized by the Owner and Design Professional.

8. 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.
9. 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.
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.
11. Award of Contract. The award of the Contract will only be made pursuant to authorization by the Owner and, where applicable, in writing by a duly authorized representative of the Owner.

K. EXECUTION OF CONTRACT

1. Within the time designated by the Design Professional after award of the Contract, the successful Bidder shall execute and deliver to the Design Professional the required number of copies of the Owner-Contractor Agreement, in the form included in the Contract Documents, and all accompanying documents requested, including, but not limited to, a Contract Bond (if applicable), insurance certificates, and a valid Workers' Compensation Certificate.

L. SUBSTITUTIONS/NON-SPECIFIED PRODUCTS

1. 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. Substitutions, however, will not be considered in determining the lowest and best bid.
2. The products specified in the Contract Documents establish a standard of required function, dimension, appearance, and quality.
3. Bidders wishing to obtain approval to bid non-specified products shall submit written requests to the Design Professional a minimum of ten (10) working days before the bid date and hour. To facilitate the submission of requests, a Substitution Form is included in the Bid 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 Design Professional’s decision of approval of a proposed product will be final.

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

   a. Requests submitted by subcontractors, material suppliers, and individuals other than Bidders;
   b. Requests submitted without adequate documentation;

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

4. When the Design Professional 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.

5. 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.

6. 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.

M. ALTERNATES

1. 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.

2. 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 in its Bid Form the cost of an alternate selected by the Owner and applicable to the Bidder's work may render the bid non-responsive if that alternate is selected, in which case the Bid will not be considered. Otherwise, the failure to include the cost of an alternate will not be deemed material.

3. 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.

4. 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.

N. UNIT PRICES

1. Where unit prices are requested in the Bid Form for a Prime Contract on which the Bidder submits a bid, the Bidder should quote a unit price. Unless otherwise expressly provided in the Bid Documents, such unit prices shall include all labor, materials, and services necessary for the timely and proper installation of the item for which the unit prices are requested. The unit prices quoted in the bid shall be the basis for any Change Orders entered into under the Owner-Contractor Agreement, unless the Design Professional determines that the use of such unit prices will cause substantial inequity to either the Contractor or the Owner.

O. ADDENDA

1. The Owner reserves the right to issue Addenda changing, altering, or supplementing the Contract Documents prior to the time set for receiving bids. The Design Professional will

issue the Addenda to clarify bidders' questions and/or to change, alter, or supplement the Contract Documents.

2. 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.

3. Bidders shall submit written questions to the Design Professional in sufficient time in advance of the bid opening to allow sufficient time for the Design Professional to respond. All Addenda will be issued, except as hereafter provided, and mailed or otherwise furnished to persons who have obtained Contract Documents 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.

4. Only the Bidders to whom Contract Documents have been issued and plan rooms where copies of the Contract Documents are maintained shall be notified of the Addendum issued. If a Bidder is notified that an Addendum has been issued, the Bidder is responsible for obtaining a copy of the Addendum. Receipt of Addenda shall be indicated by Bidders in the space provided on the Bid Form. Bidders are responsible for acquiring issued Addenda in time to incorporate them into their bid. Bidders should contact the Design Professional prior to the bid opening to verify the number of Addenda issued.

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

6. If a Bidder fails to indicate receipt of all Addenda through the last Addendum issued by the Design Professional 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.

P. INTERPRETATION

1. 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 Design Professional's representative, using the Request for Bid Clarification Form included in the Project Manual. Any interpretation of the proposed documents will be made by Addendum only, duly signed by the Design Professional, and a copy of such Addendum will be mailed or delivered to each Bidder receiving a set of Contract Documents 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.

2. 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.

3. Bidders are responsible for notifying the Design Professional 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.

Q. STATE SALES AND USE TAXES

1. 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.

R. DATE FOR SUBSTANTIAL COMPLETION/LIQUIDATED DAMAGES

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

S. OWNER'S RIGHT TO WAIVE DEFECTS AND IRREGULARITIES

1. 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.

T. MODIFICATION/WITHDRAWAL OF BIDS

1. 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.
2. 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 Legal Notice. 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.
3. Withdrawal after Bid Deadline.
    a. All bids shall remain valid and open for acceptance for a period of at least 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 that the contract is awarded to the same Bidder through another bid.

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.

U. COMPLIANCE WITH APPLICABLE LAWS

1. 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.

   c. Ohio Prevailing Wage Laws. The Bidder acknowledges and agrees that Ohio prevailing wage rates will be paid for all work performed on the Project and further that it will comply with Ohio Chapter 4115.

V. FINDINGS FOR RECOVERY

1. 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.

END OF INSTRUCTIONS TO BIDDERS

BID FORM

1.01 BID SUBMITTED BY:

_____
(Contractor)

DATED: _____, 20__

1.02 DELIVER TO:

Board of County Commissioners Clark County, Ohio
Attn: Angela Clos
3130 East Main St.
Springview Bldg., 3rd Floor
Springfield, OH 45503

1.03 Having carefully reviewed the Instructions to Bidders, Drawings, Specifications and other Contract Documents for the Project entitled:

Family Service Visitation Building Renovations

for Project, including having also received, read and taken into account the following Addenda:

Addendum No. _____, dated _____
Addendum No. _____, dated _____
Addendum No. _____, dated _____
Addendum No. _____, dated _____

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 Documents regardless of whether expressly provided for in such Specifications and Drawings.

1.04 Before completing the Bid Form, the undersigned represents that it has carefully reviewed the Legal Notice, Instructions to Bidders, this Bid Form, Form of Bid Guaranty and Contract Bond, Contractor's Affidavit (O.R.C. 5719.042), Owner-Contractor Agreement, General Conditions of the Contract (AIA Document 201, 2007 edition) (as modified), Plans, Project Specifications, and other Contract Documents. Failure to comply with provisions of the Contract Documents may be cause for disqualification of the bid.

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

1.06 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 its Work as required by the Contract Documents.

NOTE A: The wording of the Bid Form shall be used throughout, without change, alteration, or addition. Any change may cause it to be rejected.
NOTE B: Bidder is cautioned to bid only on the Brands or Standards specified.
NOTE C: If there is an inconsistency or conflict in the Bid amount, the lowest amount shall control, whether expressed in numbers or words.

2.01 BID:

Include the cost of all labor and material for the contracts listed below. Bidder is to fill in all blanks related to the Bid Package for which a bid is being submitted. If no bid is submitted for an item, leave the item blank or insert "NO BID" in the blank. For alternate items, indicate whether the amount stated is in addition to or a deletion from the base bid amount (if there is no indication whether the amount for an alternate is an addition or a deletion, the amount shall be an addition). If both numbers and words are requested for any bid item, the amount in words shall prevail if there is an inconsistency between the numbers and words written.

Item 1: General Construction - Base Bid:

$_____(figures)

_____(words)

Alternate 1: Delete all work associated with furnishing and installing all roofing work including roof shingles, deck repairs, gutters, downspouts, roof flashing, coil stock trim, roof vents and soffit fascia board repairs and associated work. ADD or DEDUCT (circle whichever applies)

_____ Dollars ($_____)
(Words) (Figures)

Alternate 2: Delete all work identified in the bid documents for replacing the exterior doors and hardware identified in Drawings as being part of Alternate #2. ADD or DEDUCT (circle whichever applies)

_____ Dollars ($_____)
(Words) (Figures)

Alternate 3: Delete all work identified in the bid documents for furnishing and installing the new outdoor playground equipment, ground cover and all associated work. ADD or DEDUCT (circle whichever applies)

_____ Dollars ($_____)
(Words) (Figures)

Alternate 4: Delete all work associated with furnishing and installing new window shades throughout building as indicated in Drawings. ADD or DEDUCT (circle whichever applies)

_____ Dollars ($_____)
(Words) (Figures)

Alternate 5: Delete all work identified in the bid documents for replacing the existing light fixtures with LED light fixtures and all associated work. ADD or DEDUCT (circle whichever applies)

_____ Dollars ($_____)
(Words) (Figures)

Alternate 6: Delete all work identified in the bid documents for replacing all electrical receptacles with new tamper-resistant receptacles and all associated work. ADD or DEDUCT (circle whichever applies)

_____ Dollars ($_____)
(Words) (Figures)

Alternate 7: Delete all work identified in the bid documents associated with the new entry canopy addition on the east facade and all associated work. ADD or DEDUCT (circle whichever applies)

_____ Dollars ($_____)
(Words) (Figures)

3.01 INSTRUCTIONS FOR SIGNING

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

B. The person signing for a partnership must be a partner or his authorized representative.

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

D. The person signing for some other legal entity must show his authority, by affidavit, to bind the legal entity.

4.01 BIDDER CERTIFICATIONS. The Bidder hereby acknowledges 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 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 such prior written notice to 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 not have been discovered by such an investigation.

4. The Bidder represents, understands and agrees that a) the Claim procedures in the Modified 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 Notice of Claim form on a timely basis, c) the proper completion and timely submission of a Notice 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 Notice 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 by the Contract Documents.

6. The Bidder and each person signing on behalf of the Bidder certifies, and in the case of a bid by joint venture, each member thereof certifies as to such member's entity, under penalty of perjury, that to the best of the undersigned's knowledge and belief: (a) the Base Bid, any Unit Prices and any Alternate bid in the bid have been arrived at independently without collusion, consultation, communication or agreement, or for the purpose of restricting competition as to any matter relating to such Base Bid, Unit Prices or Alternate bid with any other Bidder; (b) unless otherwise required by law, the Base Bid, any Unit Prices and any Alternate bid in the bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to the bid opening, directly or indirectly, to any other Bidder who would have any interest in the Base Bid, Unit Prices or Alternate bid; (c) no attempt has been made or will be made by the Bidder to induce any other Person to submit or not to submit a bid for the purpose of restricting competition; and (d) the statements made in this Bid Form are true and correct.

7. The Bidder will execute the form of Owner/Contractor Agreement in the form included with the Contract Documents, if a Contract is awarded on the basis of this bid, and 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.

8. The Bidder certifies that the 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.

9. 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 best bidder and that the bid is responsive to the specifications.

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

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

LEGAL NAME OF BIDDER: _____

BIDDER IS: _____
(sole proprietor, partnership, corporation or other legal entity)

NAME & TITLE OF PERSON LEGALLY AUTHORIZED TO BIND BIDDER TO A CONTRACT:

_____
Name Title

DATE SIGNED: _____ SIGNATURE: _____

ADDRESS: _____

_____

TELEPHONE: _____

FAX: _____

FEDERAL TAX I.D. # _____

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

_____ _____

_____ _____

Name

_____

Address

_____ _____

_____ _____

Name

_____

Address

_____ _____

_____ _____

Name

_____

Address

_____ _____

_____ _____

Name

_____

Address

_____ _____

_____ _____

Name

_____

Address

END OF SECTION

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BID GUARANTY AND CONTRACT BOND
(O.R.C. § 153.571)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned _____ _____ as Principal and _____ as surety are hereby held and firmly bound unto the Board of County Commissioners, Clark County, Ohio, as Obligee in the penal sum of the dollar amount of the bid submitted by the principal to the obligee on _____, 2021, to undertake the contract for the Family Services Visitation Building Renovations project ("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 all 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 above-referenced Project.

Now, therefore, if the Obligee accepts the Bid of the Principal and the Principal fails to enter into a proper contract in accordance with the Bid, plans, 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 Bidder determined by the Obligee to be the next lowest and best Bidder to perform the Work covered by the Bid; or in the event the Obligee does not award the Contract to the next lowest and best Bidder and resubmits the Work on 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 null and 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 and executes the Contract Form in accordance with the Contract Documents, including without limitation 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; and

If the said Principal shall well and faithfully perform each and every condition of such Contract; and indemnify the Obligees against all damage suffered by failure to perform such Contract according to the provisions thereof and in accordance with the Contract Documents, including without limitation Plans, details, Specifications, and bills of material therefore; and shall pay all lawful claims of Subcontractors, Material Suppliers, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said Contract; we, agreeing and assenting that this undertaking shall be for the benefit of any Subcontractor, Material Supplier or laborer having a just claim, as well as for the Obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said Surety hereby stipulates and agrees that no modifications, omissions, or additions in or to the terms of said Contract, the Work thereunder or the Contract Documents, including without limitation the Plans and Specifications therefore, shall in any wise affect the obligations of said Surety on its bond,

and it does hereby waive notice of any such modifications, omissions or additions in or to the terms of the Contract, the Work, or the Contract Documents, including without limitation the Plans and Specifications.

Signed and sealed this _____ day of _____, 20__.

_____
(PRINCIPAL)

By: _____

Printed Name & Title: _____

_____
(SURETY)

By: _____

Printed Name & Title: _____

Surety's Address: _____

_____

Surety's Telephone Number: _____

Surety's Fax Number: _____

_____
NAME OF SURETY'S AGENT

Surety's Agent's Address: _____

_____

Surety's Agent's Telephone Number: _____

Surety's Agent's Fax Number: _____

Surety's Agent's Email Address: _____

NOTE: The Contract Bond form that follows is to be used ONLY by a bidder that is determined to have submitted the lowest and best bid and that 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.

Bond No. _____

CONTRACT BOND
(O.R.C. § 153.57)

KNOW ALL PERSONS 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, Clark County, Ohio (the "Owner") as obligee, in the penal sum of _____ _____ Dollars ($_____), 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 did on the _____ day of _____, 20__, enter into a contract with the Owner for the Family Services Visitation Building Renovations project ("Project"), which said contract is made a part of this bond the same as though set forth herein:

Now, if the said Contractor shall well and faithfully do and perform the things agreed by the Contractor 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; 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 or specifications therefore shall in any wise affect the obligations of said surety on its bond, and 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)	(SURETY)
By: _____	By: _____
Printed Name & Title: _____	Printed Name & Title: _____
_____	_____
	Surety's Address: _____
	_____
	Surety's Tel. Number: _____
	Surety's Fax Number: _____

NAME OF SURETY'S AGENT

Surety's Agent's Address: _____

_____

Surety's Agent's Tel. Number: _____

Surety's Agent's Fax Number: _____

Surety's Agent's Email Address: _____

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CLARK COUNTY

CONTRACTOR'S PERSONAL PROPERTY TAX AFFIDAVIT

(O.R.C. § 5719.042)

State of Ohio
County of _____, ss:

_____, being first duly sworn, deposes and says that he is the
(Name)

_____ of _____ with offices located at
(Title) (Contractor)

_____, and as its duly
(Address of Contractor)

authorized representative, states that effective this _____ day of _____, 20___,

_____
(Name of Contractor)

( ) is charged with delinquent personal property taxes on the general list of personal property as set forth below:

County	Amount (includes total amount due, plus penalties and interest thereon)
Clark	$_____

( ) is not charged with delinquent personal property taxes on the general list of personal property in Clark County.

_____

_____
(Affiant)

Sworn to and subscribed before me by the above-named affiant this _____ day of _____, 20__.

_____
(Notary Public)

My commission expires

_____, 20__

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CONTRACTOR'S QUALIFICATION STATEMENT

SUBMITTED TO: The Board of County Commissioners Clark County, Ohio
3130 East Main St.
Springfield, OH 45503

SUBMITTED BY:

NAME:

ADDRESS:

PRINCIPAL OFFICE:

[ ] Corporation
[ ] Partnership
[ ] Individual
[ ] Joint Venture
[ ] Other

NAME OF PROJECT:

1. ORGANIZATION

1.1 How many years has your organization been in business as a Contractor?

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

1.2.1 Under what other or former names has your organization operated?

1.3 If your organization is a corporation, answer the following:

1.3.1 Date of incorporation:

1.3.2 State of incorporation:

1.3.3 President's name:

1.3.4 Vice President's name(s):

1.3.5 Secretary's name:

1.3.6 Treasurer's name:

1.4 If your organization is a partnership, answer the following:

1.4.1 Date of organization:

1.4.2 Type of partnership (if applicable):

1.4.3 Name(s) of general partner(s):

1.5 If your organization is individually owned, answer the following:

1.5.1 Date of organization:

1.5.2 Name of owner:

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

2. LICENSING

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

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

3. EXPERIENCE

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

3.2 Claims and Lawsuits (If the answer to any of the questions below is yes, please attach details.)

3.2.1 Has your organization ever failed to complete any work?

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

3.3 Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? If the answer is yes, please attached details for each instance, including the names and telephone numbers of the persons who are parties to the contract, and the reason(s) the contract was not completed.

3.4 On a separate sheet, list construction projects your organization has in progress with an original Contract Sum of more than $100,000.00, giving the name of project, owner and its telephone number, design professional and its telephone number, contract amount, percent complete and scheduled completion date.

3.4.1 State total amount of work in progress and under contract:

3.5 Provide the following information for each contract your organization has had during the last five (5) years, including current contracts, where the Contract Sum is fifty percent (50%) or more of the bid amount for this Project, including add alternates. If there are more than ten (10) of these contracts only provide information on the most recent ten (10) contracts, including current contracts.

Project And Work	Contract Sum	Owner's Representative & Telephone Number	Engineer's Or Architect's Representative Name & Telephone Number

Project And Work	Contract Sum	Owner's Representative & Telephone Number	Engineer's Or Architect's Representative Name & Telephone Number

3.5.1 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 the Owner's project. If there are more than five (5) of these projects, only provide information on the most recent five (5) projects, including current projects.

Project And Work	Contract Sum	Owner's Representative & Telephone Number	Engineer's Or Architect's Representative Name & Telephone Number

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

3.5.3 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.

3.5.4 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."

3.5.5. 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."

3.6 On a separate sheet, 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 the Owner.

4. REFERENCES

4.1 Trade References:

4.2 Bank References:

4.3 Surety:

4.3.1 Name of bonding company:

4.3.2 Name and address of agent:

5. FINANCING

5.1 Financial Statement

5.1.1 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).

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

5.1.3 Is the attached financial statement for the identical organization named on page one?

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

5.2 Will the organization whose financial statement is attached act as 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.

SIGNATURE

Dated at this ____ day of _____, 20__.

Name of Organization: _____

By: _____[PRINT NAME]

Signature: _____

Title: _____

_____, 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: _____

SEAL

OWNER-CONTRACTOR AGREEMENT

OWNER: Board of County Commissioners
Clark County, Ohio
3130 East Main St.
Springfield, OH 45503

Contract: _____

Alternates: _____

Contractor: _____

Address: _____

_____

PROJECT: Family Services Visitation
Building Renovations

Phone: _____

Fax: _____

Date: _____

This document is an agreement between the Owner and the Contractor for the Work described in the Contract Documents related to the Contract identified above for the Project and is effective as of the date set forth above ("Effective Date of this Agreement"), which if no date is entered shall be the date the Agreement was signed by the Owner.

The Owner and the Contractor agree as set forth in the following paragraphs:

1. **CONTRACT DOCUMENTS**. The Contract Documents consist of the following documents:

A. Notice to Bidders;
B. Instructions to Bidders;
C. Bid Form;
D. Bid Guaranty and Contract Bond Form
E. Contract Bond Form
F. Contractor's Personal Property Tax Affidavit (R.C. §5719.042)
G. Owner-Contractor Agreement;
H. General Conditions of the Contract for Construction (AIA DOCUMENT 201, 2007 edition), as modified;
I. Supplement to AIA Document A305, Contractor Qualification Statement
J. Contractor's Payment Application Checklist
K. Drawings;
L. Specifications;
M. Addenda issued;
N. Statement of Claim Form; and
O. Modifications issued after the execution of the contract, including:
   i. A written amendment to the Agreement signed by both parties;
   ii. A Change Order;
   iii. A Work Change Directive; or,
   iv. A written order for a minor change of the Work issued by the Design Professional in accordance with the General Conditions

Note. Non-Contract Documents. The following are the reports and tests of subsurface conditions at or contiguous 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 reports and tests. (None, if none are listed).

_____

Note. 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).

_____

2. DESIGN PROFESSIONAL RELATIONSHIP. 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 their 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 which 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 Design Professional.

The Design Professional (also called the "Architect") is:

The Oregon Group Architects, Inc.
300 S. Patterson Blvd.
Dayton, Ohio 45402
Phone: 937-228-1511

The Design Professional's Representative is Kyle Zepernick.

3. TIME FOR COMPLETION AND PROJECT COORDINATION.

3.1 DATE FOR COMMENCEMENT. The date for commencement of the Work shall be the date established in a written Notice to Proceed issued by the Owner, through the Design Professional, to the Contractor. If no Notice to Proceed is issued, then the date for commencement shall be the Effective Date of the Agreement. The date for commencement of the Work shall be within sixty (60) days from the bid opening date, unless the Owner and the Contractor agree to a later date. If there is any other date for commencement of the Work in the bid documents, Contract Documents or elsewhere, it is agreed that such other date is a tentative date and may not be relied upon by the Contractor. If the date for commencement of the Work is later than sixty (60) days from the bid opening date or, if applicable, the later date agreed to by the Owner and the Contractor, the Contractor may submit a Claim in accordance with the Contract Documents.

3.2 DATES FOR SUBSTANTIAL COMPLETION. The Contractor shall have its Work on the Project Substantially Complete for the entire project by the following date or within the following Contract Time (in calendar days), June 9, 2027. The Date for Substantial Completion is the foregoing date or date calculated using the Contract Time. The Date for Substantial Completion shall only be changed or modified by Change Order, other Modification, or a Claim that is Finally Resolved regardless of any dates in any schedule created by any person. The Contract Time shall run from the date of the Notice to Proceed or if there is no Notice to Proceed from the Effective Date of this Agreement.

3.2.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

Final Completion shall mean that the Work is complete in accordance with the Contract Documents and the Contractor has submitted to the Design Professional all documents required to be submitted to the Design Professional for final payment. A Claim is "Finally Resolved" when the Initial Decision Maker has made a decision on a Claim under Section 15.2.6.1 of the General Conditions of the Contract for Construction (AIA DOCUMENT 201, 2007 edition), as modified, and that any litigation regarding the Claim has been concluded.

3.2.2 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 (None 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 dates for Substantial Completion and Final Completion will not be changed due to Contractor not being able to perform Work on these dates.

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

3.4 COORDINATING CONTRACTOR. The Coordinating Contractor shall be the General Trades Contractor. The Coordinating Contractor shall be responsible for coordinating the work of all contractors on the Project.

3.5 LIQUIDATED DAMAGES. If the Contractor does not have its Work on the Project Substantially Complete by its Date for Substantial Completion or Finally Complete within thirty (30) days of achieving Substantial Completion (the "Date of Final Completion"), 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 in the following tables, whichever may be applicable:

LIQUIDATED DAMAGES – DATE FOR SUBSTANTIAL COMPLETION

Contract Amount	Dollars Per Day
$1.00 to $50,000.00	$ 250.00
$50,000.01 to $150,000.00	$ 500.00
$150,000.01 to $500,000.00	$1,000.00
$500,000.01 to $2,000,000.00	$1,500.00
$2,000,000.01 to $5,000,000.00	$2,500.00
$5,000,000.01 to $10,000,000.00	$3,000.00
Over $10,000,000.00	$3,500.00

LIQUIDATED DAMAGES – FINAL COMPLETION

Contract Amount	Dollars Per Day
$1.00 to $50,000.00	$ 50.00
$50,000.01 to $150,000.00	$ 100.00

$150,000.01 to $500,000.00	$ 200.00
$500,000.01 to $2,000,000.00	$ 300.00
$2,000,000.01 to $5,000,000.00	$ 500.00
$5,000,000.01 to $10,000,000.00	$ 600.00
Over $10,000,000.00	$ 700.00

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 attorneys' consultants' fees and expenses, the Architect's fees and expenses, including any fees or expenses of the Architect's consultants, provided that such Claims arise out of or are related to the Contractor's failure to Substantially Complete its Work by its Date for Substantial Completion or its failure to Finally Complete its Work by the Date for Final Completion. The Contractor's obligation to indemnify, defend and hold the Owner harmless under this Paragraph 3.5 shall be joint and several. These Liquidated Damages are in addition to any other remedies available to the Owner under the Contract Documents.

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's Work is not Substantially Complete by its Date for Substantial Completion or Finally Complete by the required date for Final Completion.

4. CONTRACT SUM (also called Contract Price). 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 is _____ Dollars ($_____). The Contract Sum includes all federal, state, county, municipal, and other taxes imposed by law, including but not limited to any sales, use, commercial activity 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:	$_____
Alternate No. _____	$_____
Alternate No. _____	$_____
Alternate No. _____	$_____
Alternate No. _____	$_____
Alternate No. _____	$_____
Alternate No. _____	$_____
Alternate No. _____	$_____

If after Substantial Completion of its Work, the Contractor fails to submit its final payment application with all the documents required to be submitted with such application within ninety (90) days after written notice to do so from the Owner and without prejudice to any other rights and remedies the Owner may have available to it, the balance of the Contract Sum shall become the Owner's sole and exclusive property, and the Contractor shall have no further interest in or right to such balance.

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

6. LIMITATION ON LIABILITY. The Owner's total liability under this Agreement will be limited to the amount of the Contract Sum. Under no circumstances will the officers, employees, or agents of the Owner be personally liable for any obligations or claims arising out of or related to this Agreement.

7. GENERAL.

7.1 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. 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.

7.2 ASSIGNMENT. The Contractor may not assign this Agreement without the written consent of the Owner, which the Owner may withhold in its sole discretion.

7.3 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 of the county in Ohio in which the Owner's principal office is located, and each party hereby expressly consents to the exclusive jurisdiction of such court. The parties expressly waive the right to remove any litigation arising out of this Agreement to federal court.

7.4 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.

7.5 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.

7.6 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.

7.7 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 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.

7.7.1 NON-DISCRIMINATION. Contractor agrees:

.1 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.

.2 That neither the Contractor, subcontractor, nor any person acting on behalf of either of them, shall, in any manner, discriminate against or intimidate any employee hired for the performance of Work under this Agreement on account of race, creed, sex, disability as defined in Section 4112.01 of the Ohio Revised Code, or color.

.3 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.

.4 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.

7.8 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 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, weekly job meetings, weekly safety tool box meetings, and monthly safety meetings.

7.9 PARTNERING. Contractor agrees that it will participate, as part of the Contract Sum, in any partnering sessions scheduled by Owner.

7.10 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.

7.11 COUNTERPARTS. This Agreement may be executed in any number of counterparts each of which when so executed and delivered will be an original hereof, and it will not be necessary in making proof of this Agreement to produce or account for more than one counterpart hereof. This Agreement may be executed and delivered by facsimile or via electronic mail.

7.12 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 Sum.

7.13 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. In the event of inconsistencies with or between parts of the Contract Documents, or between the Contract Documents and applicable standards, codes, and ordinances, the Contractor shall (i) provide the better quality or greater quantity of Work; or (ii) comply with the more stringent requirements; either or both in accordance with the Architect's interpretation.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their properly authorized representatives and agree that this Agreement is effective as of the date first set forth above.

OWNER: BOARD OF COUNTY COMMISSIONERS CLARK COUNTY, OHIO	CONTRACTOR:
BY:_____	BY:_____
PRINT NAME:_____	PRINT NAME:_____
TITLE:_____	TITLE:_____
DATE: _____	DATE: _____

DRAFT

AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

THIS DOCUMENT IS MODIFIED FROM ITS ORGINAL VERSION.

for the following PROJECT:
(Name and location or address)

THE OWNER:
(Name, legal status and address)
Board of County Commissioners, Clark County, Ohio
3130 East Main~~50 East Columbia~~ St.
Springfield, OH 4550~~3~~2

THE ARCHITECT:
(Name, legal status and address)

TABLE OF ARTICLES

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Owner-Contractor Agreement. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the Architect. .

§ 1.1.9 FINALLY RESOLVED

Finally Resolved means that the Initial Decision Maker has made a decision on a Claim under Section 15.2.6.1 of the General Conditions and that any litigation regarding the Claim has been concluded.

§ 1.1.10 CLAIM

Claim is defined in Section 15.1.1 of these General Conditions.

§ 1.1.11 STATEMENT OF CLAIM FORM

Statement of Claim Form means the Statement of Claim Form included with the Project Manual.

§ 1.1.12 FINAL COMPLETION

Final Completion shall mean that the Work is complete in accordance with the Contract Documents and the Contractor has submitted to the Architect all documents required to be submitted to the Architect for final payment.

§ 1.1.15 COORDINATING CONTRACTOR

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The Coordinating Contractor will be the Contractor designated as the Coordinating Contractor in the Owner–Contractor Agreement and will be responsible for preparing the Construction Schedule and updating the Construction Schedule as provided in the Contract Documents and coordinating the Work of the separate contractors and, if applicable, the work of Owner's forces.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor whether or not expressly shown or described. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all and performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 Unless otherwise indicated in the Owner-Architect Agreement, the Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

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§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM AND USE OF ELECTRONIC FILES

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner and Design Professional from and against all claims, damages, losses, and expenses (including, but not limited to, the fees and charges of contractors, engineers, architects, attorneys, and other professionals) arising out of, or related to the Contractor's, or any other Person's use of electronic files, including, but not limited to, CAD or BIM files (collectively "Electronic Files"). These Electronic Files are provided solely for the Contractor's convenience and use related to the Project. Any use of the Electronic Files shall be at the sole risk of the Contractor. The Contractor shall not use the Electronic Files for any purpose other than as a convenience for preparing Shop Drawings, Coordination Drawings, Record Drawings, or fabrication data for components, systems, and assemblies intended solely for use on the Project. The Owner and the Engineer make no warranties, either express or implied, of the merchantability or fitness of the Electronic Files for any particular purpose. The Contractor understands and accepts that the Electronic Files may deteriorate or be inadvertently or otherwise modified without authorization of the Owner or the Engineer. The Owner and the Engineer make no representations as to compatibility, usability, or readability of the Electronic Files resulting from the use of software, application packages, operating systems, or computer hardware differing from those used to create the Electronic Files. In the event of a conflict between the Contract Documents and the Electronic Files, the Contract Documents shall control, take precedence over, and govern the Electronic Files. The Contractor alone is responsible to check, verify, and otherwise confirm the accuracy of data on the Electronic Files. The Contractor shall not make any claims and hereby waives, to the fullest extent permitted by law, any claims or causes of action of any nature against the Indemnified Parties, which may arise out of, or in connection with, the use of the Electronic Files.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative. The Owner's representative shall only have such authority as is expressly authorized by the Owner's Board and as is permitted under the law of the State of Ohio. The Contractor is responsible for determining the limits of that authority. Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall prepare a Notice of Commencement for the Project, as required by the Ohio Revised Code, and furnish to the Contractor a copy of the Notice of Commencement for the Project within fifteen days after receipt of a written request.

§ 2.1.3 The Contractor agrees that the Owner may record with a sound recording device any and all meeting between the Owner and the Contractor related to the Project. The purpose of the recording is to maintain a complete and accurate record of the construction of the Project.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 [Not used].

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 To the extent necessary for the Work and as requested by the Contractor, the Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

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§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within two (2) business days after receipt of written notice from the Owner to commence or thereafter proceed without interruption to correct such default or neglect within fifteen (15) days of such notice, the Owner, without prejudice to its other remedies, may correct such deficiencies. Provided, however, if such default or neglect results in a threat to the safety of any person or property, the Contractor shall immediately commence to correct such default or neglect upon receipt of written or oral notice thereof. In all such cases of default or neglect, an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the costs arising out of or related to the investigation and correction of such deficiencies, including the Owner's administration costs, the Owner's lose of use costs, the Owner's rental costs, the Owner's attorneys' and consultants' fees and related expenses, and any other expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents and shall comply with all rules, regulations and policies of the Owner and all applicable federal, State, and local codes, statutes, ordinances, and regulations in the performance of the Work on the Project.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Agreement by the Contractor is a representation that the Contractor has visited the site, carefully and diligently investigated the entire site and the surrounding area, including location, condition and layout of the site and utility locations, become thoroughly familiar with local conditions under which the Work is to be performed, including the generally occurring climatic conditions and carefully correlated personal observations and other information with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work and in addition to the reviews required by these General Conditions, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3. In addition, prior to performing each portion of its Work, the Contractor shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it, . including the Work of the other Contractors. These obligations of this Section 3.2.1 are for the purposes of facilitating construction by the Contractor, for determining that the Work is constructible, for determining if the work of the Contractor is coordinated in the Contract Documents with the work of the other Contractors, and for verifying that field conditions, including the Work of other Contractors, are consistent with the

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information in the Contract Documents and ready for the Work. These obligations are not for the purpose of discovering errors or omissions in the sizing, load bearing capacity or other similar design information in the Contract Documents; however, the Contractor shall promptly report to the Architect and the Owner any errors or omissions in the sizing, load bearing capacity or other similar design information in the Contract Documents discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.3 Additionally, prior to performing each portion of the Work, the Contractor shall have a competent person review the Contract Documents for compliance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities and shall immediately report in writing any conflicts with such laws, statutes, ordinances, building codes, and rules and regulations to the Architect and Owner.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention and consistent with the skill of a competent contractor. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.3.4 The Contractor shall maintain readily accessible to the Architect and the Owner at the Project site, the following documents, all of which, shall be "public records" within the meaning of the Ohio Public Records Act:

.1 A set of Drawings and Project Manuals, as approved by the appropriate Building Department.

.2 Unless otherwise specifically provided in the Contract Documents, a neat and legible set of As-Built Drawings and Project Manuals on which:

.1 The Contractor shall keep an accurate record of all approved changes made to the Drawings to show actual installation where installation varies from Work as originally shown, including the exact location and depth of underground utility lines. Any such changes shall be noted by Change Order Number and drawn neatly in a contrasting color;

.2 When Shop Drawings are used, the Contractor shall cross-reference the corresponding sheet numbers on the As-Built Drawings and sections of the Specifications;

.3 A daily log at the Project site in which it has recorded Project-related information, including, but not limited to, the weather, number of workers on site for each Contractor, identification of equipment, Work accomplished, problems encountered, and other similar relevant Project data;

.4 As applicable to its Work, all Bulletins, Addenda, approved Shop Drawings, Product Data, Samples, manufacturers' installation, operating and/or maintenance instructions or requirements,

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certificates, warranties, Change Orders, Change Directives, other Modifications and complete back up data for all Change Orders, Change Directives and other Modifications;

.5 All the Contractor's communications, including but not limited to letters, memoranda, e-mail, invoices and bills of lading, arising out of or related to the Project with the Architect, Owner and/or its subcontractors, materialmen and/or employees; and

.6 The payroll reports for its employees and the employees of its Subcontractors working on the Project.

.3 Claims for the Contractor's failure to comply with the Ohio Public Records Act, if applicable, shall be claims under Section 3.18.1.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, which the Owner may withhold in its sole discretion, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall only assign competent supervisors and workers to the Project, each of whom is fully qualified to perform the tasks assigned. If the Owner or Architect deems any employee of the Contractor or a Subcontractor unsatisfactory, the Contractor will transfer or require its Subcontractor to transfer such employee from the Project immediately and replace or require the prompt replacement of such employee with a competent employee at no additional cost to the Owner. The Owner, however, shall be under no obligation to do so.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.1 [Reserved]

§ 3.5.2 If the Contractor breaches any of its obligations under Section 3.5, the Contractor will pay the Owner for its damages and expenses, including but not limited to attorneys' and consultants' fees and expenses, arising out of or related to such breach.

§ 3.5.3 The Contractor warrants that any equipment or materials selected by it from among the equipment or materials specified will be fit for its intended purposes, compatible with the design intent, and, if the other contractors construct their work in accordance with the Contract Documents, constructible all without additional cost to the Owner.

§ 3.5.4 Additional Warranties. The Contractor gives the Owner the following additional warranties:

.1 If the Contractor's Work includes all or part of the exterior roofing system, provided that the Architect has designed the roofing system to be weather tight, the Contractor warrants that the roofing system will be weather tight; and,

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.2 If the Contractor's Work includes all or part of the exterior wall system, provided that the Architect has designed the wall system to be weather tight, the Contractor warrants that the wall system will be weather tight.

Weather tight shall mean the roofing and/or wall system does not permit any infiltration of water in any form that would have any adverse effect on the Owner's operations or the Project.

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use, commercial activity, and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. The Contractor acknowledges that the Owner is a political subdivision of the State of Ohio or tax exempt organization and is exempt from state sales, use, and commercial activity taxes. Upon written request, the Owner will provide the Contractor with any applicable certificates of exemption.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders and all other requirements of public authorities applicable to performance of the Work.

§ 3.7.3 In addition to its other obligations under the Contract Documents, if the Contractor or any of its Subcontractors or Sub-subcontractors performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders and all other requirements of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions. Except as provided herein, if the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

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§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum and shall not be chargeable against the allowance; and

.3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect the difference between actual costs and the allowances under Section 3.8.2.1. The Contractor shall obtain the Change Order before incurring any costs in excess of an allowance.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT and CONSTRUCTION SUPERVISION

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not replace the assigned Superintendent without the consent of the Owner, except with another Superintendent who is satisfactory to the Owner. If the Contractor proposes to change the Superintendent, the Contractor shall submit to the Architect a written request for the change, including the justification for the change, the name and qualifications for the proposed replacement, and the time frame within which the change is proposed to take place. The Contractor shall provide promptly any related additional information the Architect or Owner requests.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract and within five (5) days of the date of any request from the Coordinating Contractor, Architect or the Owner to submit scheduling information, shall submit the scheduling information for its Work to the Coordinating Contractor, Architect and to the Owner in such form and in such detail as requested by the Coordinating Contractor. The Coordinating Contractor shall prepare the Construction Schedule within seven (7) days of the date of the Notice to Proceed. The Construction Schedule shall include and be consistent with any applicable Milestone Dates in the Bidding Documents. The Coordinating Contractor shall prepare all Construction Schedules in CPM format unless provided otherwise in the Contract Document or otherwise agreed in writing by the Owner. The Construction Schedule is for the purpose of coordinating the timing, phasing and sequence of the Work of the Contractors and shall not change or modify the Date for Substantial Completion. The 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.

.1 The Coordinating Contractor shall update the Construction Schedule each month. In preparing and updating the Construction Schedule, the Coordinating Contractor shall take into consideration but not be bound by the scheduling and other information submitted by the Contactors;

.2 The Construction Schedule shall be manpower loaded and shall include a schedule of the submission of Shop Drawings, Product Data and Samples;

.3 The Contractor shall, on a weekly basis, prepare and submit to the Coordinating Contractor a written report describing the activities begun or finished during the preceding week, Work in progress, expected completion of the Work, a look-ahead projection of all activities to be started or finished in the upcoming two (2) weeks, including without limitation the Contractor's workforce crew size and total resource hours associated with such Work and any other information requested by the Coordinating Contractor or the Architect;

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.4 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; and

.5 The Contractor's obligation to furnish requested scheduling information is a material term of its Contract. 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, Architect 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.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in accordance with the most recent Construction Schedule prepared by the Coordinating Contractor and submitted to the Owner and Architect, provided that the Contractor shall comply with any orders under Section 3.10.4.

§ 3.10.4 If the Architect or the Owner determines that the performance of the Work has not progressed so that it is likely that the Contractor will not Substantially Complete its Work by its Date for Substantial Completion, the Owner shall have the right to order the Contractor to take corrective measures necessary to expedite the Work, including, without limitation: (i) working additional shifts or overtime; (ii) supplying additional manpower, equipment, and facilities; and (iii) other similar measures (collectively referred to as "Corrective Measures"). If the Owner orders the Contractor to take such corrective measures, the Contractor shall take and continue such Corrective Measures until the Owner is satisfied that the Contractor is likely to Substantially Complete its Work by its Date for Substantial Completion.

.1 The Contractor shall not be entitled to adjustment in the Contract Sum in connection with the Corrective Measures required by the Owner pursuant to this Section 3.10.4, unless the Contractor is able to establish that it is entitled to additional compensation under the terms of the Contract Documents.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner and the Architect the documents required by Section 3.3.4. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work or earlier when required by the Contract Documents.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

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§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

.1 If the Shop Drawings or other submittals show variations from the requirements of the Contract Documents, the Contractor shall specify such variations in the Contractor's letter of submittal to the Architect accompanying the submittal. Variations must be approved by Change Order.

.2 If the Contractor's Shop Drawings or its submittals do not contain sufficient information, and the Architect must perform more than two reviews with respect to any submittal, the Contractor shall pay the additional costs and expenses incurred by the Owner as a result of such additional reviews by the Architect, and the Owner may withhold from sums due or coming due the Contractor amounts to cover such additional costs and expenses.

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§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional who shall comply with reasonable requirements of the Owner regarding qualifications and insurance and whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings 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 the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.12.11 Instructions. Unless otherwise expressly provided in the Contract Documents, the Contractor shall provide

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typed or printed instructions covering the operation and maintenance of each item of equipment furnished in a notebook submitted to the Architect for review and transmittal to the Owner. The instructions, as applicable, shall include the following:

.1 Any schematic piping and wiring diagrams;
.2 Any valve charts and schedules;
.3 Any lubrication charts and schedules;
.4 Guides for troubleshooting;
.5 Pertinent diagrams and maintenance instructions for all equipment;
.6 Manufacturer's data on all equipment;
.7 Operating and maintenance instructions for all equipment;
.8 Manufacturer's parts list;
.9 Any testing procedures for operating tests; and
.10 Other instructions and materials as required by the Contract Documents.

The Contractor shall provide two (2) copies of the above instruction books on or before the Substantial Completion of its Work. The books shall describe the information to be covered clearly and in detail and shall be in form and content satisfactory to the Architect and the Owner.

§ 3.12.12 Testing Following Final Completion. The Contractor will participate in training sessions for the Owner's maintenance personnel. During the first twelve (12) months following Final Completion of each part of the Project, the Contractor (without additional compensation) will participate in tests scheduled by the Owner, which test the following building systems to the extent applicable to the Contractor's Work: air conditioning system (which shall be conducted during the first full summer following the completion of the Project or at such earlier time as scheduled by the Owner), heating system (which shall be conducted during the first full winter following the completion of the Project or at such earlier time as scheduled by the Owner), and such other systems, including the electrical system, plumbing system, fire protection system, communications systems, as reasonably requested by the Owner. The Owner will be advised when the testing will be conducted and may observe the testing. It is intended that the testing be a comprehensive series of operation tests designed to determine whether the systems are fully operational in accordance with the requirements of the Contract Documents. If it appears that any of the systems, including equipment and software, do not conform to the requirements of the Contract Documents, the Contractor will remedy the defective and/or non-conforming work as provided in Section 12.2.2.1 of these General Conditions.

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§ 3.12.13 Manufacturer's Instructions or Requirements. Without waiving, modifying or relieving the Contractor from its other obligations under the Contract Documents, including its warranties and any performance specifications, the Contractor shall furnish and install its Work in accordance with any applicable manufacturer's instructions or requirements. Prior to installation, the Contractor shall review carefully the manufacturer's instructions and requirements, and if there is a conflict between such instructions or requirements and the Drawings and/or Specifications, the Contractor shall request clarification from the Architect prior to commencing the Work.

§ 3.13 USE OF SITE

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.2 Signage. The Contractor and any entity for whom the Contractor is responsible shall not erect any sign on the Project site without the prior written consent of the Owner, which may be withheld in the sole discretion of the Owner.

§ 3.13.3 Restricted Activities. Unless expressly permitted by the Contract Documents or by the Owner in writing, the Contractor shall not interfere with the Owner's ongoing operations, shall not permit any of its employees or its Subcontractor's or materialmen's employees to use any existing facilities on the Project site, including, without limitation, lavatories and toilets, and shall not permit its employees or its Subcontractor's or materialmen's employees to bring any tobacco products, alcoholic beverages, controlled substances, or firearms onto the Project site or any other property owned or controlled by the Owner. Additionally, the Contractor shall not permit its employees or its Subcontractor's or materialmen's employees to use any radios, tape or compact disc players, or sound amplification equipment at or near the Project Site.

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§ 3.13.4 The Contractor shall conspicuously post notice of the prohibitions listed in the preceding subparagraphs at the Project site in the same locations as OSHA notices are required to be posted, and shall verbally inform all of the Contractor's employees, and the employees of the Contractor's Subcontractors and materialmen, regardless of tier, of such prohibitions.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor. The Architect's determination of the costs to be charged to the Contractor shall be final and binding.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify, defend, and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against any and all claims (whether alleged or proven), demands, costs, losses and/or damages, including but not limited to all fees and charges of architects, attorneys and other professionals and all court, arbitration or other dispute resolution costs, arising out of or related to the Work and 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.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

§ 3.19 Compliance with Demolition Laws. The Contractor will, at the Contractor's expense, fully comply with all statutes and regulations regarding notification and disposal of construction and demolition debris, including, without limitation, Ohio Revised Code Chapter 3714 and the regulations enacted thereunder.

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§ 3.20 Underground Utility Facilities.

§ 3.20.1 The Contractor, at least two (2) working days prior to commencing construction in an area that may involve underground utility facilities, shall give notice to the Architect and the Owner and to the registered underground utility protection services and the owners of underground utility facilities shown on the Drawings and Specifications.

§ 3.20.2 The Contractor shall notify immediately the occupants of any premises near the Work and the Architect and the Owner as to any emergency that it may create or discover. The Contractor shall notify immediately the operator of any underground utilities and the Architect and Owner of any break or leak in the lines of such operator or any dent, gouge, groove, or other damage to such lines or to their rating or cathodic protection, made or discovered in the course of excavation.

§ 3.21 Waivers of Claims

§ 3.21.1 With each Application for Payment, the Contractor will obtain from each of its Subcontractors and Material Suppliers, regardless of tier, a waiver of claim for the Project of all lien rights for the amounts for which they have received payments with respect to the Project in the form requested by the Architect.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner and Architect. Consent shall not be unreasonably withheld.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative (1) during construction, (2) until the date the Architect issues the final Certificate for Payment, and (3) with the Owner's concurrence, from time to time during the one-year period for correction of Work described in Section 12.2 and for such additional periods as the Owner and Architect may agree. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the

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Contractor. Communications by and with separate contractors under contract directly with the Owner shall be through the Architect.

§ 4.2.5 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be consistent with these General Conditions.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and

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Specifications in response to the requests for information. If no agreement is made concerning the time within which interpretations required of the Architect shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretations until 15 days after written request is made for them and the Contractor establishes the Architect's delay in responding delayed the Work.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14 day period shall constitute notice of no reasonable objection. Copies of all bids or other proposals from Subcontractors or Sub-subcontractors shall, upon the request of the Owner or Architect, be submitted to the Owner and the Architect.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has an objection to a person or entity proposed by the Contractor, the Contractor shall propose within 10 days another to whom the Owner or Architect has no objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect objects to such substitute. The Owner, through the Architect, may require the Contractor to change any Subcontractor previously approved and, except as provided hereafter, the Contract Sum shall be increased or decreased by the difference in cost resulting from such change. If the Contractor is in default because of the Subcontractor's performance, then the Contractor shall not be entitled to any adjustment in the Contract Sum and shall remain liable to the Owner for any damages or losses caused by such default.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor,

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prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in direct costs incurred by the Subcontractor resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Coordinating Contractor shall coordinate the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 In addition to its obligations under Subsection 3.2.2, if part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 § 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

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§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible. The Architect's decision allocating the cost shall be final and binding on the Contractor and the Owner.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.2.2 [RESERVED]

§ 7.2.3 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 any and all adjustments to the Contract Sum and the Contract Time. The Contractor shall not proceed with any change in the Work without a signed Change Order, Construction Change Directive or Minor Change in the Work notice. The Contractor's failure to obtain such authorization as specified herein, shall constitute a irrevocable waiver by the Contractor of an adjustment to the Contract Sum or Contract Time for the related work.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 subject to a not-to-exceed amount a Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.7.

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§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present a true and accurate itemized accounting of all labor and material with appropriate supporting data. If the Architect prescribes a format for such accounting, the Contractor shall provide the accounting in such format. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- **.1** Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- **.2** Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- **.3** Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- **.4** Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- **.5** Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect plus the credit for overhead and profit. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, or decrease if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order conspicuously marked at the top of the order as a **"MINOR CHANGE IN THE WORK"** and signed by the Architect and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

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ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an Excusable Delay as provided in Section 15.1.5.3, then subject to the agreement of the Owner the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Promptly after the award of the Contract, the Contractor shall submit to the Architect, for the Architect's review and approval, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. By submitting such schedule of values, the Contractor represents for the reliance of the Architect and the Owner that the allocation of the values to the portions of the Work is a fair and reasonable estimate of such allocation. Once approved, the Contractor will not change the allocations in the Schedule of Values without the Architect's further approval. The Architect may from time to time require the Contractor to adjust such schedule if the Architect determines it to be in any way unreasonable or inaccurate. The Contractor then shall adjust the schedule of values as required by the Architect within ten (10) days. This schedule, with any adjustments approved by the Architect shall be used as a basis for reviewing the Contractor's Applications for Payment. The Contractor shall include a separate line item in its schedule of values for its Project Superintendent.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 The Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values for completed portions of the Work. Such application shall be notarized, if required, and be submitted with a properly completed Contractor's Payment Application Checklist, all the documentation required to be submitted with such Checklist, and any other supporting documentation required by the Contract Documents or by the Architect. The Application for Payment will be in the form and submitted with the number of copies of it

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and all related documents as required by the Contract Documents. The Contractor also shall submit with its Application for Payment such other data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.1.3 The Contractor shall submit its Application for Payment to the Architect on AIA Documents G-702 and G-703 or other form as required by the Owner, and Contractor's Payment Application Checklist and Certification on or before the twenty-fifth (25th) day of each month for Work completed to that date. The Owner will issue payment to the Contractor within thirty (30) days from the date of its receipt of the certified Application for Payment from the Architect.

§ 9.3.1.4 The Owner will withhold retainage from the amount set forth in the Application for Payment approved by the Architect, as provided in the Contract Documents.

§ 9.3.1.5 Documentation. Upon request, the Contractor immediately will supply the Owner and the Architect with such information as may be requested so as to verify the amounts due to the Contractor, including but not limited to original invoices for materials and equipment and documents showing that the Contractor has paid for such materials and equipment, and so as to verify that amounts due laborers, Subcontractors, and Material Suppliers have been paid to them. The failure to provide such information shall be justification for withholding payment to the Contractor.

§ 9.3.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- **.1** Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage as required by Ohio law. Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™–2007, General Conditions of the Contract for Construction;
- **.2** Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage as required by Ohio law;
- **.3** Subtract the aggregate of previous payments made by the Owner; and
- **.4** Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201–2007.

§ 9.3.1.7 The progress payment amount determined in accordance with Section 9.3.1.6 shall be further modified under the following circumstances:

- **.1** Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
- **.2** Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Sections 9.10.3 and 15.1 of AIA Document A201–2007.

§ 9.3.1.8 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

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§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work. The Contractor agrees to bond off any lien filed on (1) the real property on which the Project is located, (2) the Owner's interest in such real property and/or (3) the remaining balance of the Contract Sum by providing a bond meeting the requirements of Ohio Revised Code. The Contractor shall do so within sixty (60) days of the filing of the lien.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's properly completed Application for Payment and Contractor's Payment Application Checklist and Certification, the documentation described in the Contractor's Payment Application Checklist and Certification and such other data substantiating the Contractor's right to payment as the Owner or Architect may require, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- **.1** defective Work not remedied or the Contractor is in default of the performance of any of its obligations under the Contract Documents including but not limited to: failure to provide sufficient skilled workers, failure to provide scheduling information as provided in Section 3.10.1, failure to prepare the Construction Schedule as provided in Section 3.10.1, failure to conform to the Project Construction Schedule and/or failure to coordinate is Work with the work of other contractors;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;

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.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or a separate contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
.7 failure to carry out the Work in accordance with the Contract Documents; or
.8 the Contractor is in default of the performance of any of its obligations under another contract it has with the Owner.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall issue payment to the Contractor within thirty (30) days from the date of its receipt of the certified Application for Payment from the Architect and shall so notify the Architect.

§ 9.6.2 The Contractor shall promptly, within the time period required by Ohio law, pay each Subcontractor upon receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner. Neither the Contractor nor its Subcontractors shall withhold retainage from its Subcontractors or their sub-subcontractors beyond the retainage withheld by the Owner from the Contractor.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

If the Owner does not pay the Contractor the amount certified by the Architect within thirty (30) days after receipt of the certified Application of Payment from the Architect, or if Architect has decertified a previously certified

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Certificate for Payment, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment together with all required documents neatly bound and indexed. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When a specific manufacturer's warranty is required by the Specifications, the Contractor shall state in writing to the Architect that all the manufacturer's requirements for the issuance of the warranty has been completed and that the Work is ready for the Architect's and Owner's inspection. All manufacturer's warranties required for the Work shall commence as of the Date of Substantial Completion stated on the certificate issued by the Architect.

§ 9.8.3 Upon receipt of the Contractor's list and the documents required by Section 3.12.11 neatly bound and indexed, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Work is Substantially Complete, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.3.1 Time for Completion of Items on List and Remedies. The Contractor shall complete all items on the list accompanying the Architect's Certificate of Substantial Completion within thirty (30) days of the Date of Substantial Completion shown in the Certificate. 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 against the Contractor. If the balance of the Contract Sum is insufficient, the Contractor or the Contractor's Surety will pay the Owner the balance on demand. 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 Architect for purposes of evaluating corrected Work is required, the Contractor shall pay the additional costs and expenses incurred by the Owner as a result of more than one inspection by the Architect, and the Owner may withhold from sums due or coming due the Contractor amounts to cover such additional costs and expenses. To the extent that the Owner incurs any costs or damages in addition to the cost of completing the items on the list accompanying the Architect's Certification of Substantial Completion, the Contractor or the Contractor's Surety shall indemnify the Owner for those costs in accordance with Article 3.18 of these General Conditions.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and consistent with Section 9.8.3.1 shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 Upon receipt of the Certificate of Substantial Completion from the Architect and consent of the Contractor's surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor and/or with the Architect's approval, provided

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such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. In the event of a disagreement about such responsibilities, correction period, or commencement of warranties, the Architect will resolve the disagreement, and the Architect's decision will be final and binding. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect, which shall be final and binding.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment and a properly completed Contractor's Payment Application Checklist, all the documentation required to be submitted with such Checklist, and any other supporting documentation required by the Contract Documents or by the Architect, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, including all required documents submitted, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.2.1 Unless otherwise provided in the Contract Documents, the final Application for Payment shall be itemized, and the Contractor shall ensure that the final Application for Payment transmitted to the Architect also is accompanied by the following additional documents, if not previously delivered to the Architect:

.1 Evidence that all Completion/Punchlist List items have been completed;

.2 Where applicable, keys and keying schedule;

.3 The documents, including as-built set of Drawings and Specifications, referred to in Section 3.3.4 not

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otherwise required by the Contract Documents to be delivered earlier; and,

.4 Other documents required by the Contract Documents.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from or related to:

.1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
.2 failure of the Work to comply with the requirements of the Contract Documents; or
.3 terms of special warranties required by the Contract Documents; or
.4 any claims, damages, losses or expenses for indemnification under Section 3.18.1.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract, including compliance with OSHA and other state and federal regulations applicable to the Work. The Contractor's safety program shall be written and a copy maintained at the Project site for inspection, upon request. Neither the Owner nor the Architect accept any responsibility or liability for the safety of the Contractor's employees or for enforcing the Contractor's safety program. Additionally, Contractor shall comply with the Owner's rules, regulations, and policies including, but not limited to, the Owner's safety, health, and infection control policies and programs.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take all reasonable precautions for safety and health of, and shall provide reasonable protection to prevent damage, injury or loss to

.1 employees on the Work and other persons who may be affected thereby, including the Owner's employees, employees of other contractors, their subcontractors, material suppliers, and persons on the site or adjoining property;
.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors and/or the Work of any other contractor and the materials and equipment to be incorporated in such Work; and
.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities. The Contractor shall be responsible, at the Contractor's sole cost and expense, for all measures necessary to protect any property adjacent to the Project and improvements therein.

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§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. The Contractor shall not bring any hazardous materials onto the Project site unless expressly required by the Contract Documents.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18. In the event of a dispute about who is responsible for damage and loss to such property, the issue shall be submitted to the Architect and the Architect's decision shall be final and binding on the respective parties.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY
If the Contractor suffers injury or damage to person or property because of an act or omission of the Owner, or of others for whose acts the Owner is legally responsible, the Contractor shall submit a Statement of Claim Form for such injury or damage as required by Section 15.1.2.

§ 10.3 HAZARDOUS MATERIALS
§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, upon written request, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. Work in the affected area shall be resumed immediately following the occurrence of any one of the following events: (i) the Owner causes remedial work to be performed that results in the hazardous substance being rendered harmless; or (ii) the Owner and the Contractor, by written agreement, decide to resume performance of the Work; or (iii) the Work may safely and lawfully proceed using appropriate protective measures, as determined by a competent person employed by the Owner. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up. The term "rendered harmless" shall be interpreted to mean that exposure levels of asbestos and polychlorinated biphenyl (PCB) are less than any applicable exposure standards set forth in OSHA regulations.

§ 10.3.3

§ 10.3.4 The Owner shall not be responsible for materials or substances the Contractor brings to the site unless such materials or substances are expressly required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

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§ 10.3.5 In addition to the Contractor's obligations in Section 3.18 and elsewhere in the Contract Documents, the Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 [Reserved]

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§ 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, without special instructions or authorization, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies acceptable to the Owner and licensed to do business in the State of Ohio such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- **.1** Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- **.2** Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- **.3** Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- **.4** Claims for damages insured by usual personal injury liability coverage;
- **.5** Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- **.6** Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- **.7** Claims for bodily injury or property damage arising out of completed operations which coverage shall be maintained for no less than two (2) years following final payment; and
- **.8** Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

11.1.2.1 The minimum limits of liability for the required policies shall be not less than the following, unless a greater amount is required by law:

.1 Commercial General Liability ("CGL"): Bodily injury (including death) and property damage with a combined single limit of $1,000,000 each occurrence, with a $2,000,000 aggregate; $100,000 for damage to rented premises (each occurrence); $5,000 for medical expenses (per person); and $1,000,000 for personal and advertising injury. CGL shall include: (i) Premises-Operations, (ii) Explosion and Collapse Hazard, (iii) Underground Hazard, (iv) Independent Contractors' Protective, (v) Broad Form Property Damage, including Completed Operations, (vi) Contractual Liability, (vii) Products and Completed Operations, with $2,000,000 aggregate and to be maintained for a period of minimum period of two (2) year after final payment, (viii) Personal Injury, (ix) Owned, non-owned, and hired motor vehicles, and (x) Stopgap liability for $1,000,000 limit. The general aggregate shall be endorsed to provide that it applies to this Project only.

.2 Automobile Liability, covering all owned, non-owned, and hired vehicles used in connection with the Work: Bodily injury (including death) and property damage with a combined single limit of $1,000,000 per person and $1,000,000 each occurrence.

11.1.2.2 Such policies shall be supplemented by an umbrella policy which in addition, contemplates the scheduled

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underlying limits for Commercial General Liability, Automobile Liability and Stopgap Liability. The umbrella policy shall be written on an occurrence basis, to provide additional protection to provided coverage in the total amount of $6,000,000 for each occurrence and $6,000,000 aggregate. The Contractor's insurance shall be primary to any insurance maintained by the Owner. The Contractor shall obtain an additional insurance endorsement for the CGL and automobile liability coverage (unless the Owner waives this endorsement requirement in writing) with the following named as additional insureds for covered claims arising out of the performance of the Work under the Contract:

.1 The Owner;
.2 The Owner Board members and employees; and,
.3 The Architect and its employees.

11.1.2.3 Insurance policies shall be written on an occurrence basis only.

11.1.2.4 Products and completed operations coverage shall commence with the certification of the final Certificate for Payment to the Contractor and extend for not less than two years beyond that date.

11.1.2.5 The Contractor shall require all Subcontractors to provide Workers' Compensation, CGL, and Automobile Liability Insurance with the same minimum limits specified herein, unless the Owner agrees to a lesser amount.

11.1.2.6 The Owner shall be provided a copy of and named as a certificate holder on the policies of insurance maintained by the Contractor. The Owner shall be notified of any change in policy coverage. The Owner may withhold payments otherwise due to the Contractor if the Contractor fails to deliver the certificates of insurance to the Owner required hereunder. The Owner shall be notified in writing 60 days before any changes in policy coverage or cancellation of any required policies.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness. Upon request, the Contractor will provide the Owner with copies of any insurance policies required by the Contract Documents.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.1.5 The maintaining of such insurance as outlined herein shall in no way constitute a waiver of legal liability for damage to any adjoining buildings or their contents or the work and property of others on the site beyond the limits of insurance thus maintained. The Contractor shall hold the Owner free and harmless from any injury and damage, including but not limited to attorney's fees, resulting from the negligent or faulty performance of the Contract by the Contractor or by his/her Subcontractors.

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§ 11.1.6 Each Contractor shall hold the Owner harmless from all payments for patents, either as royalty or otherwise, in the use of materials, methods, appliances, etc., that he may be in any way involved in or connected with any part of his work or the work of his Subcontractors.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance. The Owner's insurance does not cover liability risks associated with construction. The Contractor shall provide coverage that protects the Owner's interests in the Project.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project. If any property insurance is provided by the Owner, that property insurance shall not cover any tools, apparatus, machinery, scaffolding, hoists, forms, staging, shoring, and other similar items commonly referred to as construction equipment that may be on the site and the capital value of which is not included in the Work, nor shall such insurance cover any materials or equipment before these materials and equipment are physically incorporated into the Work. The Contractor shall make its own arrangements for any insurance it may require on such construction equipment and materials and equipment. Any policy obtained by the Contractor under this Section 11.3 and related sections shall include a waiver of subrogation in accordance with the requirements of Section 11.3.7. If the Work is located in a Special Flood Hazard Area, as defined by the Federal Emergency Management Agency, the Contractor shall provide an endorsement to the property insurance policy that provides coverage for physical loss or damage caused by flood.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Contractor shall pay costs not covered because of such deductibles.

§ 11.3.1.4 [Not used].

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.1.6 Damages to Other Property. The maintaining of such insurance as outlined in Section 11.1 shall in no way constitute a waiver of the Contractor's legal liability for damage to any adjoining buildings or existing buildings or their contents or the Work and property of others on the site beyond the limits of insurance thus maintained. The

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Contractor shall hold the Owner free and harmless from any injury and damage resulting from the negligent or faulty performance of the Contract by the Contractor or its Subcontractors or others under its control or direction.

§ 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 The Owner shall maintain copies of the policies of insurance it is required to purchase and maintain hereunder at its offices and shall permit the Architect or the Contractor to inspect the policies during normal business hours and upon reasonable advance written notice.

§ 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent of actual recovery of any insurance proceeds under any property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner in good faith. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner in good faith and made payable to the Owner in good faith for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner in good faith shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received in good faith. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

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§ 11.3.10 The Owner in good faith shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved as provided in Sections 15.3 and 15.4. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner in good faith shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 Contractor shall provide a contract bond to guaranty payment and performance of the Work, in the form provided in Ohio Revised Code Section 153.57 and as otherwise described in the Contract Documents.**§ 11.4.2** Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.4.3 MATERIAL DEFAULT OR TERMINATION. If the Owner notifies the Contractor's surety that the Contractor is in material default or terminates the Contract, the surety will promptly and in not more than 21 days investigate the claimed material default or termination. If the Owner gives a notice of material default and then terminates the Contract, the surety shall complete its investigation within 21 days of the notice of material default. As part of such investigation, the surety shall visit the offices of the Contractor, Architect and Owner to review the available project records. If the surety proposes to take over the Work, the surety shall do so no later than the expiration of such 21 day period or 10 days after the date the Owner terminates the Contract, whichever is later. If the Owner terminates the Work, and the surety proposes to provide a replacement contractor, the replacement contractor shall be fully capable of performing the Work in accordance with the Contract Documents, including meeting all the requirements of the Contract Documents. If the Contractor is terminated, the replacement contractor shall not be the Contractor. The surety will provide the Owner with the results of its investigation, including any written report or documents. This Section 11.4.3 is in addition to the Owner's rights under Section 14.2.2 and is not intended to create any rights of the surety, including but not limited to the right to takeover the Contractor's obligations.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

In addition to the rights and remedies under Section 2.4, the Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly and in not more than 30 days after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such

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notice promptly after discovery of the condition. If the Contractor fails to correct nonconforming Work within 30 days after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made. Any such acceptance shall be in writing and executed by a representative of the Owner who has been expressly authorized to do so.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered mail, over night delivery, or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

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§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

§ 13.8 ATTORNEY-CLIENT CONFIDENTIAL AND PRIVILEGED COMMUNICATIONS

§ 13.8.1 The Contractor acknowledges and agrees that the Owner's legal counsel may from time to time provide legal services to the Project and that in doing so may communicate with the Architect. The Contractor agrees that such communications will be privileged communications and, if there is a Claim contemplated or pending, any written communications will be confidential work product.

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ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any

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other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency that requires all Work to be stopped; or

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents, including but not limited to failure to maintain the Construction Schedule or failure to correct defective and/or non-conforming Work.

§ 14.2.2 When any of the above reasons exist, the Owner may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety, as expressly stated in the applicable surety bond:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

As set forth in this section, the Owner's termination of the Contractor is without prejudice to any other rights and remedies of the Owner, including but not limited to the Owner's rights and remedies under the Contract Documents and at law, all of which shall survive termination.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other costs or damages incurred by the Owner

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and not expressly waived, including but not limited to the Owners' attorneys' and consultants' fees and expenses, arising our of or related to the termination, such excess shall be paid to the Contractor. If such costs, other costs, and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- **.1** that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- **.2** that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- **.1** cease operations as directed by the Owner in the notice;
- **.2** take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- **.3** except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The Contractor's Claims must be initiated by submitting the Statement of Claim Form ("Claim Form") included with the Contract Documents to the Architect and the Owner, properly completed in accordance with the instructions accompanying the Claim Form and submitted within the 21 day period under Section 15.1.2. The responsibility to substantiate Claims shall rest with the party making the 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.

The Contractor acknowledges and agrees that the Owner and/or parties in privity of contract with the Owner may delay, interfere with and/or disrupt the Work of the Contractor, and such actions shall not constitute a breach of contract by the Owner, since the Contractor is entitled to additional compensation by properly submitting and pursuing a Claim as permitted by these General Conditions. Pending final resolution of the Claim, the Contractor shall continue performance of the Work as provided in Section 15.1.3.

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§ 15.1.2 NOTICE OF CLAIMS

Claims by Contractor must be initiated by written notice on a properly completed Claim Form to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. The Contractor shall submit all Claims as soon as possible and not later than 21 days after occurrence of the event giving rise to such Claim by the submission to the Initial Decision Maker and the Owner of a properly completed Claim Form. The Contractor has a right to bring Claims. The Contractor must give notice of its Claims within such twenty-one (21) day period. Such twenty-one (21) day period is a contractual limitation of action. Such contractual limitation of action is a material term of the Contract Documents as its provides the Owner with timely notice and information so that the Owner can attempt to mitigate any damages, exercise remedies available to it, and investigate the Claim during a near contemporaneous time period. Failure of the Contractor to timely submit a Claim as stated herein shall constitute an irrevocable waiver of the Contractor's right to seek an adjustment to the Contract Time or Contract Sum for the related change in the Work. Any Claims by the Owner against the Contractor will be made in writing. The Initial Decision Maker may consult either the Owner or the Contractor when evaluating a Claim submitted by the Contractor.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, the Contractor shall submit a properly completed Claim Form as required by Section 15.1.2. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, the Contractor shall submit a properly completed Claim Form as required by Section 15.1.2.

§ 15.1.5.2 If the Contractor is prevented from completing any part of the Work within the Contract Time due to weather conditions and the Contractor wants additional time to complete the Work, the Contractor shall initiate a Claim by submission of a properly completed Claim Form in accordance with Section 15.1.2. The Contractor's entitlement to additional time shall be evaluated and substantiated as provided in Section 15.1.5.2.1.

§15.1.5.2.1 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, provided the Contractor properly initiates a Claim, 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

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§ 15.1.5.3 Excusable and Compensable Delays. The delays for which the Contractor is entitled to additional time are "Excusable Delays." The only Excusable Delays are delays which the Contractor establishes were: (a) caused by the Owner or those in privity of contract with the Owner, (b) caused by physical damage to the Project over which the Contractor has no control and which was not created by Contractor , (c) caused by labor disputes beyond the control of the Contractor, (d) caused by work days lost due to weather conditions as provided under Section 15.1.5.2 , and (e) concealed or unknown conditions under Section 3.7.4.

The delays for which the Contractor is entitled to additional time and money are "Compensable Delays." The only Compensable Delays are the following Excusable Delays which the Contractor establishes were: (a) caused by the Owner or those in privity of contract with the Owner, (b) caused by physical damage to the Project over which the Contractor has no control and which was not created by the Contractor, and/or (c) concealed or unknown conditions under Section 3.7.4.

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor waives Claims against the Owner for consequential damages arising out of or relating to this Contract. This waiver includes, but is not limited to:

.1 damages incurred for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred for principal office expenses including the compensation of personnel stationed there, attorneys' fees, for losses of financing, bonding capacity, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.1.7 Settlement Offers. If the Contractor initiates a Claim, the Owner may make settlement offers to settle the Claim at any time up to the date of the trial. Such settlement offers shall be subject to Rule 408 (Compromise and Offers of Compromise) of the Ohio Rules of Evidence. If at any stage of the litigation, including any appeals, the Contractor's Claim is dismissed or found to be without merit, or if the damages awarded to the Contractor on its Claim do not exceed the Owner's last settlement offer, the Contractor shall be liable to the Owner and shall reimburse the Owner for all of the Owner's attorneys' fees and expenses, arising out of or related to such Claim since the date of such last settlement offer.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims by the Contractor, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to any further proceeding permitted under these General Conditions of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner. The Initial Decision Maker may consult either the Owner or the Contractor when evaluating a Claim submitted by the Contractor.

§ 15.2.2 The Initial Decision Maker will review Claims and within thirty (30) days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§15.2.2.1 Owner's Request for Documents. The Owner may request such documents and information from the Contractor as the Owner determines necessary to evaluate and comment upon the Claim. Upon receipt of such request from the Owner, the Contractor shall provide all requested documents and information within ten (10) days. Such documents and information may include but not be limited to the Contractor's Project accounting records,

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estimate for the Project, daily job logs, and other information from which the Contractor's Project costs may be derived. The Contractor shall provide the requested documents in the formats requested, which include both paper and electronic copies. If requested by the Owner, the electronic copies shall be provided in native computer language. To the extent permitted by law, the Owner shall keep the Project accounting records and estimate for the Project confidential. The Contractor's provision of the requested documents to the Owner in the format requested by the Owner shall be a condition precedent to any further proceeding under the Contract Documents.

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.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part. If the Initial Decision Maker requests supporting data from the Contractor and the Contractor fails to provide it, the Contractor thereafter shall be precluded from presenting such data in any subsequent dispute resolution proceedings, if the data was reasonably available to it at the time of the request.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Contractor's Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the Contractor but subject to mediation and, if mediation is not successful in resolving the matter, litigation. Any suit, which may be brought to enforce any provision of this Agreement or any remedy with respect hereto, shall be brought in the state court of competent jurisdiction in the county in which the Project is located, and each party hereby expressly consents to the jurisdiction of such court. The parties further waive any right they may have to remove any lawsuit to Federal Court. **§ 15.2.6** Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 If the Contractor does not initiate litigation within 30 days from the date of Substantial Completion, then failure to initiate litigation within said 30-day period shall result in the Initial Decision Maker's decision becoming final and binding upon the Contractor. If the Initial Decision Maker renders a decision after litigation has been initiated, such decision may be entered as evidence, but shall not supersede the litigation proceedings unless the decision is acceptable to all parties concerned. Litigation shall be considered "initiated" upon either the service of the original complaint on the Owner or, if litigation relating to the project has already been filed, when a motion for leave to amend the complaint to add the claim has been filed.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall, after initial decision by the Initial Decision

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Maker or 60 days after submission of the Claim to the Initial Decision Maker for Claims by the Contractor, be subject to mediation .

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the institution of a lawsuit.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the county where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION – The title of this Section is changed to "DISPUTE RESOLUTION."

§ 15.4.1 Any Claim arising out of or related to the Contract, except Claims that are not otherwise disposed of under the Contract Documents, shall, after decision by the Initial Decision Maker or 60 days after submission of the Claim to the Architect, be subject to litigation unless the parties agree in writing to arbitrate the Claims. Prior to litigation, the parties shall endeavor to resolve disputes by mediation in accordance with the provisions of Section 15.3. Any Claim subject to, but not resolved by, mediation may be decided by arbitration if the parties mutually agree in writing. There shall be no mandatory arbitration of Claims.

[All of the remaining sections under Section 15.4 are deleted.]

DRAFT

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Non-Collusion Affidavit

STATE OF _____)

SS:

COUNTY OF _____)

_____, being first duly sworn, deposes

(NAME)

and says that he/she is _____ for

(POSITION)

_____ the party making the fore-

(COMPANY NAME)

going proposal or bid, that such proposal or bid is genuine and not collusive or sham; that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or of any other bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against the Clark County Commissioners or any person interested in the proposed contract; and that all statements in said proposal or bid are true.

_____

AFFIANT

Sworn to and subscribed before me, a Notary Public, on this _____ day of _____, _____.

_____

NOTARY PUBLIC

My commission expires _____, _____

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Revised Quality Contracting Standards Policy for Construction Projects equal to or greater than $100,000

1	County shall require that the Architect/Engineer review the lowest and best bids to verify that all work is included in the bids and determine if the bids are "realistic".
2	Low Bidder whose bid is more than 15% below next bidder shall list 3 projects that are each within 75% of the bid project estimate for similar projects that were successfully completed not more than 5 years ago.
3	Bidder shall employ supervisory personnel on the project that have three years or more in specific trade and/or maintain appropriate state license for skilled trade bids or three years or more experience in general contract trades for general contracting bids. Prior to contract award, the successful bidder shall evidence this by submitting a copy of the resumes or licenses from the supervisory personnel.
4	Bidder certifies that Bidder has not been penalized or debarred from any public contract for falsified certified payroll records or any other violation of the FLSA in the last 5 years.
5	Bidder shall not have been determined pursuant to O.R.C. Chapter 4115 to have violated prevailing wage law more than three times within the last three years. Bidder need not submit anything for verification.
6	Bidder shall certify that the bidder has implemented an OSHA compliant Safety Program and will provide evidence to the County upon request.
7	Bidder maintains a substance abuse policy that its personnel are subject to on this project that is compliant with BWC. Bidder will provide the BWC approved policy to the County upon request.
8	For a skilled trade contract (skilled trade contract defined as plumbing, electrical and HVAC) or fire safety contract Bidder shall be licensed by the State of Ohio or licensed by the State Fire Marshall. Bidder will evidence this by submitting a copy of their license with their bid.
9	Bidder must past Financial Solvency Tests. Please refer to Financial Solvency Tests bid sheet. Further any financial statements received from Bidder are considered trade secrets and are exempt from ORC public records law.
10	Bidder certifies that bidder's construction license has not been revoked in any state.
11	Bidder certifies that bidder has no final judgments against it that have not been satisfied at the time of award in the total amount of 50% of the bid amount of this project.
12	Bidder shall secure any required bonds from a surety licensed to do business in the State of Ohio with an AM Best Company financial strength rating of at least A.
13	Bidder shall have complied with unemployment and workers' compensation laws for at least the nine months preceding the date of bid submittal.
14	Bidder shall submit comprehensive list of subcontractors and the value of each of their contracts prior to a contract award by the Board.

15	Excluding general contractor bids, for all skilled labor contracts, the Board shall not award contract to bidder that subcontracts more than 45% of contract to subcontractors. Skilled labor contract bidders that submit bids that subcontract more than 45% of their bid out will not be considered the best bidder.
16	Bidder shall not have a BWC Experience Modification Rating (EMR) of greater than 1.5. Bidder shall evidence by submitting a copy of their letter from BWC that states their most recent EMR or provide a letter from BWC on BWC letterhead that states the bidders EMR.
17	Bidder shall make available a health care medical plan for their employees working on the project. Bidder shall evidence this by providing a copy of their insurance certificate or copy of the plan to the County before awarding contract.
18	Bidder shall make available a retirement program other than Social Security for their employees working on the project. Bidder shall evidence this by submitting a copy of their plan to the County before award of the contract.
19	For a skilled trade contract (defined as plumbing, electrical and HVAC) bidder shall certify that the bidder will only use skilled trade personnel with a minimum of five years experience or apprentices that work only under a bona fide apprenticeship program if such program exists and is registered with the Ohio apprenticeship council (per O.R.C. 4115.05).
20	Bidder shall furnish a certified statement of owing no personal property tax and not be on the State Ohio Auditor's Office findings for recovery database to comply with ORC 9.24.

Contracting Liability Standards 2019

These required standards transfer the risks away from the county to the provider of services

The standard insurance requirements are to be included in the contract language. Exceptions shall be requested and approved by the Assistant County Administrator in advance in writing.
If an exception is approved by the Assistant County Administrator, the contract language shall reflect the approved change.

Insurance Requirements									
Contract Type	Ohio Workers' Comp certificate	Commercial General Liability~		Umbrella or Excess**	*Professional/Malpractice	~~Cyber Liability	Sexual abuse or molestation***	Auto Liability owned/non-owned, hired	Board of County Commissioners
		$1 mill per occurrence **Certificate must name Board of Co Comms & Dept as additional insured**	$2 mill annual aggregate **Certificate must name Board of Co Comms & Dept as additional insured**	$2 mill over and above GL **Certificate must name Board of Co Comms & Dept as additional insured**	Errors & Ommissions $1 million per incident minimum **Required for licensed professionals**	$1 million **Required for all vendors who have access to our computer systems**	$1 million per occurrence	if any driving is part of the contract $1 million **Request a certificate naming Board of Co Comms & Dept. as additional insured for *commercial auto***	& office recving services named additional insured on ins cert for general liability, umbrella, and request for commercial auto
Construction *Building Trades*	Required	Required	Required	Required		Possibly		Required	Required
Consulting *On-site (i.e. training, etc.)*	Required	Required	Required	Required	Required if licensed professional providing services	Possibly		Required	Required
Consulting *Grant writing*	Required	Required	Required		Required if licensed professional providing services	Possibly		Required	Required
Childrens Services *any services or contract that includes contact w/minors*	Required	Required	Required	Required	Required if licensed professional providing services	Possibly	Required	Required	Required
County Entity	If the agreement is with a Clark County entity that is covered by CORSA, proof of insurance is not required; however, the contract should include language that the entity providing services will pay the deductible should there be a claim								
Lease of County Owned Property to non-county entity	Required	Required	Required	Required		Possibly		Required	Required
Lease of Equipment from outside entity to county	When we are leasing a vehicle, copier or other equipment that will be used in our facilities, the provider of the equipment will require proof of our insurance coverage, call 521-2008 for assistance.								
Professional Services *Architectural, Engineering, Legal, Insurance, etc.*	Required	Required	Required	Required	Required	Possibly		Required	Required
Self Employed *Small contract/various services*	Letter of exemption	Required	Required		Required if licensed professional providing services	Possibly	Required if contract includes contact with minors	$300k comb single limit or 100k per person & $300k per acc/bodily injury & 100k per acc/prop dmg	Required
Service Contract for leased or owned equipment on-site	Required	Required	Required	Required		Possibly		Required	Required
Service Provider Utilities, telephone services, etc.	Generally insurance will be dictated by the service provider, particularly when there are no other options for services								

* Examples of Professions with E&O coverage include:
- Architect
- Accountant (CPA)
- Attorney
- Counselor/Therapist
- Engineer
- Information Technology Professsional
- Insurance Agent
- Nurse
- Physicial Therapist
- Physician
- Psychiatrist
- Social Worker
- Surveyor
- Any licensed professional (except construction related trades)

~ General liability covers the damage or results of mistakes of a vendor

* Professional liability covers the errors and ommissions by the professional

** If unable to secure umbrella/excess the provider can bump up General liability to $3 million per occurrence/$4 million annual aggregate and Auto to $3 million

~~ In contract language remove any limitation clause OR negotiate limit to amount of insurance (not x number of months of contract amount)

*** In lieu of separate sexual abuse coverage the following language may be added to the certificate "Sexual Abuse: The above insured will be entitled to a defense under the terms of the policy as to any claim for physical or sexual abuse unless a judgment or sexual abuse unless a judgment or final adjudication adverse to the insured, or an admission by the insurance accused of such behavior established such behavior caused the injury claimed in such suit subject to all policy terms and conditions."

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Financial Solvency Tests

The bidder on any contract exceeding $100,000 and requiring prevailing wage must submit its two most recent financial statements that have been compiled, reviewed or audited by a licensed Certified Public Accountant (CPA) in good standing. Audited and reviewed financial statements are required to state that the reports are free from material misstatement or that the CPA has no reason to believe that any material inaccuracies exist. Bidders must demonstrate sufficient solvency, through these financial statements, to complete the County contract. Sufficient solvency is defined as the bidder passing all of the five following tests for its last fiscal year of operations. Should a bidder not pass one of the following tests, the County reserves the right to ask for additional information that would give comfort to the County that the bidder has sufficient working capital and cash flow to complete the project. Whether additional information will be requested and how it will be judged will be at the sole discretion of the Clark County Commission Office.

1. Quick Ratio greater than 1.00
   Quick Ratio is defined as:

$$\frac{\text{cash + short term marketable securities + net short term accounts receivable}}{\text{current liabilities}}$$

2. Defensive Interval greater than 44 days
   Defensive Interval is defined as:

$$\frac{\text{cash + short term marketable securities + net short term account receivable}}{\text{((cost of goods sold + admin expenses + other ordinary expenses – depreciation)/365 days)}}$$

3. Accounts Receivable Turnover Rate to be less than 75 days
   Accounts Receivable Turnover Rate is defined as:

$$\frac{\text{365 days}}{\text{net sales/((beginning net accounts receivables + ending net accounts receivables)/2)}}$$

4. Liquid Net Assets must be equal to or greater than **(the estimated possible largest pay request, to be determined by the architect/engineer)**
   Liquid Net Assets are defined as:

$$\text{current assets – inventories – current liabilities}$$

5. The bidder must not have any significant pending litigation against it that would disrupt cash flow or have any issues that would adversely affect its ability to be a business of going concern. This information will be disclosed in the notes to financial statements. Further, if there are any notes to the financial statements that disclose other sources of cash (example: letters of credit from a financial institution) they will be taken into consideration.

Tests will be conducted by the Clark County Commission Office or a third party CPA that is mutually agreed upon by both the Clark County Commission Office and the prospective bidder. Should a third party CPA be used, financial statements may be sent directly to the third party CPA. The third party CPA must issue a letter to the Clark County Commission Office stating the results of the five above tests and state that they "have no reason to believe the bidder has insufficient working capital or cash flow to complete the project satisfactorily" before a bid may be awarded.

Revised 7/26/04 by Nathan D. Kennedy, CPA

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Non-Discrimination Provision

O.R.C. 125.111

The CONTRACTOR agrees:

(1) that in the hiring of employees for the performance of work under this CONTRACT or any subcontract no contractor or subcontractor shall, by reason of race, color, religion, sexual orientation or identity, age, handicap or military status as defined in Section 4112.01 of the Ohio Revised Code, national origin, or ancestry, discriminate against any citizen of this state in the employment of a person qualified and available to perform the work to which this CONTRACT relates.

(2) That no CONTRACTOR, subcontractor, or any person acting on behalf of any CONTRACTOR or subcontractor shall, in any manner discriminate against, intimidate, or retaliate against any employee hired for the performance of work under this CONTRACT on account of race, color, religion, sexual orientation or identity, age, handicap or military status as defined in Section 4112.01 of the Ohio Revised Code, national origin, or ancestry.

This AGREEMENT is executed, in triplicate, by affixing the signatures of the CONTRACTOR and the COUNTY COMMISSIONERS.

WITNESS	Board of Commissioners, Clark County, Ohio
BY:_____	BY:_____ Jennifer M. Hutchinson, County Administrator
DATE:_____	DATE:_____
BY:_____	BY:_____
	Printed Name:_____
DATE:_____	DATE:_____
	Clark County Prosecutor Approved as to Form and Legal Sufficiency
Resolution:_____	BY:_____ On behalf of Daniel P. Driscoll
DATE:_____	DATE:_____

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AFFIDAVIT IN COMPLIANCE WITH SECTION 3517.13
OF THE OHIO REVISED CODE

STATE OF OHIO

COUNTY OF _____ SS:

Personally appeared before me the undersigned, as an individual or as a representative of

_____ for a contract for _____
(Name of Entity) (Type of Product or Service)

to be let by the County of Clark, who, being duly cautioned and sworn, makes the following statement with respect to prohibited activities constituting a conflict of interest or other violations under Ohio Revised Code Section 3517.13, and further states that the undersigned has the authority to make the following representation on behalf of himself or herself or of the entity (corporation, business trust, partnership, other unincorporated business [including labor unions], association [including professional associations], estate, or trust):

1. That none of the following has individually made within the previous 24 months and that, if awarded a contract for the purchase of goods or services in excess of $10,000 (aggregated) in a calendar year, none of the following individually will make, beginning on the date the contract is awarded and extending until one year following the conclusion of the contract, as an individual, one or more campaign contributions (on or after April 4, 2007) totaling in excess of $1,000, to any member of the Clark County Board of Commissioners or their individual campaign committees:
   a. myself;
   b. any partner or owner or shareholder of the partnership (or other unincorporated business);
   c. any shareholder of the association;
   d. any administrator of the estate;
   e. any executor of the estate;
   f. any trustee of the trust;
   g. any owner of more than 20% of the corporation or business trust (if applicable);
   h. each spouse of any person identified in (a) through (c) of this section;
   i. each child seven years of age to seventeen years of age of any person identified in divisions (a) through (g) of this section (only applicable to contributions made on or after January 1, 2007).

2. That none of the following have collectively made within the previous 24 months, and that, if awarded a contract for the purchase of goods or services in excess of $10,000 (aggregated) in a calendar year, none of the following collectively will make, beginning on the date the contract is awarded and extending until one year following the conclusion of the contract, one or more campaign contributions (on or after April 4, 2007) totaling in excess of $2,000, to any member of the Clark County Board of Commissioners or their individual campaign committees:
   a. myself
   b. any partner or owner or shareholder of the partnership (if applicable);
   c. any shareholder of the association;
   d. any administrator of the estate;
   e. any executor of the estate;
   f. any trustee of the trust;
   g. any owner of more than 20% of the corporation or business trust (if applicable);
   h. each spouse of any person identified in (a) through (c) of this section;

i. each child seven years of age to seventeen years of age of any person identified in divisions (a) through (g) of this section.

Signature: _____

Title: _____

Sworn to before me and subscribed in my presence this _____ day of _____, 20___

Notary Public: _____
My Commission Expires: _____

Document 00 73 43 - Wage Rate Requirements
State of Ohio Standard Requirements for Public Facility Construction

PREVAILING WAGE RATES

1.1 Payment of Prevailing Wage Rates

1.1.1 The Contractor shall pay the prevailing wage rates of the Project locality, as issued by the Ohio Department of Commerce, Wage and Hour Bureau to laborers and mechanics performing Work on the Project.

1.1.2 The Contractor shall comply with the provisions, duties, obligations, and is subject to the remedies and penalties of ORC Chapter 4115.

1.1.3 If the Contractor or its Subcontractors fail to comply with ORC Chapter 4115, the Contracting Authority may withhold payment pursuant to **Section 9.8.2.5** of the **General Conditions**. The Contractor is liable for violations committed by the Contractor or its Subcontractors to the extent provided in ORC Chapter 4115.

1.1.4 The Contractor shall submit all payroll reports in compliance with the requirements of **Section 1.2** for all employees of the Contractor and of the Contractor's Subcontractors.

1.1.5 By executing a Contract, the Contractor certifies that it based its Bid upon the prevailing rates of wages as ascertained by the Ohio Department of Commerce, Wage and Hour Bureau for the Project as provided in ORC Sections 4115.03 through 4115.14, which are inserted at the end of this Document.

1.2 Prevailing Wage Rate Revisions

1.2.1 The Contracting Authority shall, within 7 business days after receipt of a notice of a change in the prevailing wage rates, notify the Contractor of the change. The prevailing wage rates are available at the Ohio Department of Commerce's web site: https://pwr.com.ohio.gov/.

1.2.2 The Contractor shall pay any revised wage rates issued during the term of the Contract.

1.3 Payroll Schedule

1.3.1 Within 10 days of the date of the Notice to Proceed, the Contractor shall provide the Contracting Authority's Prevailing Wage Coordinator a schedule of dates during the term of the Contract on which wages shall be paid to employees for the Project.

1.4 Payroll Reports

1.4.1 The Contractor shall submit payroll reports with each Contractor Payment Request, which reports shall be certified by the Contractor that the payroll is correct and complete, and that the wage rates shown are not less than those required by the Contract. The Contractor is responsible for submitting all payroll reports of its Subcontractors.

1.4.1.1 Each payroll report shall indicate the period covered and include a list containing the name, address, and last four digits of the social security number of each employee of the Contractor and its Subcontractors paid for the Work.

1.4.1.2 Each payroll report shall list the number of hours each employee worked each day on the Project during the reporting period, the total hours each week on the Project, the employee's hourly rate of pay, job classification, hourly rate of fringe benefits, and all deductions from wages and net pay.

1.4.1.3 Each payroll report shall list each fringe benefit and state if it is paid as cash to the employee or to a named plan.

1.4.1.4 The Contractor and its Subcontractors shall submit apprenticeship agreements for all apprentices utilized on the Project with the first payroll report from the Contractor or its Subcontractor that includes apprentices.

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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: 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 #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN02-2025sks	Carpenter	9/17/2025	9/17/2025

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter Floorlayer	$31.74		$9.24	$6.95	$0.70	$0.00	$3.27	$0.16	$0.00	$0.00	$52.06	$67.93
Apprentice	BHR	Percent										
1st 6 months	$22.22	$70.00	$9.24	$2.00	$0.70	$0.00	$3.27	$0.16	$0.00	$0.00	$37.59	$48.70
2nd 6 months	$22.22	$70.00	$9.24	$2.00	$0.70	$0.00	$3.27	$0.16	$0.00	$0.00	$37.59	$48.70
3rd 6 months	$25.39	$80.00	$9.24	$5.56	$0.70	$0.00	$3.27	$0.16	$0.00	$0.00	$44.32	$57.02
4th 6 months	$25.39	$80.00	$9.24	$5.56	$0.70	$0.00	$3.27	$0.16	$0.00	$0.00	$44.32	$57.02
5th 6 months	$28.57	$90.00	$9.24	$6.26	$0.70	$0.00	$3.27	$0.16	$0.00	$0.00	$48.20	$62.48
6th 6 months	$28.57	$90.00	$9.24	$6.26	$0.70	$0.00	$3.27	$0.16	$0.00	$0.00	$48.20	$62.48
7th 6 months	$30.15	$95.00	$9.24	$6.60	$0.70	$0.00	$3.27	$0.16	$0.00	$0.00	$50.12	$65.19
8th 6 months	$30.15	$95.00	$9.24	$6.60	$0.70	$0.00	$3.27	$0.16	$0.00	$0.00	$50.12	$65.19

(*)Special Calculation Note :

Other: UBC National Fund and Install

Ratio :

1 Journeymen 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 #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Cement Mason	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												
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: Electrical Local 683 Inside

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Electrical	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												
Electrician	$46.00		$12.50	$7.52	$1.06	$0.00	$4.50	$0.00	$0.00	$0.00	$71.58	$94.58
Welding	$47.00		$12.50	$7.52	$1.06	$0.00	$4.50	$0.00	$0.00	$0.00	$72.58	$96.08
Medium Voltage Splicing	$47.00		$12.50	$7.52	$1.06	$0.00	$4.50	$0.00	$0.00	$0.00	$72.58	$96.08
Over 100 feet	$69.00		$12.50	$7.52	$1.06	$0.00	$	$0.00	$0.00	$0.00	$94.68	$129.18
Level 1 CW 0 to 2000 hours	$16.18		$6.99	$0.49	$0.96	$0.00	$0.49	$0.10	$0.00	$0.00	$25.21	$33.30
Level 2 CW 2001 to 4000 hours	$17.20		$6.99	$0.52	$0.96	$0.00	$0.52	$0.10	$0.00	$0.00	$26.29	$34.89
Level 3 CW 4001 to 6000 hours	$18.21		$6.99	$0.55	$0.96	$0.00	$0.55	$0.10	$0.00	$0.00	$27.36	$36.47
Level 4 CW 6001 to 8000 hours	$20.23		$6.99	$0.61	$0.96	$0.00	$0.61	$0.10	$0.00	$0.00	$29.50	$39.61
Level 1 CE 8001 to 10000 hours	$22.25		$6.99	$0.67	$0.96	$0.00	$0.67	$0.10	$0.00	$0.00	$31.64	$42.77
Level 2 CE 10,001 to 12,000 hours	$24.28		$6.99	$0.73	$0.96	$0.00	$0.73	$0.10	$0.00	$0.00	$33.79	$45.93
Level 3 CE 12,001 to14,000 hours	$30.35		$6.99	$0.91	$0.96	$0.00	$0.91	$0.10	$0.00	$0.00	$40.22	$55.40
Apprentice	BHR	Percent										
0-1000 hrs 1st Period	$23.00	$50.00	$12.50	$3.76	$1.06	$0.00	$0.00	$0.00	$0.00	$0.00	$40.32	$51.82
1001-2000 hrs 2nd Period	$25.30	$55.00	$12.50	$4.14	$1.06	$0.00	$0.00	$0.00	$0.00	$0.00	$43.00	$55.65
2001-3500 hrs 3rd Period	$27.60	$60.00	$12.50	$4.51	$1.06	$0.00	$2.70	$0.00	$0.00	$0.00	$48.37	$62.17
3501-5000 hrs 4th Period	$29.90	$65.00	$12.50	$4.89	$1.06	$0.00	$2.93	$0.00	$0.00	$0.00	$51.28	$66.23
5001-6500 hrs 5th Period	$32.20	$70.00	$12.50	$5.26	$1.06	$0.00	$3.15	$0.00	$0.00	$0.00	$54.17	$70.27

6501-8000 hrs 6th Period	$36.80	$80.00	$12.50	$6.02	$1.06	$0.00	$3.60	$0.00	$0.00	$0.00	$59.98	$78.38

(*)Special Calculation Note :

Other for CW/CE: Education Fund

Ratio :

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

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

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

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

Details :

Prevailing Wage Rate
Skilled Crafts

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

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Electrical	2/4/2026	2/4/2026

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

6501-8000 hrs 6th Period	$34.40	$80.00	$12.15	$7.05	$1.16	$0.00	$3.40	$0.00	$0.00	$0.00	$58.16	$75.36

(*)Special Calculation Note :

Other for CW/CE: Education Fund

Ratio :

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

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

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

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

Details :

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

Prevailing Wage Rate
Skilled Crafts

Name of Union: Electrical Local 683 Voice Data Video

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Electrical	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												
Electrical Installer Technician B	$34.00		$11.07	$4.50	$0.80	$0.00	$3.15	$0.74	$0.00	$0.00	$54.26	$71.26
Installer Technician A	$35.50		$11.07	$4.50	$0.80	$0.00	$3.15	$0.77	$0.00	$0.00	$55.79	$73.54
Cable Puller	$17.00		$11.07	$4.50	$0.80	$0.00	$3.15	$0.37	$0.00	$0.00	$36.89	$45.39
Apprentice	BHR	Percent										
1st Period 0 - 1000 hours	$20.40	$60.00	$11.07	$4.50	$0.80	$0.00	$3.15	$0.44	$0.00	$0.00	$40.36	$50.56
2nd Period 1001 - 2000 hours	$22.10	$65.00	$11.07	$4.50	$0.80	$0.00	$3.15	$0.48	$0.00	$0.00	$42.10	$53.15
3rd Period 2001 - 3000 hours	$23.80	$70.00	$11.07	$4.50	$0.80	$0.00	$3.15	$0.52	$0.00	$0.00	$43.84	$55.74
4th Period 3001 - 4000 hours	$25.50	$75.00	$11.07	$4.50	$0.80	$0.00	$3.15	$0.55	$0.00	$0.00	$45.57	$58.32
5th Period 4001 - 5000 hours	$27.20	$80.00	$11.07	$4.50	$0.80	$0.00	$3.15	$0.59	$0.00	$0.00	$47.31	$60.91
6th Period 5001 - 6000 hours	$28.90	$85.00	$11.07	$4.50	$0.80	$0.00	$3.15	$0.63	$0.00	$0.00	$49.05	$63.50

(*)Special Calculation Note :

Other is Holiday Pay

Ratio :

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

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

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

Details :

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

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

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

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

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

SECURITY SYSTEMS
1. Perimeter security systems
2. Vibration sensor systems
3. Card access systems
4. Access control systems
5. Sonar/infrared monitoring equipment
COMMUNICATIONS SYSTEMS THAT TRANSMIT OR RECEIVE INFORMATION AND/OR CONTROL SYSTEMS THAT ARE INTRINSIC TO THE ABOVE LISTED SYSTEMS (IN THE "SCOPE")
6. SCADA (Supervisory Control and Data Acquisition)
7. PCM (Pulse code Modulation)
8. Inventory control systems
9. Digital data systems
10. Broadband and baseband and carriers
11. Point-of-sale systems
12. VSAT data systems
13. Data communication systems
14. RF and remote-control systems
15. Fiber-optic data systems

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

This Agreement specifically excludes the following work:

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

Prevailing Wage Rate
Skilled Crafts

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

Type of Rate: Commercial

Change #:	**Craft:**	**Effective Date:**	**Effective Date:**
LCN01-2026ib	Electrical	1/7/2026	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: 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: 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:**
LCN01-2026ib	Operating Engineer	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												
Operator Group A	$47.29		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$64.74	$88.39
Operator Group B	$47.17		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$64.62	$88.20
Operator Group C	$46.13		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$63.58	$86.65
Operator Group D	$44.95		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$62.40	$84.88
Operator Group E	$39.49		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$56.94	$76.69
Master Mechanic	$48.29		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$65.74	$89.89
Lift Director	$48.29		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$65.74	$89.89
Cranes & Mobile Concrete Pumps 150'-180'	$47.79		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$65.24	$89.14
Cranes & Mobile Concrete Pumps 180'-249'	$48.29		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$65.74	$89.89
Cranes & Mobile Concrete Pumps 249' and over	$48.54		$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$65.99	$90.26
Apprentice	BHR	Percent										
1st Year	$23.65	$50.02	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$41.10	$52.92
2nd Year	$28.37	$60.00	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$45.82	$60.00
3rd Year	$33.10	$70.00	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$50.55	$67.10
4th Year	$37.83	$80.00	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.10	$55.28	$74.19
Field Mechanic Trainee	$	$	$	$	$	$	$	$	$	$	$	$
1st Year	$28.37	$60.00	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.00	$45.72	$59.91
2nd Year	$33.10	$70.00	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.00	$50.45	$67.00
3rd Year	$37.83	$80.00	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.00	$55.18	$74.09
4th Year	$42.56	$90.00	$10.01	$6.25	$1.00	$0.00	$0.00	$0.09	$0.00	$0.00	$59.91	$81.19

(*)Special Calculation Note :

Other: Education & Safety
Misc: National Training

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

Ratio :

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

Jurisdiction (* denotes special jurisdictional note) :

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

Special Jurisdictional Note :

Details :

Group A- Barrier Moving Machines; Boiler Operators or Compressor Operators, when compressor or boiler is mounted on crane (Piggyback Operation); Boom Trucks (all types); Cableways Cherry Pickers; Combination - Concrete Mixers & Towers; All Concrete Pumps with Booms; Cranes (all types); Compact Cranes, track or rubber over 4,000 pounds capacity; Cranes self-erecting, stationary, track or truck (all configurations); Derricks (all types); Draglines; Dredges (dipper, clam or suction) 3-man crew; Elevating Graders or Euclid Loaders; Floating Equipment; Forklift (rough terrain with winch/hoist); Gradalls; Helicopter Operators, hoisting building materials; Helicopter Winch Operators, Hoisting building materials; Hoes (All types); Hoists (with two or more drums in use); 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: 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 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: 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.

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. Project Identification: As follows:
   1. Project: Clark County Family Services Visitation Building Renovations
      At the following buildings:
      Visitation Building
      525 E. Home Rd.
      Springfield, Ohio 45503

B. Contract Documents, dated September 10, 2026, were prepared by Oregon Group Architects, Inc. 300 S. Patterson Blvd. Dayton, OH 45402, 937-228-1511.

C. Building Permits for the Visitation Building has been approved by the Clark County Building Department. There are no Building Permit fees or Trade Permit fees for this project. There may be Health Department permit fees due, contractors shall verify with the Health Department.

D. The building will be vacant during construction. Contractors will not be limited in working hours on the building. Contractors may work 24 hours a day, 7 days a week. Excessively odorous and noisy work will need to be coordinated with Owner as surrounding buildings will remain occupied and operational.

E. There are no anticipated aid-to-construction costs associated with the electric service work.

F. The Work consists of renovation of the following building:

   The Training Building is located at the Clark County Job and Family Services Home Road complex in northern Springfield, Ohio. The Visitation Building is being renovated and will be utilized for supervised guardian and child visits. Work to be completed as described in the Contract Documents.

G. Sustainability: It is the intent of this project to have the building constructed using sustainable means and methods. However, no third party environmental performance certification is to be pursued for this project. The construction documents incorporate requirements to meet these sustainable measures. The Contractors shall review all sustainable design measures and shall closely coordinate activities with the General Contractor.

END OF SECTION

SECTION 01 23 00

ALTERNATES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for alternates.

1.03 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
   1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.04 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.01 SCHEDULE OF ALTERNATES

A. Alternate 1
Bidders shall name in the space provided in the Bid Form the amount to be added or deducted from the Base Bid of the General Contract for furnishing all material, labor, and related items to delete all work associated with furnishing and installing all roofing work including roof shingles, deck repairs, gutters, downspouts, roof flashing, coil stock trim, roof vents and soffit fascia board repairs and associated work.

B. Alternate 2
Bidders shall name in the space provided in the Bid Form the amount to be added or deducted from the Base Bid of the General Contract for furnishing all material, labor, and related items to delete all work identified in the bid documents for replacing the exterior doors and hardware identified in Drawings as being part of Alternate #2.

C. Alternate 3
Bidders shall name in the space provided in the Bid Form the amount to be added or deducted from the Base Bid of the General Contract for furnishing all material, labor, and related items to delete all work identified in the bid documents for furnishing and installing the new outdoor playground equipment, ground cover and all associated work.

D. Alternate 4
Bidders shall name in the space provided in the Bid Form the amount to be added or deducted from the Base Bid of the General Contract for furnishing all material, labor, and related items to delete all work associated with furnishing and installing new window shades throughout building as indicated in Drawings and associated work.

E. Alternate 5
Bidders shall name in the space provided in the Bid Form the amount to be added or deducted from the Base Bid of the General Contract for furnishing all material, labor, and related items to delete all work identified in the bid documents for replacing the existing light fixtures with LED light fixtures and all associated work.

F. Alternate 6
Bidders shall name in the space provided in the Bid Form the amount to be added or deducted from the Base Bid of the General Contract for furnishing all material, labor, and related items to delete all work identified in the bid documents for replacing all electrical receptacles with new tamper-resistant receptacles and all associated work.

G. Alternate 7
Bidders shall name in the space provided in the Bid Form the amount to be added or deducted from the Base Bid of the General Contract for furnishing all material, labor, and related items to delete all work associated with the new entry canopy addition on the east facade and all associated work.

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. General project coordination procedures.
   2. Conservation.
   3. Administrative and supervisory personnel.
   4. Project meetings.
   5. Requests for Information (RFI's).

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.

C. Related Sections include the following:
   1. Section 01 78 39 "Closeout Procedures" for coordinating closeout of the Contract.

1.03 DEFINITIONS

A. RFI: Request for Information: Written request from Contractor seeking interpretation or clarification of the Contract Documents.

1.04 COORDINATION

A. 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, which 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 accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.
   4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. 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 Owner and separate contractors if coordination of their Work is required.

C. 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.
   9. Project closeout activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
   1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.05 SUBMITTALS

A. Key Personnel Names: Within 10 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 and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

1.06 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
   1. Include qualified personnel necessary for coordination of operations with other contractors.

1.07 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 Owner and Associate of scheduled meeting dates and times.
   2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
   3. Minutes: Architect shall record significant discussions and agreements achieved and distribute the meeting minutes to everyone concerned within three days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Associate, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
   1. Attendees: Authorized representatives of Owner, Associate, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All 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. Phasing.
      c. Critical work sequencing and long-lead items.

d. Designation of key personnel and their duties.
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. Distribution of the Contract Documents.
j. Submittal procedures.
k. Preparation of Record Documents.
l. Use of the premises.
m. Work restrictions.
n. Owner's occupancy requirements.
o. Responsibility for temporary facilities and controls.
p. Construction waste management and recycling.
q. Parking availability.
r. Office, work, and storage areas.
s. Equipment deliveries and priorities.
t. First aid.
u. Security.
v. Progress cleaning.
w. Working hours.

3. Minutes: Associate will record and distribute meeting minutes.

C. Preinstallation Conferences: 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 Associate 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. The Contract Documents.
b. Options.
c. Related RFI’s.
d. Related Change Orders.
e. Purchases.
f. Deliveries.
g. Submittals.
h. Review of mockups.
i. Possible conflicts.
j. Compatibility problems.
k. Time schedules.
l. Weather limitations.
m. Manufacturer's written recommendations.
n. Warranty requirements.
o. Compatibility of materials.
p. Acceptability of substrates.
q. Temporary facilities and controls.
r. Space and access limitations.
s. Regulations of authorities having jurisdiction.
t. Testing and inspecting requirements.
u. Installation procedures.
v. Coordination with other work.
w. Required performance results.
x. Protection of adjacent work.
y. 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 parties who should have been present.
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. Progress Meetings: Conduct progress meetings at bi-weekly intervals. Coordinate dates of meetings with preparation of payment requests.
   1. Attendees: In addition to representatives of Owner and Associate, 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 conference shall be familiar with Project and authorized to conclude matters relating to the Work.
   2. 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) Interface requirements.
         2) Sequence of operations.
         3) Status of submittals.
         4) Deliveries.
         5) Off-site fabrication.
         6) Access.
         7) Site utilization.
         8) Temporary facilities and controls.
         9) Work hours.
         10) Hazards and risks.
         11) Progress cleaning.
         12) Quality and work standards.
         13) Status of correction of deficient items.
         14) Field observations.
         15) RFI’s.
         16) Status of proposal requests.
         17) Pending changes.
         18) Status of Change Orders.
         19) Pending claims and disputes.
         20) Documentation of information for payment requests.
   3. Minutes: Associate will record and distribute to Contractor the meeting minutes.
   4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
      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.

E. Coordination Meetings: Conduct Project coordination meetings at regular intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
   1. Attendees: 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 conference 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. 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 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) Off-site fabrication.
         6) Access.
         7) Site utilization.
         8) Temporary facilities and controls.
         9) Work hours.
         10) Hazards and risks.
         11) Progress cleaning.
         12) Quality and work standards.
         13) Change Orders.
      d. Review Coordination Drawings and discuss anticipated work in Coordination Areas.
   3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.08 REQUEST FOR INFORMATION (RFI’s)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI on the form found on the SAO web page.
   1. RFI’s shall originate with Contractor. RFI’s submitted by entities other than Contractor will be returned with no response.
   2. Coordinate and submit RFI’s in a prompt manner to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
   1. Project name.
   2. Date.
   3. Name of Contractor.
   4. Name of Associate.
   5. RFI number, numbered sequentially.
   6. Specification Section number and title and related paragraphs, as appropriate.

7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
10. Contractor's signature.
11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
    a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.

C. Associate's Action: Associate will review each RFI, determine action required, and return it. Allow seven working days for Associate's response for each RFI. RFI's received after 1:00 p.m. will be considered as received the following working day.
   1. The following RFI's will be returned without action:
      a. Requests for approval of submittals.
      b. Requests for approval of substitutions.
      c. Requests for coordination information already indicated in the Contract Documents.
      d. Requests for adjustments in the Contract Time or the Contract Sum.
      e. Requests for interpretation of Associate's actions on submittals.
      f. Incomplete RFI's or RFI's with numerous errors.
   2. Associate's action may include a request for additional information, in which case Associate's time for response will start again.
   3. Associate's action on RFI's 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 Division 01 Section "Contract Modification Procedures."
      a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Associate in writing within 10 days of receipt of the RFI response.

D. On receipt of Associate's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Associate within seven days if Contractor disagrees with response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFI's 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 Associate.
   4. RFI number including RFI's that were dropped and not submitted.
   5. RFI description.
   6. Date the RFI was submitted.
   7. Date Associate's response was received.
   8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
   9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.01 GENERAL COORDINATION PROVISIONS

A. Inspection of Conditions: Require that the Installer of each major component to inspect both the substrate and conditions under which the Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

3.02 CLEANING AND PROTECTION

A. Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Contract Completion.

B. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.

C. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

Abrasion

Air contamination or pollution

Bacteria

Chemicals

Combustion

Contact between incompatible materials

Destructive testing

Electrical current

Excessive internal or external pressures

Excessive static or dynamic loading

Excessive weathering

Excessively high or low humidity

Excessively high or low temperatures

Heavy traffic

High-speed operation

Improper lubrication

Improper shipping or handling

Light

Misalignment

Puncture

Radiation

Rodent and insect infestation

Soiling, staining, and corrosion

Solvents

Theft

Thermal shock

Unprotected storage

Unusual wear or other misuse

Vandalism

Water or ice

3.03 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.

D. Replace filters of operating equipment.

E. Clean debris from roofs, gutters, downspouts, and drainage systems.

F. Clean site; sweep paved areas, rake clean landscaped surfaces.

G. Remove waste and surplus materials, rubbish, and construction facilities from site.

END OF SECTION

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. References.

B. Quality assurance.

C. Format.

D. Schedules.

E. Submittals.

F. Review and evaluation.

G. Updating schedules.

H. Distribution.

1.2 REFERENCES

A. CPM in Construction Management - Project Management with CPM, O'Brien, McGraw-Hill Book Company, New York.

1.3 QUALITY ASSURANCE

A. Contractor's Administrative Personnel: 5 years minimum experience in using and monitoring CPM schedules on comparable projects.

1.4 FORMAT

A. Listings: Reading from left to right, in ascending order for each activity. Identify each activity with applicable specification section number.

B. Diagram Sheet Size: 24 inches high x 36 inches wide.

C. Scale and Spacing: To allow for notations and revisions.

1.5 SCHEDULES

A. Prepare network analysis diagrams and supporting mathematical analyses using Critical Path Method, under concepts and methods outlined in AGC's "The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry".

B. Illustrate order and interdependence of activities and sequence of work; how start of given activity depends on completion of preceding activities, and how completion of activity may restrain start of subsequent activities.

C. Illustrate complete sequence of construction by activity, identifying work of separate stages. Indicate dates for submittals and return of submittals; dates for procurement and delivery of critical products; and dates for installation and provision for testing. Include legend for symbols and abbreviations used.

D. Mathematical Analysis: Tabulate each activity of detailed network diagrams, using calendar dates, and identify for each activity:
   1. Preceding and following event numbers.
   2. Activity description.
   3. Estimated duration of activity, in maximum 5-day intervals.
   4. Earliest start date.
   5. Earliest finish date.
   6. Actual start date.
   7. Actual finish date.
   8. Latest start date.
   9. Latest finish date.
   10. Total and free float; accrue float time to Owner and to Owner's benefit.
   11. Percentage of activity completed.
   12. Responsibility.

E. Analysis Program: Capable of accepting revised completion dates, and re-computation of scheduled dates and float.

F. Required Sorts: List activities in sorts or groups:
   1. By preceding work item or event number from lowest to highest.
   2. By longest float, then in order of early start.
   3. By responsibility in order of earliest possible start date.
   4. In order of latest allowable start dates.
   5. In order of latest allowable finish dates.
   6. Listing of basic input data generating report.
   7. Listing of activities on critical path.

G. Contractor shall schedule work based on a five-day 8-hour work week, Monday thru Friday. Coordinate any additional work hours with Sinclair Police and staff. See Alternates.

H. Construction shall be complete no later than dates indicated in the project summary of this specification book.

1.6 SUBMITTALS

A. Within 10 days after date of Owner-Contractor Agreement, established in Notice to Proceed, submit proposed preliminary network diagram defining planned operations for first 60 days of Work, with general outline for remainder of Work.

B. Participate in review of preliminary and complete network diagrams jointly with Architect/Engineer.

C. Within 20 days after joint review of proposed preliminary network diagram, submit draft of proposed complete network diagram for review. Include written certification that major Subcontractors have reviewed and accepted proposed schedule.

D. Submit updated network schedules with each Application for Payment, minimum every 30 days.

E. Submit number of opaque reproductions Contractor requires, plus two copies Architect/Engineer will retain.

1.7 REVIEW AND EVALUATION

A. Participate in joint review and evaluation of network diagrams and analysis with Architect/Engineer at each submittal.

B. Evaluate project status to determine work behind schedule and work ahead of schedule.

C. After review, revise network diagrams and analysis incorporating results of review, and resubmit within 7 days.

1.8 UPDATING SCHEDULES

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity. Annotate diagrams to graphically depict current status of Work.

C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

D. Indicate changes required to maintain Date of Substantial Completion.

E. Submit sorts required to support recommended changes.

F. Prepare narrative report to define problem areas, anticipated delays, and impact on schedule. Report corrective action taken or proposed and its effect.

1.9 DISTRIBUTION

A. Following joint review, distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect/Engineer, Owner, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals, including:
   1. Contractor's Construction Schedule.
   2. Submittal Schedule.
   3. Structural Steel Fabrication Certification.
B. Related Sections include the following:
   1. See other Division 1 sections and other contract documents for requirements for administrative submittals. Such submittals include, but are not limited to: Permits, Applications for Payment, Performance and Payment Bonds, Insurance Certificates, Lists of Subcontractors and Suppliers.
   1. Divisions 02 through 49 Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Associate's responsive action.
B. Informational Submittals: Written information that does not require Associate's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
      a) Associate reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
B. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Schedule" for list of submittals and time requirements for scheduled performance of related construction activities.
C. Processing Time: Allow sufficient time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Associate's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals sufficient in advance of the Work to permit processing, including resubmittals.
   1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Associate will advise Contractor when a submittal being processed must be delayed for coordination.

2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Associate's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.

1.05 SUBMITTAL PROCEDURES

A. All submittals shall be transmitted electronically to the Architect in a PDF format.
   1. Contractor shall utilize Adobe Acrobat (or similar software) to have the full ability to add comments, edits, signatures, etc. to the submittals and information submitted.
   2. Contractor shall not simply download information directly from a manufacturer's website without a review of the information and identifying the particular products being utilized. Submittals transmitted to the Architect in this manner will be rejected and require re-submittal.

A. Transmit each submittal with Architect's Approved Cover Sheet. Each submittal shall have a cover sheet. Identify Project, Contractor, subcontractor and supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal. Cover Sheet will be page 1 of the PDF.

B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.

C. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.

D. Schedule submittals to expedite Project and deliver to Architect/Engineer. Coordinate submission of related items.

E. For each submittal for review, allow 5 days excluding delivery time to and from Contractor.

F. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.

G. Allow space on submittals for Contractor and Architect/Engineer review stamps.

H. When revised for resubmission, identify changes made since previous submission.

I. Distribute copies of reviewed submittals as appropriate (electronically as appropriate). Instruct parties to promptly report inability to comply with requirements.

J. Resubmittals: Make resubmittals in same form and number of copies as initial submittal. Note date and content of previous submittal. Note date and content of revision in label or title block and clearly indicate extent of revision. Resubmit submittals until they are marked "Conforms as Submitted."

K. 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.

PART 2 PRODUCTS

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 printed data are not suitable 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:

b) Manufacturer's written recommendations.
   a) Manufacturer's product specifications.
   b) Manufacturer's installation instructions.
   c) Standard color charts.
   d) Manufacturer's catalog cuts.
   e) Wiring diagrams showing factory-installed wiring.
   f) Printed performance curves.
   g) Operational range diagrams.
   h) Mill reports.
   i) Standard product operation and maintenance manuals.
   j) Compliance with specified referenced standards.
   k) Testing by recognized testing agency.
   l) Application of testing agency labels and seals.
   m) Notation of coordination requirements.
1) Submit Product Data before or concurrent with Samples.
2) Preliminary Submittal: Submit a preliminary single-copy of product data where selection of options is required.
3) Number of Copies: Submit two copies of Product Data, unless otherwise indicated. Associate will return one copy. Mark up and retain one returned copy as a Project Record Document.

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:
c) Dimensions.
   a) Identification of products and materials included.
   b) Fabrication and installation drawings.
   c) Roughing-in and setting diagrams.
   d) Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
   e) Shop work manufacturing instructions.
   f) Templates and patterns.
   g) Schedules.
   h) Design calculations.
   i) Compliance with specified standards.
   j) Notation of coordination requirements.
   k) Notation of dimensions established by field measurement.
   l) Relationship to adjoining construction clearly indicated.
   m) Seal and signature of professional engineer if specified.
   n) Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following: Generic description of Sample.
   a) Product name and name of manufacturer.
   b) Sample source.
   c) Number and title of appropriate Specification Section.

3. 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.

D. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   1. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
   2. 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.
   3. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Associate will return submittal with options selected.
   4. 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.
   5. Number of Samples: Submit two sets of Samples. Associate will retain one Sample sets; remainder will be returned.
      a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      b. If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.
   1. Comply with General Conditions Article 15.1.
      a) Mark up and retain one returned copy as a Project Record Document.

F. Contractor's Construction Schedule: Comply with requirements specified Section 01 32 16.

G. Submittals Schedule: Comply with requirements specified in General Conditions Article 9.2 and Division 01 Section "Construction Progress Schedule."

H. Application for Payment: Comply with requirements specified in Division 1 and contract documents.

I. Schedule of Values: Comply with requirements specified Division 1. 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.

J. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Associates and owners, and other information specified.

K. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

L. Installer Certificates: Prepare 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.

M. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

N. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

O. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

P. Material Test Reports: Prepare 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.

Q. Product Test Reports: Prepare written reports indicating 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.

R. Research/Evaluation Reports: Prepare 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:

1) Name of evaluation organization.
2) Date of evaluation.
3) Time period when report is in effect.
4) Product and manufacturers' names.
5) Description of product.
6) Test procedures and results.
7) Limitations of use.

S. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."

T. Preconstruction Test Reports: Prepare 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.

U. Compatibility Test Reports: Prepare 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 primers and substrate preparation needed for adhesion.

V. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests either performed during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

W. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Closeout Procedures."

X. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

Y. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1) Preparation of substrates.
2) Required substrate tolerances.
3) Sequence of installation or erection.
4) Required installation tolerances.
5) Required adjustments.

6) Recommendations for cleaning and protection.

Z. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1) Name, address, and telephone number of factory-authorized service 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 whether conditions, products, and installation will affect warranty.
7) Other required items indicated in individual Specification Sections.

AA. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

BB. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Associate**.**

1) Associate will not review submittals that include MSDSs and will return the entire submittal for resubmittal.

CC. 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 Associate.

DD. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of 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.

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.

PART 3 EXECUTION

1.5 CONTRACTOR'S REVIEW

A. 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 Associate.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, 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.

1.6 ASSOCIATE'S / ACTION

A. General: Associate will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Associate will review each submittal, make marks to indicate corrections or modifications required, and return it. Associate will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows: Informational Submittals: Associate will review each submittal and will not return it, or will return it if it does not comply with requirements.

C. Associate will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

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SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Quality control and control of installation.

B. Tolerances.

C. References.

D. Labeling.

E. Mock-up requirements.

F. Testing and inspection services.

G. Manufacturers' field services.

H. Examination.

I. Preparation.

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. When manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date for receiving bids, except where specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. When specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Architect/Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.5 LABELING

A. Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.

B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label.
   1. Model number.
   2. Serial number.
   3. Performance characteristics.

1.6 MOCK-UP REQUIREMENTS

A. Tests will be performed under provisions identified in this section and identified in respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Accepted mock-ups shall be comparison standard for remaining Work.

D. Where mock-up has been accepted by Architect/Engineer and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so by Architect/Engineer.

1.7 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify utility services are available, of correct characteristics, and in correct locations.

3.2 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

END OF SECTION

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SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 GENERAL

A. This Section is not intended to limit types and amounts of temporary construction facilities and controls required. All temporary facilities and controls must be coordinated with Owner's staff and located as indicated in documents. Omission from this Section will not be accepted as an application that such temporary activity is not required for successful completion of the work and compliance with requirements of the Contract Documents.

B. Any Contractor requiring one of the temporary services before it can be provided as specified, or whose requirements with respect to a particular service differ from the service specified, shall provide such service as suits his needs, at his own expense and in a manner satisfactory to the Associate.

C. Maintain all temporary facilities and keep in good operating condition. Maintenance personnel necessary to perform this work shall be provided in accordance with the requirements. Maintenance time will include normal working hours for all trades and start up and shut down overtime as required. Terminate and remove temporary facilities when they are no longer necessary.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

1.03 SUMMARY

A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Sections include the following:

1. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
2. Division 01 Section "Closeout Procedures" for progress cleaning requirements.

1.04 WEATHER PROTECTION

A. It is the intent of these Specifications to have each Contractor protect his work and existing or adjacent property against weather, to maintain his work, materials, apparatus and fixtures free from injury or damage in accordance with the General Conditions during the entire construction period. Work likely to be damaged shall be covered or protected at the end of each day's work. Any work damaged by failure to provide protection required, shall be removed and replaced with new work at the Contractor's expense.

B. General Contractor

1) Remove all snow and ice as may be required for proper protection and execution of the work and protection and safety of the public.
2) No openings shall be left open at end of the working day.

C. Mud and Water Control: Water shall not be permitted to accumulate on the site or adjacent areas. All personnel and vehicle accesses shall be stoned and continually maintained free of mud, dirt and debris. During construction, grades in and adjacent to the project site shall be maintained to facilitate positive drainage. Sanitary sewer lines or manholes shall not be used for water disposal.

1.05 SUBMITTALS

A. Implementation and Termination Schedule: Submit a schedule indicating implementation and termination of each temporary utility within 15 days of the date established for commencement of the work.

B. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.06 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable law as and regulations if authorities having jurisdiction, including but no limited to:

1. Building Code requirements.
2. Health and safety regulations.
3. Utility company regulations.
4. Police, Fire Department and Rescue Squad rules.
5. Environmental protection regulations.

B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations," ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."

1. Refer to "Guidelines for Bid conditions for Temporary Job Utilities and Services," prepared jointly by AGC and ASC, for industry recommendations.
2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

C. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.07 PROJECT CONDITIONS

A. Conditions of Use: Do not allow hazardous dangers or unsanitary conditions or public nuisances to develop or persist on the site.

B. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 PRODUCTS

2.01 MATERIALS

A. Portable Chain-Link Fencing: Minimum 2-inch(50-mm), 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch-(60-mm-) OD line posts and 2-7/8-inch-(73-mm-) OD corner and pull posts, with 1-5/8-inch-(42-mm-) OD top and bottom rails. Provide galvanized steel bases for supporting posts. Fence enclosures may be moved from work area to work area as work is completed.

B. Water: Provide potable water approved by local health authorities.

2.02 TEMPORARY FACILITIES

A. Common-Use Field Office: Contractor has the option of providing a jobsite office trailer. Location of trailer to be coordinated with Owner. If not does not wish to provide a trailer, Owner will provide a room in Gymnasium Building or Training Building of sufficient size with table and chairs for weekly progress meetings. See temporary utility service requirements. If contractor requires additional storage space for its use, then contractor shall provide as necessary.

B. Temporary facilities and controls include, but are not limited to, the following:

1. Temporary facilities and controls.
2. Temporary sediment and erosion control.
3. Temporary drainage, including drainage ditches, dry wells, stabilization ponds, and containers.
4. Storm water control.
5. Temporary toilet fixtures, wash facilities, and drinking water facilities, including disposable supplies.
6. Temporary enclosure for building exterior, except as indicated.
7. Temporary roads and paved areas.
8. Dewatering facilities and drains.
9. Excavation support and protection.
10. Special hoisting requirements for construction activities.
11. General waste disposal facilities.
12. Temporary fire-protection equipment.
13. Barricades, warning signs, and lights.
14. Security enclosure and lockup.
15. Environmental protection.
16. Electric generators for temporary power.
17. Lighting, including site lighting.
18. Sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

2.03 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Owner authorizes use of permanent HVAC system.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Permanent HVAC System: Use of permanent HVAC system for temporary use during construction is permitted, provide filter with MERV of 8 at each return air grille in system and remove at end of construction.

PART 3 EXECUTION

3.01 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.

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.

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Water Service: Contractor may use water service in buildings for normal construction tasks.

C. Sanitary Facilities: Contractors may use existing building’s sanitary facilities during construction. Contractor shall keep restrooms clean with periodic cleaning. If existing sanitary facilities are not useable during construction, contractor shall provide temporary facilities as needed.

D. Heating: Provide temporary heating 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.

E. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

F. Electric Power Service: Contractor shall transfer electric service for the building temporarily into Contractor's name. Contractor may use existing building's 120V electrical convenience receptacles for work. Any electrical requirements beyond 120V shall be provided by contractor.

G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

H. Telephone Service: Telephone service will not be available on site. Contractor's designated contact shall carry cell phone 24 hours a day, 7 days a week for emergency contact.

3.03 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Maintain support facilities until near Final Completion. Remove before Final Completion. Personnel remaining after Final Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas in same location as permanent roads and paved areas. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

1. Provide dust-control treatment that is nonpolluting and non-tracking. Reapply treatment as required to minimize dust.
2. Recondition base after temporary use, including removing contaminated material, regrading, proof rolling, compacting, and testing.

C. 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.

D. Waste Disposal: Waste must be removed from site on a daily basis.

E. 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. Lifts and hoists must be removed from site at the end of each day.

F. Temporary Use of Permanent Stairs: Cover finished, permanent stairs with protective covering of plywood or similar material so finishes will be undamaged at time of acceptance.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that 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 Division 01.

B. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from public access, exposure, foul weather, other construction operations, and similar activities if necessary. Provide temporary weathertight enclosure for building exterior if necessary.

1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

C. 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.

1. Prohibit smoking on property.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to 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.

3.05 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 Final Completion.

D. Termination and Removal: Remove each temporary facility when needed for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Final 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.
2. Remove temporary roads. 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 Final Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION

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SECTION 01 57 19

INDOOR AIR QUALITY (IAQ) MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
1. Special requirements for Indoor Air Quality (IAQ) management during construction operations.
a. Control of emissions during construction.
b. Moisture control during construction.

B. Related Sections:
1. 01 40 00 – Quality Requirements: Meetings and project coordination.
3. 01 70 00 – Project Record and Close-Out Documents.
4. 01 33 00 – Submittals

C. It is the intent to have the building constructed using sustainable means and methods. The construction documents incorporate requirements to meet these sustainable measures. The Contractors shall review all sustainable design measures including 01 70 00 Execution & Close-Out Requirements.

1.2 DEFINITIONS

A. Definitions pertaining to sustainable development: As defined in ASTM E2114.

B. Adequate ventilation: Ventilation, including air circulation and air changes, required to cure materials, dissipate humidity, and prevent accumulation of particulates, dust, fumes, vapors, or gases.

C. Hazardous Materials: Any material that is regulated as a hazardous material in accordance with 49 CFR 173, requires a Material Safety Data Sheet (MSDS) in accordance with 29 CFR 1910.1200, or which during end use, treatment, handling, storage, transportation or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste in accordance with 40 CFR 261. Throughout this specification, hazardous material includes hazardous chemicals.
1. Hazardous materials include: pesticides, biocides, and carcinogens as listed by recognized authorities, such as the Environmental Protection Agency (EPA) and the International Agency for Research on Cancer (IARC).

D. Indoor Air Quality (IAQ): The composition and characteristics of the air in an enclosed space that affect the occupants of that space. The indoor air quality of a space refers to the relative quality of air in a building with respect to contaminants and hazards and is determined by the level of indoor air pollution and other characteristics of the air, including those that impact thermal comfort such as air temperature, relative humidity and air speed.

E. Interior final finishes: Materials and products that will be exposed at interior, occupied spaces; including flooring, wallcovering, finish carpentry, and ceilings.

F. Packaged dry products: Materials and products that are installed in dry form and are delivered to the site in manufacturer's packaging; including carpets, resilient flooring, ceiling tiles, and insulation.

G. Wet products: Materials and products installed in wet form, including paints, sealants, adhesives, special coatings, and other materials which require curing.

1.4 SUBMITTALS

A. Indoor Air Quality (IAQ) Management Plan: Not less than 10 days before the Pre-construction meeting, prepare and submit an IAQ Management Plan including, but not limited to, the following:
   1. Procedures for control of emissions during construction.
      a. Identify schedule for application of interior finishes.
   2. Procedures for moisture control during construction.
      a. Identify porous materials and absorptive materials.
      b. Identify schedule for inspection of stored and installed absorptive materials.
   3. Revise and resubmit Plan as required by Owner.
      a. Approval of Contractor's Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations.

B. Product Data:
   1. Submit product data for filtration media used during construction and during operation. Include Minimum Efficiency Reporting Value (MERV).
   2. Material Safety Data Sheets: Submit MSDSs for inclusion in Operation and Maintenance Manual for the following products.
      a. Adhesives.
      b. Floor and wall patching/leveling materials.
      c. Caulking and sealants.
      d. Insulating materials.
      e. Fireproofing and firestopping.
      f. Carpet.
      g. Paint.
      h. Clear finish for wood surfaces.
      i. Lubricants.
      j. Cleaning products.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 IAQ MANAGEMENT - EMISSIONS CONTROL

A. During construction operations, follow the recommendations in SMACNA IAQ Guidelines for Occupied Buildings under Construction.

B. HVAC Protection:
   1. Seal return registers during construction operations.
   2. Provide temporary exhaust during construction operations
   3. To the greatest extent possible, isolate and/or shut down the return side of the HVAC system during construction. When ventilation system must be operational during construction activities, provide temporary filters.

C. Source Control: Provide low and zero VOC materials as specified.

D. Pathway Interruption: Isolate areas of work as necessary to prevent contamination of clean or occupied spaces. Provide pressure differentials and/or physical barriers to protect clean or occupied spaces.

E. Housekeeping: During construction, maintain project and building products and systems to prevent contamination of building spaces.

F. Temporary Ventilation: Provide an ACH (air changes per hour) of 1.5 or more and as follows:
1. Provide minimum 48 hour pre-ventilation of packaged dry products prior to installation. Remove from packaging and ventilate in a secure, dry, well-ventilated space free from strong contaminant sources and residues. Provide a temperature range of 60 degrees F minimum to 90 degree F maximum continuously during the ventilation period. Do not ventilate within limits of Work unless otherwise approved by Architect.
2. Provide adequate ventilation during and after installation of interior wet products and interior final finishes.
3. Provide filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 as determined by ASHRAE 52.2 during construction and filtration media with a MERV of 13 during Owner occupancy. Coordinate with work of Division 23 - Heating Ventilating and Air Conditioning (HVAC).

G. Scheduling: Schedule construction operations involving wet products prior to packaged dry products to the greatest extent possible.

3.2 IAQ MANAGEMENT - MOISTURE CONTROL

A. Housekeeping:
1. Keep materials dry. Protect stored on-site and installed absorptive materials from moisture damage.
2. Verify that installed materials and products are dry prior to sealing and weatherproofing the building envelope.
3. Install interior absorptive materials only after building envelope is sealed and weatherproofed.

B. Inspections: Document and report results of inspections; state whether of not inspections indicate satisfactory conditions.
1. Examine materials for dampness as they arrive. If acceptable to Architect/Owner, dry damp materials completely prior to installation; otherwise, reject materials that arrive damp.
2. Examine materials for mold as they arrive and reject materials that arrive contaminated with mold.
3. Inspect stored and installed absorptive materials regularly for dampness and mold growth. Inspect weekly and after each rain event.
   a. Where stored on-site or installed absorptive materials become wet, notify Architect. Inspect for damage. If acceptable to Architect/Owner, dry completely prior to closing in assemblies; otherwise, remove and replace with new materials.
3. Basement: Monitor basement and crawlspace humidity and dehumidify when relative humidity is greater than 85 percent for more than 2 weeks or at the first sign of mold growth.
4. Site drainage: Verify that final grades of site work and landscaping drain surface water and ground water away from the building.
6. Plumbing: Verify satisfactory pressure test of pipes and drains is performed before closing in and insulating lines.
7. Condensate pans are sloped and plumbed correctly

1. Access panels are installed to allow for inspection and cleaning of coils and ductwork downstream of coils.
2. Ductwork and return plenums are air sealed.
3. Duct insulation is installed and sealed.
4. Chilled water line and refrigerant line insulation are installed and sealed.

C. Schedule:
1. Schedule work such that absorptive materials, including but not limited to porous insulations, paper-faced gypsum board, ceiling tile, and finish flooring, are not installed until they can be protected from rain and construction-related water.
2. Weather-proof as quickly as possible. Schedule installation of moisture-control materials, including but not limited to air barriers, flashing, exterior sealants and roofing, at the earliest possible time.

D. Testing for Moisture Content: Test moisture content of porous materials and absorptive materials to ensure that they are dry before sealing them into an assembly. Document and report results of testing. Where tests are not satisfactory, dry materials and retest. If satisfactory results cannot be obtained with retest, remove and replace with new materials.
1. Concrete: Moisture test prior to finish flooring application as specified in Division 09 Moisture test as per one or more of the following; unless otherwise indicated, acceptable upper limits for concrete are < 4% top inch; < 85% headspace RH; <3 lbs/1000ft2/day:
   a. ASTM D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
   b. ASTM F1869 Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
   c. ASTM F2170 Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes.
2. Wood: Moisture test as per ASTM D4444 - Standard Test Methods for Use and Calibration of Hand-Held Moisture Meters; unless otherwise indicated acceptable upper limits for wood products are < 20% at center of piece; < 15% at surface.
3. Gypsum Board, Gypsum Plaster, Insulation, and other absorptive materials: Moisture test with a Pinless Moisture Meter to assess patterns of moisture, if any.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Provide products of same kind from a single source. The term "product" includes the terms "material," "equipment," "system," and similar terms.

B. Deliver, store, and handle products according to manufacturer's written instructions, using means and methods that will prevent damage, deterioration, and loss, including theft.
   1. Schedule delivery to minimize long-term storage and to prevent overcrowding construction spaces.
   2. Deliver in manufacturer's original sealed packaging with labels and written instructions for handling, storing, protecting, and installing.
   3. Inspect products at time of delivery for compliance with the Contract Documents and to ensure items are undamaged and properly protected.
   4. Store heavy items in a manner that will not endanger supporting construction.
   5. Store products subject to damage on platforms or pallets, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required.

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

A. Provide products that comply with the Contract Documents, are undamaged, and are new at the time of installation.
   1. Provide products complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.

B. Do not attach manufacturer's labels or trademarks, except for required nameplates, on surfaces exposed to view in occupied spaces or on the exterior.

C. Select products as follows:
   1. Where compliance with performance requirements is specified, provide products that comply and are recommended in writing by the manufacturer for the application.
   2. Where compliance with codes, regulations, or standards, is specified, select a product that complies with the codes, regulations, or standards referenced.

D. Unless otherwise indicated, A/E will select color, pattern, and texture of each product from manufacturer's full range of standard options.

E. Sustainability: It is the intent of this project to have the building constructed using sustainable means and methods. However, no third party environmental performance certification is to be pursued for this project. The construction documents incorporate requirements to meet these sustainable measures. The Contractors shall review all sustainable design measures and shall closely coordinate activities with the General Contractor.

F. Submittals: Provide manufacturer's documentation and technical submittals as necessary to indicate sustainable measures. These submittals are in addition to other submittals.

END OF SECTION

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Closeout procedures.

B. Final cleaning.

C. Starting of systems.

D. Demonstration and instructions.

E. Testing, adjusting and balancing.

F. Protecting installed construction.

G. Project record documents.

H. Operation and maintenance data.

I. Manual for materials and finishes.

J. Manual for equipment and systems.

K. Spare parts and maintenance products.

L. Product warranties and product bonds.

M. Maintenance service.

1.2 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect/Engineer's review.

B. Provide submittals to Architect/Engineer required by authorities having jurisdiction.

C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

D. Owner will occupy portions of building during construction. Coordinate access and any required shutdowns with owner.

1.3 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.

B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.

D. Replace filters of operating equipment.

E. Clean debris from roofs, gutters, downspouts, and drainage systems.

F. Clean site; sweep paved areas, rake clean landscaped surfaces.

G. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.4 STARTING OF SYSTEMS

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architect/Engineer and Owner seven days prior to start-up of each item.

C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractors' personnel in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report in accordance with Section 01 33 00 - Submittal Procedures that equipment or system has been properly installed and is functioning correctly.

1.5 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of products to Owner's personnel one week prior to date of Substantial Completion.

B. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed time at designated location.

D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

E. Required instruction time for each item of equipment and system is specified in individual sections.

1.6 TESTING, ADJUSTING AND BALANCING

A. Owner will appoint and employ services of independent firm to perform testing, adjusting, and balancing. Contractor shall pay for services.

B. Reports will be submitted by independent firm to Architect/Engineer indicating observations and results of tests and indicating compliance or non-compliance with requirements of Contract Documents.

1.7 PROTECTING INSTALLED CONSTRUCTION

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

F. Prohibit traffic from landscaped areas.

1.8 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed Shop Drawings, Product Data, and Samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress, not less than weekly.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   2. Field changes of dimension and detail.

3. Details not on original Contract drawings.

G. Submit documents to Architect/Engineer with claim for final Application for Payment.

1.9 OPERATION AND MAINTENANCE DATA

A. Submit data bound in 8-1/2 x 11 inch (A4) text pages, three D side ring binders with durable plastic covers. Provide one hard copy and one electronic copy on thumb drive.

B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project.

C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

E. Contents: Prepare Table of Contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.
2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
    a. Significant design criteria.
    b. List of equipment.
    c. Parts list for each component.
    d. Operating instructions.
    e. Maintenance instructions for equipment and systems.
    f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
3. Part 3: Project documents and certificates, including the following:
    a. Approved Submittals, shop drawings and product data.
    b. Air and water balance reports.
    c. Certificates.
    d. Originals of warranties and bonds.
4. Part 4: Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. [Include information for re-ordering custom manufactured products. Project documents and certificates, including the following:
    a. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

1.10 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Submit one copy of completed volumes 10 days prior to final inspection. Draft copy be reviewed and returned after final inspection, with Architect/Engineer comments. Revise content of document sets as required prior to final submission.

B. Submit one set of revised final volumes in final form within 10 days after final inspection. Provide one hard copy and one electronic copy on thumb drive.

C. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.

D. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications.

E. Include color coded wiring diagrams as installed.

F. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and special operating instructions.

G. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

H. Include servicing and lubrication schedule, and list of lubricants required.

I. Include manufacturer's printed operation and maintenance instructions.

J. Include sequence of operation by controls manufacturer.

K. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

L. Include control diagrams by controls manufacturer as installed.

M. Include Contractor's coordination drawings, with color coded piping diagrams as installed.

N. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

O. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

P. Include test and balancing reports as specified in Section 01 40 00 - Quality Requirements.

Q. Additional Requirements: As specified in individual product specification sections.

R. Include listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

1.11 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.

B. Deliver to Project site and place in location as directed by Owner; obtain receipt prior to final payment.

1.12 PRODUCT WARRANTIES AND PRODUCT BONDS

A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.

B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers.

C. Verify documents are in proper form, contain full information, and are notarized.

D. Co-execute submittals when required.

E. Submit prior to final Application for Payment.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Construction waste management plan.
   2. Construction waste recycling.

1.2 REFERENCES

A. ASTM International:
   1. ASTM E1609 - Standard Guide for Development and Implementation of a Pollution Prevention Program.

1.3 PLAN REQUIREMENTS

A. Develop and implement construction waste management plan in accordance with ASTM E1609 and as approved by the Owner and Architect.

B. Intent:
   1. Divert construction, demolition, and land clearing debris from landfill disposal.
   2. Redirect recyclable material back to manufacturing process.
   3. Generate cost savings or increase minimal additional cost to Project for waste disposal.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Construction Plan: Submit construction waste management plan describing methods and procedures for implementation and monitoring compliance including the following:
   1. Transportation company hauling construction waste to waste processing facilities.
   2. Recycling and adaptive reuse processing facilities and waste type each facility will accept.
   3. Construction waste materials anticipated for recycling and adaptive reuse.
   4. On site sorting and site storage methods.

C. Submit documentation prior to Substantial Completion substantiating construction waste management plan was maintained and goals were achieved.
   1. Trash: Quantity by weight deposited in landfills. Include associated fees, transportation costs, container rentals, and taxes for total cost of disposal.
   2. Salvaged Material: Quantity by weight with destination for each type of material salvaged for resale, recycling, or adaptive reuse. Include associated fees, transportation costs, container rentals, and taxes for total cost of disposal. Also include reimbursements due to salvage resale.
   3. Total Cost: Indicate total cost or savings for implementation of construction waste management plan.

1.5 CONSTRUCTION WASTE MANAGEMENT PLAN

A. Construction Waste Landfill Diversion: Minimum 20 percent by weight of construction waste materials for duration of Project through resale, recycling, or adaptive reuse. This shall apply to the General Trades Contractor only.

B. Implement construction waste management plan at start of construction.

C. Distribute approved construction waste management plan to subcontractors and others affected by Plan Requirements.

D. Oversee plan implementation, instruct construction personnel for plan compliance, and document plan results.

E. Purchase Products to prevent waste by:
   1. Ensuring correct quantity of each material is delivered to site.
   2. Choosing products with minimal or no packaging.
   3. Requiring suppliers to use returnable pallets or containers.
   4. Requiring suppliers to take or buy-back rejected or unused items.

1.6 CONSTRUCTION WASTE RECYCLING

A. Use source separation method or co-mingling method suitable to sorting and processing method of selected recycling center. Dispose non-recyclable trash separately into landfill.

B. Source Separation Method: Recyclable materials separated from trash and sorted into separate bins or containers, identified by waste type, prior to transportation to recycling center.

C. Co-Mingling Method: Recyclable materials separated from trash and placed in unsorted bins or container for sorting at recycling center.

D. Materials suggested for recycling include:
   1. Toilet partitions.
   2. Packing materials including paper, cardboard, foam plastic, and sheeting.
   3. Recyclable plastics.
   4. Miscellaneous metals.
   5. Roofing materials.
   6. Glass
   7. Asphalt
   8. Etc.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 CONSTRUCTION WASTE COLLECTION

A. Collect construction waste materials in marked bins or containers and arrange for transportation to recycling centers or adaptive salvage and reuse processing facilities.

B. Maintain recycling and adaptive reuse storage and collection area in orderly arrangement with materials separated to eliminate co-mingling of materials required to be delivered separately to waste processing facility.

C. Store construction waste materials to prevent environmental pollution, fire hazards, hazards to persons and property, and contamination of stored materials.

D. Cover construction waste materials subject to disintegration, evaporation, settling, or runoff to prevent polluting air, water, and soil.

3.2 CONSTRUCTION WASTE RECYCLING AND DISPOSAL

A. The following materials are required to be recycled and weight tickets provided as a submittal item and in O&M manuals.
   1. Recycle all metals and provide weight tickets.
   2. Weight tickets must be provided for everything recyclable.

B. Disposal of Non-carpet demolished materials.
   1. General: except for items or materials indicated to be recycled, reused, salvaged, reinstalled or otherwise indicated to remain Owner's property, remove demolished materials from Project site.
      a. Do not allow demolished materials to accumulate on site. Remove at the end of every work session.
      b. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
   2. Burning: Do not burn demolished materials.
   3. Disposal: Transport demolished material off Owner's property and legally disposes of them.

END OF SECTION

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SECTION 02 00 00

EXISTING CONDITIONS

PART 1 - GENERAL

1.01 EXISTING CONDITIONS

A. Documents contained under this section are for contractors' use and additional information. Contractors' bid shall incorporate work as required and identified by these documents and other specification sections. The following Pre-Renovation Asbestos Survey Report and Asbestos Abatement Specifications were created by Dayton Environmental Testing, LLC. These documents shall be coordinated with the drawing sheets created by Dayton Environmental Testing, LLC which have been included in the bid drawing set.

END OF SECTION

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Dayton
Environmental Testing, LLC
"Protecting You With Our Experience"

Asbestos Abatement Specifications

Clark County Family Services
Renovations to Visitation Building
525 E. Home Road
Springfield, Ohio 45503

Prepared for:
Oregon Group Architects, Inc.
300 S. Patterson Boulevard
Dayton, Ohio 45402
(937) 228-1511

Report Date: July 20, 2026
Project Number: 26-330-001

Prepared by:
Dayton Environmental Testing, LLC
2750-B Indian Ripple Road, Suite 211
Beavercreek, Ohio 45440
(937) 751-7872
www.daytontesting.com

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Dayton, Ohio 45440
(937) 751-7872

Michael B. Lee, CIEC
Asbestos Hazard Abatement Project Designer
Ohio EPA Certification Number: PD60731

July 20, 2026
DET Project Number: 26-330-001

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APPENDICIES

A Pre-Demolition Asbestos Inspection Report
B Certificate of Completion
C Certificate of Workers Acknowledgment
D Affidavit of Medical Surveillance, Respiratory Protection and Training/Accreditation
E Abatement Contractor/Competent Person(s) Review and Acceptance of Asbestos Abatement Specifications
F Definitions and Terminology
G Building Floor Plans
H Qualifications

1.0 PROJECT DESCRIPTION

1.1 Summary of Work

The Clark County Job & Family Services (Owner) plans to renovate Family & Children Services Visitation Center located at 525 E. Home Road in Springfield, Ohio (Project Site) which will require removal of asbestos-containing materials (ACM) from the building.

Dayton Environmental Testing, LLC (DET) conducted a pre-renovation asbestos survey at the Project Site in preparation for renovations. A copy of this report is presented in Appendix A.

The detailed scope of work for this project is provided in Section 4.1 with additional considerations and work presented in Section 4.2.

This specification is intended to supplement the Contract Documents. No portion of this document shall alter, override, or amend the requirements, responsibilities, or obligations established in the Contract Documents. Where discrepancies arise, the Contract Documents shall prevail.

1.2 Owner's Representative

Contact information for the Owner and their designated representatives is provided below:

Environmental Consultant
Dayton Environmental Testing, LLC
2750-B Indian Ripple Road, Suite 211
Dayton, Ohio 45440
Michael B. Lee - Senor Project Manager
(937) 751-7872
Lee@daytontesting.com

Architect
Oregon Group Architects, Inc.
300 S. Patterson Boulevard
Dayton, Ohio 45402
Kyle D. Zepernick, R.A., LEED AP BD+C
(937) 228-1511
kzepernick@oregongroup.com

Owner
Clark County Job & Family Services
1345 Lagonda Avenue
Springfield, Ohio 45503
Tom McGrath
(937) 327-1700
Thomas.McGrath2@jfs.ohio.gov

DET's Role

At the time these abatement specifications were prepared, DET was contracted solely by the Architect and/or Owner to conduct the pre-renovation asbestos survey and to develop this specification package. DET is not currently contracted to provide any additional environmental

services for this project, including but not limited to, submittal reviews, third-party abatement monitoring, environmental air monitoring, final clearance activities, or closeout review.

However, the Owner and/or Architect reserves the right to engage DET for any such services at any point during the project. Should this occur, the abatement contractor shall fully cooperate with DET in the performance of those services. The addition of such services by the Owner or Architect shall not constitute grounds for any additional cost or change order requested by the Abatement Contractor for completing the project as specified.

DET personnel assigned to this project include, but are not limited to the following:

Table 1
DET Contact Information
Clark County Family Services
Renovations to Visitation Building

Name	Role	Contact Information
Michael Lee	Asbestos Hazard Abatement Project Designer Asbestos Hazard Abatement Specialist Asbestos Hazard Evaluation Specialist	Office: (937) 751-7872 Email: Lee@daytontesting.com
Kenneth Lee	Asbestos Hazard Abatement Specialist Asbestos Hazard Evaluation Specialist	Office: (937) 751-7872 Email: klee@daytontesting.com

1.3 Project Schedule

The project schedule shall be established by the contract documents.

2.0 BIDDING REQUIREMENTS

2.1 Instructions

Only Ohio EPA-licensed asbestos abatement contractors are permitted to provide bids for the work described herein.

By submitting a bid, the abatement contractor acknowledges that he/she has investigated and satisfied himself/herself as to:

- The conditions affecting the work
- Physical conditions of the site which may bear upon site access
- Handling and storage of tools and materials
- Access to water, electric or other utilities
- Other conditions which may affect performance of required activities

All quantities of ACM noted in these specifications prepared and/or provided by DET are estimates only. The bidding abatement contractor is responsible to field verify and confirm actual quantities prior to bid submittal.

Materials containing any amount of asbestos shall be treated as an asbestos-containing material (ACM) for the purposes of abatement, removal, packaging, transportation, disposal, recycling operations, and regulatory compliance unless permitted otherwise in writing by the Owner.

The Owner, Architect, DET, or their representatives are not responsible for any conclusions or interpretations made by the abatement contractor or the basis of the bidding on site information made available by the Owner or their representatives. It is recommended that all bidders visit the site for a walk-through tour, either in person or through a qualified designated representative.

Abatement contractors submitting bids are advised to review the pre-demolition asbestos report provided in Appendix A. Any additional bulk sampling that may affect the scope of work described in this abatement specification shall only be performed by DET or another qualified consultant explicitly approved by the Owner or their designated representative for such purposes.

Qualified abatement contractors shall include all costs within their bid to complete the project as described herein. Change orders requesting additional costs will not be accepted unless prior approval is granted by Owner or their designated representatives.

2.2 Post-Bid Submittals

Abatement contractors being evaluated for possible contract award will be notified and will be required to produce the following documents during the bid evaluation period:

a) Submit a photocopy of the most current Ohio EPA State Asbestos Contractor Licensure. Bids shall not be accepted from contractors not licensed to perform asbestos abatement work in the State of Ohio.

b) Submit a photocopy of the most current EPA Lead-Safe Certified Firm Certification. Bids shall not be accepted from contractors not certified by the EPA as a Lead-Safe Firm.

c) Submit the name of the supervisor qualified to carry out the functions of competent person per 29 CFR 1926.1101(b). Submit documentation demonstrating certification and satisfactory completion of an EPA approved training course in the removal and abatement of asbestos hazards by the project foreman/competent person assigned to this Project. The original (initial) Contractor/Supervisor training certificate along with a valid refresher certificate (if applicable) shall be required for all competent persons supervising this project. Submit a photocopy of the supervisor's most current Ohio EPA state certified Asbestos Hazard Abatement Specialist card.

d) Proof of insurance. Submit proof that the bidder's insurance carriers are licensed/certified to do business in the State of Ohio, current certificate of insurance showing limits of coverage, and a copy of the company's current Workers' Compensation certificate.

e) Proposed state approved landfill for disposal of asbestos-containing waste and photocopy of landfill state license.

f) Substitution Sheet – Bidders shall include on a substitution sheet all materials and/or equipment that the bidder wishes to have considered in lieu of the materials and/or methods specified or approved by addenda.

g) Submit descriptions of any asbestos hazard abatement activities conducted that have been prematurely terminated, including the circumstances surrounding the termination.

h) Submit a list of any contractual penalties that the applicant has paid for breach of or noncompliance with contract specifications for asbestos hazard abatement activities, such as overruns of completion time or liquidated damages.

i) Identify any citations or notices of violation, settlement agreement, Public Health Emergency Orders, or revoked certifications levied against the abatement contractor by any federal, State, or local government agencies for violations related to asbestos hazard abatement during the last three (3) years, including the name and location of the project, the date(s), and how the allegations were resolved.

j) Submit a description, in detail, of all legal proceedings, lawsuits, or claims that have been filed or levied against the applicant or any of the applicant's past or present employees for asbestos-related activities, and how the allegations were resolved. A waiver from this article shall not be considered.

NOTE: If submittals h through i do not apply or the response is "None", the abatement contractor shall provide a written statement expressing the same.

The abatement contractor awarded this project will submit the following documents to the Owner or their designated representatives no later than 10 days prior to the start of the abatement project:

- A signed agreement contract with the Owner or Construction Manager.
- A copy of the written notification to the Ohio EPA and any other required local or federal agency. If any changes are made during the course of this project, the abatement contractor is responsible for submitting a re-notification of any changes of work time, supervisor, work activity or removal amounts to the appropriate agency.
- An acknowledgement that the abatement schedule presented by contract will be met.
- Photocopy of the most current Ohio EPA asbestos contractor license.
- The name of the supervisor(s) qualified to carry out the functions of the competent person per 29 CFR 1926.1101(b). Submit documentation demonstrating certification and satisfactory completion of an EPA approved training course in the removal and abatement of asbestos hazards by the project foreman/competent person assigned to this project. Photocopy of the most current Ohio EPA state Certified Asbestos Hazard Abatement Specialist license. Include all necessary certifications and training documents.
- Copies of EPA-approved asbestos worker training courses, current training certificates and Ohio EPA certification cards of all abatement workers and supervisors. DET will verify that all abatement workers are in possession of their Ohio EPA certifications prior to engaging in any abatement activity (i.e., regulated area preparation, removal, decontamination, etc.).
- Copies of current lead renovator certificates of completion for workers and supervisors who will work on this project.
- The contractor shall provide the Owner with a EPA Lead safe Renovate Right Pamphlet and provide a copy of the receipt or confirmation form signed by the owner.
- Fitness to wear a respirator – Submit documentation in the form of a written statement from the examining physician [in accordance with 1926.1101(h)(3)] stating examination date and that the employee is capable of wearing respiratory protection. Provide a current respiratory fit test record signed by a physician for each employee working on this project.
- A Health and Safety Plan (inclusive of a Site Safety Plan pursuant to OSHA 29 CFR 1910.120) covering all potential work scenarios for this project. Work practices must be protective of all workers at the site, occupants and guests of the site and neighboring properties.
- A signed Abatement Contractor/Competent Person(s) Review and Acceptance of Asbestos Abatement Specifications form - See Appendix E. Forms shall be signed physically or electronically; however electronic signatures must be in accordance with the United States Electronic Signatures in Global and National Commerce (ESIGN) Act and/or the Uniform Electronic Transactions Act (UETA).

The Building Owner or their designated representatives reserves the right to not allow any worker who does not have proof of current Ohio EPA certification, initial EPA worker/supervisor training, current EPA worker/supervisor refresher, lead safe renovator training and/or certification, current approved medical evaluation, and current fit test to participate in any form of activity related to abatement work including but not limited to preparation work, removal, decontamination, and tear-down.

3.0 GENERAL

3.1 Definitions and Terminology

Definitions and terminology used in this document are presented in Appendix F.

3.2 Applicable Regulations

Regulations that may be applicable to this project include, but not limited to, those administered by the USEPA, Ohio EPA, OSHA, Clark County, Ohio, and the Department of Transportation. Local regulations may apply and must be considered for this project. If there is a conflict between the requirements of with this specification, the more stringent requirement shall apply. A listing of several applicable regulations is presented below:

U.S. Department of Labor and OSHA, including but not limited to:

Occupational Exposure to Asbestos
Title 29, Part 1910, Section 1001 of the Code of Federal Regulations
Title 29, Part 1926, Section 1101 of the Code of Federal Regulations

Respiratory Protection
Title 29, Part 1910, Section 134 of the Code of Federal Regulations
Title 29, Part 1926, Section 103 of the Code of Federal Regulations

Personal Protective Equipment for General Industry
Title 29, Part 1910, Section 132 of the Code of Federal Regulations
Title 29, Part 1926, Sections 95 - 107 of the Code of Federal Regulations

Access to Employee Exposure and Medical Records
Title 29, Part 1926, Section 33 of the Code of Federal Regulations

Hazard Communication
Title 29, Part 1926, Section 59 of the Code of Federal Regulations

Specifications for Accident Prevention Signs and Tags
Title 29, Part 1910, Section 145 of the Code of Federal Regulations

Permit Required Confined Space
Title 29, Part 1910, Section 146 of the Code of Federal Regulations

Construction Industry - General Duty Standards
Title 29, Part 1926, Sections 20 through 35 of the Code of Federal Regulations

U. S. Department of Transportation (DOT), including but not limited to:

Hazardous Substances
Title 49, Part 171 and 172 of the Code of Federal Regulations

Hazardous Material Regulations, General Awareness and Training Requirements for Handlers, Loaders and Drivers and Editorial and Technical Revisions
Title 49, Parts 171-180 of the Code of Federal Regulations

U. S. Environmental Protection Agency (EPA), including but not limited to:

Asbestos Abatement Projects; Worker Protection Rule
Title 40, Part 763, Subpart G of the Code of Federal Regulations

Asbestos Hazard Emergency Response Act (AHERA) Regulation
Title 40, Part 763, Subpart E of the Code of Federal Regulations

EPA Model Accreditation Plan - Asbestos Containing Materials Final Rule Notice
Title 40, Part 763, Subpart E, Appendix C of the Code of Federal Regulations

National Emission Standard for Hazardous Air Pollutants (NESHAP) National Emission Standard for Asbestos
Title 40, Part 61, Subpart A, and Subpart M (Revised Subpart B) of the Code of Federal Regulations

Ohio EPA, including but not limited to:

Ohio Environmental Protection Agency's Asbestos Emissions Control
OAC 3745-20

Ohio Environmental Protection Agency's Asbestos Licensing Rules
OAC 3745-22

3.3 Exposure Assessments and Personnel Monitoring

The abatement contractor's competent person or other qualified representative shall conduct an initial exposure assessment [per 29 CFR 1926.1101(f)(2)(i) and (iii)] immediately before, or at the start of, the asbestos abatement operation. The initial exposure assessment must be completed (i.e., analyzed and reported) in time to comply with requirements triggered by exposure data or lack of a negative exposure assessment.

The initial exposure assessment shall be based on the evaluation of personal air monitoring data of employees and can include previous monitoring data of operations that indicate exposure levels likely to be encountered during specific work tasks on the project.

Worker exposures shall be assumed to be more than the OSHA PEL and EL until personal mentoring is conducted and/or a negative exposure assessment is established.

At a minimum, the abatement contractor's exposure monitoring schedule and sampling strategy for each distinct regulated area per facility shall be as follows: **NOTE:** OSHA regulations, directives, or local area office requirements shall dictate the exact number of air samples to be

collected daily based on the number of employees on-site performing different abatement activities.

Abatement Project Phase	When to Sample	Sample Type	Minimum # of Employees	Location
Preparation during pre-cleaning and preparation of regulated area if there is evidence of contamination from previous ACM disturbance.	Each day of operation	Personal	1 or 25%	Per regulated area
		Excursion	1 or 25%*	Per regulated area
Removal	Each day of operation	Personal	1 or 25%	Per regulated area
		Excursion	1 or 25%*	Per regulated area
Decontamination	Each day of operation	Personal	1 or 25%	Per regulated area
		Excursion	1 or 25%*	Per regulated area
NOTE*: Short-term excursion samples shall be also be collected in addition to TWA samples.				

The abatement contractor or his/her representative shall conduct personal and excursion monitoring, as specified in this section and required by 29 CRF 1926.1101(f) (OSHA), throughout the removal and decontamination phases of this project. Air monitoring shall be conducted to ensure compliance with OSHA regulations and to evaluate the adequacy of:

- The type of respiratory protection used by workers.
- Work practices and engineering controls
- Containment barriers and decontamination procedures.

At a minimum, the abatement contractor's air monitoring schedule and sampling strategy for each distinct regulated area shall be as follows:

- During preparation of regulated area sampling is at the discretion of the abatement contractor.
- During each day of removal and decontamination operations the abatement contractor shall perform at least the minimum required by OSHA.

All samples collected by the abatement contractor or his representative shall be submitted daily for analysis daily to a laboratory that participates in the NIOSH Proficiency Analytical Testing (PAT) Program. Completed sampling data sheets shall be submitted to the laboratory along with the filter cassettes. Sampling results shall be made available to employees within 24 hours of collection. Results shall be made available to the Owner or their designated representative upon request.

Additionally, the abatement contractor is responsible for any other applicable personal and excursion monitoring (e.g. lead, silica, etc.) required by OSHA.

3.4 Air Monitoring

The performance and execution of the work may be closely and continuously monitored at the through the use of environmental air monitoring or third-party observation and monitoring at the

discretion of the Owner or their designated representatives. Environmental air monitoring may be performed surrounding the regulated area to ensure full compliance with these work practices and all applicable regulations. The abatement contractor shall fully cooperation with and provide support to the Owner or their designated representatives throughout the abatement process.

The Owner or their designated representatives may include review of data from air samples from the workspace, personal samples at the breathing zone of a number of workers (as required by OSHA), air samples in the area surrounding the regulated area and the outside, checking of standard operating procedures, engineering control system, respiratory protection devices, transportation and disposal of asbestos materials, decontamination facilities and procedures, and any other aspects of the abatement process that may impact the health and safety of the people and the quality of the environment.

3.5 Submittals and Notices

The following submittals and notices will be made by the abatement contractor to the Owner or their designated representative during abatement activities:

1. Upon request, abatement contractor shall provide written job progress reports detailing abatement activities. This should include reviews of progress with respect to previously established schedules, major problems and actions taken, injury reports, equipment breakdown, bulk and air sampling results.
2. The abatement contractor shall submit copies of all transport manifests, trip tickets and disposal receipts for all asbestos waste materials removed from the regulated area during the abatement process.
3. The abatement contractor shall submit daily copies of worksite entry logbooks. This logbook shall be maintained in the clean-room area of the worker decontamination system. Anyone who enters the regulated area must record name, affiliation, time in, and time out for each entry.
4. The abatement contractor shall submit results of materials testing conducted during the abatement for purposes of utilization during abatement activities.
5. The abatement contractor shall have on-site Safety Data Sheets (SDS) on any encapsulants, amended water solutions, or other materials to be used. The material safety data sheets shall be kept on the job site at all times.
6. All landfill receipts for disposal of material relating to the project.
7. Any other submittals and/or notices as required by the Owner or their designated representative.

3.6 Worker Training, Certifications and Programs

In addition to the work practices and personal-protective equipment (PPE) required by OSHA for the asbestos abatement activities, site-specific PPE requirements include use of hard hats, steel-toed boots, safety vests, hand, arm, ear, and eye protections (safety glasses), as appropriate. The abatement contractor shall follow any additional PPE requirements of the Construction Manager.

The abatement contractor shall protect employees and building occupants against asbestos contamination and other workplace hazards through proper training, certifications and programs including but not limited to the following:

- AHERA Accreditation: All workers are to be accredited as abatement workers as required by the EPA Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C).
- State and Local License: All workers are to be trained, certified and accredited as required by state or local code or regulation.
- Training – OSHA Class I Work: Train in accordance with 29 CFR 1926.1101. Provide training for all workers who will perform Class I work that is the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C).
- Training – OSHA Class II Work for ACM Removed Intact: Provide training for workers who will be performing Class II work involving only the removal and/or disturbance of one generic category of building material, such as roofing materials, flooring materials, siding materials or cement asbestos panels; which includes as a minimum the specific work practices and engineering controls which specifically relate to that category. Provide a course that includes "hands-on" training and takes at least 8 hours. Provide training that includes the elements set forth in 29 CFR 1926.1101(k) and the Compliance Directive CPL 2-2.63.
- Training – OSHA Class II Work for ACM Removed Not Intact: Provide training for workers who will be performing Class II work on materials that are not intact, or will not remain intact during the work that is the equivalent in curriculum, training method and length to the EPA Interim Final Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C).
- Provide a medical surveillance program for all employees as specified in the OSHA standard (29 CFR 1926.1101).
- Provide a medical surveillance program and physician's opinion before a respirator is assigned to a worker as required by 29 CFR 1910.134 and 29 CFR 1926.103(e) (10).
- Provide medical examination that as a minimum meets OSHA requirements as set forth in 29 CFR 1926.1101.
- Provide the most current EPA Lead-Safe Certified Firm Certification and certificates of completion for workers and supervisors who will work on this project.

3.7 Personal Protective Equipment

The abatement contractor will instruct and train each worker involved in asbestos abatement, maintenance and/or repair of ACM in proper respiratory protection, and require that each worker always wear a respirator, which is properly fitted on the face, in the regulated area from the start of any operation which may cause airborne asbestos fibers. Use respiratory protection appropriate for the fiber concentration encountered in the work place, or as required for other toxic or oxygen-deficient situations encountered.

Except to the extent that more stringent requirements are written directly into this asbestos abatement specification, the latest edition of the following regulations and standards have the

same force and effect as if copied directly into this asbestos abatement specification. Where there is a conflict in requirements set forth in these regulations and standards, the abatement contractor must meet the more stringent requirement.

- OSHA - U.S. Department of Labor Occupational Safety and Health Administration, Safety and Health Standards Section 29 CFR 1910.1001, Section 1910.134, and Section 29 CFR 1926.1101.

- CGA - Compressed Gas Association, Inc., New York, Pamphlet G-7, "Compressed Air for Human Respiration", and Specification G-7.1 "Commodity Specification for Air."

- CSA - Canadian Standard Association, Rexdal, Ontario, Standard Z180.1, "Compressed Breathing Air."

- ANSI - American National Standard Practices for Respiratory Protection, ANSI Z88.2.

- National Institute for Occupational Safety and Health (NIOSH) - Respirator Decision Logic (May 1987) DHHS/NIOSH Publication No. 87-108.

- NIOSH/EPA, A Guide to Respiratory Protection for the Asbestos Abatement Industry EPA-560-OPTS-86-001 (September 1986).

- 42 CFR 84, NIOSH Standard for Certification of Non-Powered Air Purifying Respirator filters.

- 30 CFR 11, NIOSH - Certification of Respirators.

- MSHA - Mine Safety and Health Administration.

Full-face (tight-fitting) powered-air purifying respirators (PAPRs) are required for all OSHA Class I asbestos work and for OSHA Class II work where the ACM is not removed substantially intact or performed without a negative exposure assessment. If the abatement contractor provides documentation that demonstrates a negative exposure assessment in accordance with 29 CFR 1926.1101 (f)(2)(iii), then PAPRs will not be required for OSHA Class II work. At a minimum, after demonstration of a negative exposure assessment, all workers performing OSHA Class II asbestos abatement activities within the regulated area shall wear properly fitted, full-face or half-mask air-purifying respirators equipped with high-efficiency filter cartridges provided that representative personal exposure levels are maintained below 1.0 fiber/cubic centimeter (f/cc) as a TWA (10 x PEL). Single-use or reusable disposable respirators are not acceptable and shall not be used on this project. Sufficient HEPA filter cartridges for replacement shall be provided as required by the worker, applicable regulations, or as bound into this specification. The class of asbestos work performed and prevalent airborne fiber concentrations in the breathing zones of abatement workers shall govern the type of respiratory protection selected by the employer and worn by workers [per 29 CFR 1926.1101(h)].

If prevalent airborne fiber concentrations inside any asbestos regulated area exceed 1.0 f/cc (i.e., 10 times the TWA PEL), the abatement contractor shall stop work and implement one of the following:

- Improve engineering and work practice controls (increase negative pressure, local exhaust ventilation, better wet methods, prompt containment of asbestos waste

materials, etc.) to effectively reduce and maintain airborne fiber levels to less than the PELs.

- Use full-face, Type "C" air-supplied respirators in positive pressure (constant flow) or pressure demand modes. All air hose connections shall be equipped with a HEPA-filtered disconnect system in the event of compressor failure or the exhaustion of air in the reserve tanks. At the minimum, Type "C" air supply shall provide the following:
    - A continuous sufficient supply of air.
    - Supplied air that meets Grade D requirements as specified by Compressed Gas Association.
    - An adequate volume of air to allow for escape from the regulated area.
    - Worker comfort and safety.
    - NIOSH-approved respirators and supply hoses.

Compressed air systems shall be designed to provide air volumes and pressures to accommodate respirator manufacturer's specifications. Only compressed Grade D breathing air in cylinders or breathing air compressors shall be used and compressors may be either fuel or electric powered; however, electric powered compressors are preferred. The compressor shall also be equipped with in-line air purifying sorbent beds and filters that remove moisture, odors, oils, hydrocarbons, heat, and carbon monoxide. The compressor shall be equipped with a carbon monoxide monitor and shall be checked daily and as specified by the manufacturer. The carbon monoxide monitor should be equipped with a visible and audible alarm to alert the operator of a high carbon monoxide level in the supply air. The compressed air system shall also be equipped with a reserve tank or reservoir. The volume of air in the reserve tank should provide for adequate escape time for employees in the regulated area. All Type "C" airline respiratory equipment shall be approved as an entire unit by NIOSH. This includes the respirator face piece, regulator, and airline. Any alterations of the respirator or subcomponents are strictly forbidden and void any approval by NIOSH.

Protective Clothing

Workers shall be provided with sufficient sets of protective full body clothing per OSHA Standard 29 CFR 1926.1101(i). Such clothing shall consist of full-body coveralls and headgear. Eye protection and hard hats shall be provided as required by applicable safety regulations and on-site assessment of hazards. Non-disposable protective clothing and footwear shall be left in the contaminated equipment room until the end of the asbestos hazard abatement work, at which time such items shall be disposed of as asbestos waste, or shall be thoroughly cleaned of all asbestos or ACM. Disposable protective clothing, headgear, and footwear shall be provided by the abatement contractor and at no expense to the employee.

Visitor Protection

Whenever requested, the abatement contractor shall provide authorized visitors, including the Building Owners designated representatives (e.g., environmental consultant) with new protective clothing and eye protection whenever they are required to enter the regulated area, to a maximum of three sets per day.

3.8 Protection Procedures

The abatement contractor shall provide and post, in the equipment room and the clean room, the following decontamination and work procedures for workers and visitors:

a) Each worker and authorized visitor shall, upon entering the jobsite: remove street clothes in the clean change room and don a respirator with new filters and clean protective clothing before entering into the equipment room or the regulated area; except workers that intend to re-wear contaminated protective clothing stored in the equipment room which shall enter the equipment room wearing only respirators.

b) Each worker and authorized visitor shall each time he/she leaves the regulated area: remove gross contamination from clothing before exiting the regulated area; proceed to the equipment room and remove all clothing except the respirator; still wearing the respirator, proceed naked to the showers; clean the outside of the respirator with soap and water while showering; remove the respirator; thoroughly shampoo and wash himself/herself; if the filters require replacement, remove filters, wet them, and dispose of them in the container provided for the purpose; and wash and rinse the inside of the respirator.

c) Following showering and drying off, each worker and authorized visitor shall proceed directly to the clean change room and dress in clean clothes at the end of each day's work, or before eating or drinking. Before re-entering the regulated area from the clean change room, each worker and authorized visitor shall don a clean respirator with filters and shall dress in clean protective clothing; except workers that intend to re-wear contaminated protective clothing stored in the equipment room shall enter the equipment room wearing only respirators.

d) Contaminated work footwear shall be stored in the equipment room when not in use in the regulated area. After the asbestos hazard abatement process is completed, footwear shall be disposed of as contaminated waste or cleaned thoroughly inside and out with soap and water before being removed from the regulated area or from the equipment and access area. Contaminated protective clothing shall be stored in the equipment room or reuse or placed in receptacles for disposal with other asbestos-contaminated materials.

e) Workers removing waste containers from the equipment decontamination enclosure shall enter the holding area from outside wearing a respirator and dressed in clean coveralls. Workers shall not use this system as a means to exit or enter the washroom or the regulated area.

f) Workers shall not eat, drink or chew gum/tobacco at the regulated area except in the established clean room, designated lunch/break area, or outside the facility. Smoking shall not be permitted at any time inside of the facility.

g) All OSHA exposure monitoring shall be conducted in accordance with section 3.3 of this specification during all phases of preparation, removal and decontamination at each regulated area.

h) Workers shall be fully protected with respirators and protective clothing prior to the first disturbance of asbestos-containing or contaminated material, and until final cleanup is completed and approved.

3.9 Equipment Removal Procedures

The abatement contractor will clean external surfaces of contaminated containers and equipment thoroughly by wet wiping with cloths, sponges, or brushes, wet mopping, or using a HEPA-filtered vacuum before moving such items into the equipment decontamination enclosure

system washroom for final cleaning and removal to uncontaminated areas. Personnel shall not exit regulated areas through the equipment decontamination enclosure system.

3.10 Site Security and Emergency Precautions

The abatement contractor is responsible for the security of their respective regulated areas, equipment, tool/supplies storage, and workers.

All persons entering the Project Site must have criminal clearance prior to entering the Project Site and must display the BCII compliance label on their hard hat at all times. Failure to display this label will result in the immediate expulsion from the Project Site. Documentation of BCII compliance is required as part of the Post-Bid Submittals as detailed in Section 2.7.

The abatement contractor shall establish emergency and fire exits from the regulated area in accordance with all applicable regulations and the Site-Safety Plan.

The abatement contractor shall be responsible for providing a minimum of one portable ABC fire extinguisher for each 3,000 square feet of containment area in accordance with 29 CFR 1926.150. Travel distance from any point inside of the regulated area to the nearest fire extinguisher shall not exceed 100 feet. **NOTE:** Substitution of a fire extinguisher with a half-inch garden hose not exceeding 100 feet in length shall be permitted provided the number of hoses is equivalent to the required number of fire extinguishers.

Phone numbers for local medical emergency personnel should be obtained prior to commencement of abatement activities, included in the Site-Safety Plan, and posted to facilitate emergency notifications.

Employees shall be trained in evacuation procedures in the event of regulated area emergencies.

- For non-life-threatening situations, employees injured or otherwise incapacitated shall decontaminate themselves following normal procedures with assistance from fellow workers, if necessary, before exiting the regulated area to obtain proper medical treatment. If through decontamination of the victim cannot occur, the abatement contractor shall notify immediately notify emergency responders upon their arrival of potential contamination concerns.
- For life-threatening injury, worker decontamination shall take least priority after measures to stabilize the injured worker, remove him from the regulated area, and secure proper medical treatment.
- Before the abatement contractor starts abatement activities, the Owner's designated site manager, building contact, or other designated building occupants should be informed of the danger of entering a contaminated regulated area. The abatement contractor shall make every effort to help security and other agencies (i.e., local police and fire departments, local hospitals, etc.) from plans of action should their personnel need to enter regulated areas and to assist during emergencies.

Each regulated area shall have the telephone numbers of all emergency response personnel prominently posted in the clean/ change room outside the worker decontamination enclosure system along with location of the nearest telephone.

The abatement contractor shall post adequate warning signs at each entrance to the regulated area and at the waste disposal receptacle or vehicle (during loading and unloading) as required by EPA and OSHA.

The abatement contractor shall maintain a daily sign-in sheet for all asbestos workers and supervisor employed or subcontracted by the abatement contractor and a separate sign-in sheet for all authorized visitors at each regulated area. The abatement contractor shall report entry into the regulated area by any unauthorized individuals immediately to the Owner or their designated representative.

Unless contract obligations differ or directed otherwise by the Owner or their designated representative, the abatement contractor shall be responsible for site security within each regulated area and throughout the building for the duration of all asbestos hazard abatement activities, during both working and non-working hours in order to protect work efforts and equipment.

The abatement contractor shall have the Building Owner's assistance in notifying building occupants of impending asbestos hazard abatement activity and enforcement of restricted access by Building Owner's employees, visitors and/or contractors.

3.11 Workplace Entry and Exit Procedures

The following requirements pertain to the entry and exiting of each regulated area.

Personnel entry and exit

- All workers and authorized personnel shall enter the regulated area through the worker decontamination enclosure system.
- All visitors who enter the regulated area must sign the entry log, located in the clean room, upon entry and exit.
- All personnel, before entering the regulated area, shall read and be familiar with all posted regulations, personal protection requirements (including workplace entry and exit procedures) and emergency procedures. A sign-off sheet shall be used to acknowledge that these have been reviewed and understood by all personnel prior to entry.
- All personnel entering a regulated area shall proceed first to the clean room, remove all street clothes' and appropriately dress in respiratory protection (as deemed adequate for the job conditions) and launderable and/or disposable coveralls, head covering and foot covering. Hard hats, eye protection and gloves shall also be utilized if required. Clean respirators and protective clothing shall be provided and utilized by each person for each separate entry into the regulated area.
- Personnel wearing designated personal protective equipment shall proceed from the clean room through the shower room and equipment room to the regulated area.
- Before leaving the regulated area, all personnel exiting shall remove gross contamination from the outside of respirators and protective clothing by brushing and/or wet wiping procedures. (Small HEPA vacuums with brush attachments may be utilized for this purpose; however, larger machines may tear the suits.)

- Personnel exiting the regulated area shall proceed to equipment room where they remove all protective equipment except respirators. The disposable (and launderable) clothing should be deposited into appropriately labeled containers.
- Reusable, contaminated footwear shall be stored in the equipment room when not in use in the regulated area. Upon completion of abatement, it shall be disposed of as asbestos contaminated waste. (Rubber boots may be decontaminated at the completion of the abatement for reuse.)
- Personnel still wearing respirators exiting the regulated area shall proceed to the shower, clean the outside of the respirators and the exposed face area under running water prior to removal of respirator and shower and shampoo to remove residual asbestos contamination. Various types of respirators will require slight modification of these procedures. An airline respirator with HEPA-filtered disconnect protection may be disconnected from the filter/power pack assembly which is not waterproof, upon entering the shower. Cartridges must be in place for each new entry into the regulated area.
- After showering and drying off, personnel exiting shall proceed to the clean room and wear clean disposable (and/or launderable) clothing if there will be later re-entry into the regulated area or street clothes if it is the end of the work shift.
- All of the above procedures shall be posted in the clean room and equipment room.

Waste container pass-out procedures

- Asbestos-contaminated waste that has been bagged or bagged and drummed, and other waste materials shall be transported out of the regulated area through the waste container pass-out area.
- Waste pass-out procedures shall utilize two teams of workers, an "inside" team and an "outside" team.
- The inside team wearing appropriate protective clothing and respirators for inside the regulated area shall clean the outside, including bottoms, of containers (bags, drums, or wrapped components) using HEPA vacuums and wet wiping techniques, and transport them into the waste container pass-out area. No worker from the inside team shall exit the regulated area through the pass-out area.
- The outside team, wearing protective clothing and appropriately assigned respirators, shall enter the pass-out area from outside the regulated area, enclose the single-bagged material in clean, labeled, 6-mil polyethylene bags and remove them and other waste materials from the pass-out areas to the outside. No worker from the outside team shall further enter the regulated area through the pass-out area.
- The exits from the pass-out area shall be secured to prevent unauthorized entry.

3.12 Parking

There shall be a designated parking space for abatement contractor's vehicles near the building for the use of transportation of materials and asbestos waste. The abatement contractor's employees' vehicles shall be permitted to park in locations approved by the Owner or their designated representatives. The temporary location of roll-off boxes or other waste containers

near the building for ACM waste materials shall be approved by the Owner or their designated representatives before boxes are delivered to the site.

3.13 Utilities

The abatement contractor will be permitted to use the available electrical, water and sanitary sewer utilities at the Project Site.

Temporary Water Service Connection - All connections to the Owner's water system shall include backflow protection. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered.

Water Hoses - Employ heavy duty, abrasion resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each regulated area. Provide fittings as required to allow for connections.

Hot Water Heater - If hot water is not available at the building, provide at least one (1) UL rated 20-gallon electric hot water heater to supply hot water for the regulated area isolation structure. Provide with relief valve compatible with water heater operation; pipe relief valve down to drip pan on floor with type L copper. Wiring of the hot water heater shall be in compliance with NEMA, NECA, and UL standards.

Electrical Service - Comply with applicable NEMA, NECA, and UL standards and governing regulations for materials and layout of temporary electrical service. NOTE: All modifications and/or connections made to the Owner's electrical system shall be performed by a certified electrician at the consent of the Owner of their designated representative.

Lockout - Lockout all existing power to or through the regulated area as described below. Unless specifically noted otherwise existing power and lighting circuits to the regulated area are not to be used. All power and lighting to the regulated area and decontamination facilities are to be provided from temporary electrical panel. Lockout power to circuits running through the regulated area where feasible by switching off all breakers servicing these circuits. Label the breakers with tape over breaker with notation "DANGER – circuit being worked on". Sign and date the danger tag. Lock panel and have keys under the sole control of electrician and supervisor. If circuits cannot be shut down for any reason, label energized power and lighting circuits, and equipment with tags reading "DANGER - live electric Electrocution Hazard".

Electrical Distribution System - Temporary electric panels equipped with ground fault circuit interrupters (GFCIs) shall be installed outside of the enclosed regulated areas with sufficient circuits to support all AFDs, lighting, electric tools, and air sampling equipment inside and outside of the enclosed regulated area. All temporary electrical power shall comply with the requirements of the National Electric Code for Wet Environments. Provide only UF non-metallic sheathed cable.

Electric Tools - Electrical tools and equipment shall meet all applicable codes and regulations. GFCIs shall be used at all times for electrical equipment.

Electrical Power Cords - Use only grounded extension cords; use "hard service" cords where exposed to abrasion and traffic. Use single lengths or use waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas of work.

Lamps and Light Fixtures - Provide general service LED, incandescent, or halogen lamps of wattage indicated or required for adequate illumination. Protect lamps with guard cages or tempered glass enclosures. Provide lighting fixtures suitable for wet environments.

Temporary Lighting - Where natural lighting does not meet the required light level, provide one (1) 200-watt halogen light, or equivalent per every 500 square feet of floor area. In stairways and at ladder runs, provide one 100-watt incandescent lamp, or equivalent per story, located so as to illuminate each landing and flight. Provide sufficient temporary lighting to ensure proper workmanship; by combined use of daylight, general lighting, and portable plug-in task lighting.

3.14 Job Site Postings

The abatement contractor shall have available on the job site, and as required by law readily visible, the following documents including but not limited to:

- Current EPA NESHAP 10-day notification. The notification must be completely up to date reflecting the correct supervisor's name quantities of materials to be removed and work days and times.
- Current Ohio EPA 10-day notification. The notification must be completely up to date reflecting the correct supervisor's name, quantities of materials to be removed and work days and times.
- Copy of the Ohio EPA Project Agreement signed by the Construction Manager and abatement contractor.
- Current state of Ohio workers compensation certificate.
- Federal and state wage laws.
- Local emergency telephone numbers.
- Personal air sample data results collected during the project.

3.15 Authority to Stop Work

The Owner or their designated representatives shall have the authority to stop the abatement work at any time that they determine that conditions are not within the requirements of the specifications and applicable regulations. The stoppage of work shall continue until conditions causing the work stoppage have been corrected or corrective steps have been taken to the satisfaction of the Owner or their designated representatives. The time and costs required for the corrective actions shall be borne by the abatement contractor.

DET is not currently contracted to provide third-party monitoring of abatement activities; therefore, DET does not and will not accept the authority to stop any activity of the abatement contractor. In the event that DET is contracted to provide third-party monitoring of abatement activities, DET reserves the right to stop work in only the specific circumstances listed below. The occurrence of the following events shall require the abatement contractor to immediately stop asbestos removal and initiate corrective actions:

- Break in either the primary or secondary containment barriers or glove bag containment breaches.
- Serious worker injury within the containment area which necessitates interruption the normal decontamination procedures.

- Presence of a fire or safety emergency.
- Respiratory protection system failure.
- Electrical power failure.

3.16 Special Conditions

The following special conditions will apply for this project:

- The Abatement contractor shall assume full responsibility and liability for compliance with all applicable federal, state and local regulations related to any and all aspects of the abatement project, regardless of what is stated in this document. The abatement contractor is responsible for providing and maintaining training, accreditations, medical exams, medical records, personal protective equipment as required by applicable federal, state and local regulations. The abatement contractor shall hold harmless the Owner and their designated representatives, for any Abatement contractor's failure to comply with any applicable Work, packaging, transporting, disposal, safety, health, or environmental requirement on the part of himself, his employees, or his subcontractors. The abatement contractor will incur all costs of all sampling/analytical costs to assure compliance with OSHA/EPA/State requirements related to failure to comply with the regulations applicable to the Work.

- The abatement contractor shall secure, pay for, and maintain in full force and effect until no longer than necessary, all licenses, regulatory notifications, permits and permissions required by federal and state law, city ordinance statute, or regulations and any rules or regulations of any service company that may assert control of any operation under this contract. Copies of the above shall be filed prior to commencement of work.
- The contract to which the Owner or their designated representatives shall be a party shall contain a provision prohibiting the other party to the contract and his subcontractors from engaging in any employment practice that constitutes a discrimination against a person because of that person's race, sex, color, religion, national origin, ancestry, or other protected group.
- The abatement contractor shall maintain an on-site gang box which he/she or his/her authorized agent shall man each workday. Copies of permits specifications marked up to date with all revisions and required regulations shall be kept in said gang box ready for use at any times. The gang box shall have (at all times) a fully stocked first aid cabinet available for use for the abatement contractor's employees.
- In performing the contract, the abatement contractor may utilize the electric, water, and sanitary sewer service of the Owner. The abatement contractor shall be responsible for the safe conveyance of water and electricity to the project areas and for any resulting damage from such conveyance. All sources of water and electricity conveyance shall be subject to the Owner's and/or or their designated representative's approval.
- The abatement contractor is required to staff the project with at least one (1) Ohio EPA-certified Asbestos Hazard Abatement Specialist to act in the supervisory capacity and as the OSHA competent person per 29 CFR 1926.1101(O). The supervisor/competent person must be onsite at all times during the project. All other workers must be certified, at a minimum as an Ohio EPA-certified Asbestos Worker. Certification cards must be onsite at all times.

- Prior to initiation of abatement activities, all workers must possess valid medical examination results from a licensed physician stating that the worker is capable of performing asbestos abatement. (i.e., wearing a respirator) and valid fit test results from within the past twelve (12) months for the respirator being worn by the worker.
- The abatement contractor is responsible for security of the regulated area and preventing unauthorized entry. The abatement contractor shall restrict access to abatement contractor personnel directly involved with the work, authorized Building Owner's representative, their representatives, and regulatory inspectors legally entitled to inspect the work.
- All of the abatement contractor's employees shall abide by federal, state, and local laws and by the Owner and their designated representative's policies while on the premises.
- All of the abatement contractor's employees are restricted to those areas of the building and property directly included in the project. Entry to all other areas is prohibited. Any employee whose conduct is judged unfit by the Owner or their designated representatives shall not be permitted to work on this project.
- The abatement contractor shall not park in designated fire lanes or obstruct fire hydrants. The abatement contractor shall keep all driveways, entrances serving the facility, and loading docks clear and available to the Owner at all times. Location(s) of waste storage/transport receptacles shall be coordinated and approved of by the Owner or their designated representatives.
- The abatement contractor shall not encumber the site with materials or equipment, and shall confine stockpiling of materials to the respective regulated area. Storage of materials in public accesses and hallways shall not be permitted.
- No other contractor shall be permitted to execute their work in the regulated areas until the asbestos hazard abatement work is completed.
- If the abatement contractor uses leased or rented vehicles and/or equipment that will come into contact with asbestos during any portion of the abatement project (e.g., transportation of asbestos-containing waste, use within a regulated area, etc.) a signed statement from the lease/rental company must be submitted to the Owner stating that the company is aware that their vehicle and/or equipment is being used to transport asbestos-containing waste. All carriers transporting asbestos-containing waste shall be lined with two layers of 6-mil polyethylene plastic. All workers involved in asbestos load-out activities shall wear half-face respirators with NIOSH/MSHA approved HEPA filters and protective clothing. A copy of the signed statement from the lease/rental company shall be included in the final closeout submittals provided to the Owner or their designated representative.
- Complete waste disposal documentation must be submitted to the Owner or their designated representative after landfill receipt. Documentation must show date/time waste left job site to date/time waste was disposed of at the landfill identified on the EPA notification. Any layovers between leaving the job site (i.e., stored on the abatement contractor's property, etc.) and disposal date must be documented as well.
- The Owner and their designated representatives reserve the rights and conditions to release the abatement contractor for any reason, which in the judgment of the Owner adversely affects the Substantial Completion Date and/or the health and safety of the building occupants.

- The abatement contractor is responsible for submitting a final report to the Owner or their designated representative within thirty calendar days from the time of substantial completion.
- Abatement contractor must prove that all workers are U.S. citizens or that workers have a valid visa.
- In the event the abatement contractor utilizes non-English speaking workers, all required warning signs, hazard communications, etc., must be written in the language of the non-English speaking worker. At a minimum, one worker per work crew and/or work shift must speak English in order to communicate effectively with the Owner and their designated representatives and/or emergency response personnel.
- The Owner or their designated representatives reserve the right to contract with DET to provide the following services during this abatement project, including, but not limited to, the following:
    a) Review of Pre-construction submittals
    b) Final walkthrough to assesses the completion of work
    c) Review of post-project submittals

4.0 WORK TO BE PERFORMED

4.1 Scope of Work

This project involves the proper removal, handling, and disposal of ACM in accordance with federal, state and local regulations, and the incorporated abatement specifications herein.

ACM scheduled to be removed by the abatement contractor is presented in Table 2 below. Plans depicting the general layout of the building are presented in Appendix H.

Table 2
Asbestos-Containing Materials Scheduled for Removal
Clark County Family Services
Renovations to Visitation Building

Asbestos-Containing Materials Scheduled for Removal and Disposal			
Description of Material	Location(s)	NESHAP Category	Quantity (See Note 1)
Non-ACM Gray Vinyl Plank Flooring with Clear Mastic over Non-ACM Tan Floor Tile with ACM Black Mastic, and Assumed ACM Floor Fillers, if Present	Flooring Throughout the Building Excluding the Boiler and Mechanical Rooms	Category II Non-Friable	2,945 Square Feet
Caulk Associated with Interior Door Frames (Between Steel Frame and Concrete Block Walls). For Purposes of this Item, All Caulk Shall be Treated as ACM Regardless of Color	Interior Door Frames Throughout the Building	Category II Non-Friable	13 Square Feet or 16 Door Frames (Both Sides)
Caulk/Sealant Associated with Seams of Masonry Ledge Under Windows Around the Entire Perimeter of the Building. For Purposes of this Item, All Caulk Shall be Treated as ACM Regardless of Color	Entire Exterior Perimeter of Building	Category II Non-Friable	5 Square Feet
Caulk Associated with Old Window (Around Frames, Sill, and Lintels). For Purposes of this Item, All Caulk Shall be Treated as ACM Regardless of Color	Public Restroom Window	Category II Non-Friable	1 Square Foot or 1 Window Opening
ACM Brown Mastic Associated with Non-ACM 12" x 12" Acoustical Ceiling Tile	Appeasers to be the Original Ceiling Tile Throughout the Building. It is Assumed that this Mastic Also Remains Above Newer Ceiling Tiles (HA ID 9)	Category II Non-Friable	1,960 Square Feet
Caulking Associated with Entrance Door Frames and Lintels. For Purposes of this Item, All Caulk Shall be Treated as ACM Regardless of Color	All Entrance Doors to Building and Boiler Room	Category II Non-Friable	10 Square Feet or 5 Door Frames (Both Sides)
Boiler Flue (Including but Not Limited to Sealants and Insulation	Boiler Room, Attic, and Roof	RACM	10 Linear Feet
Hot Water Heater Flue (Including but Not Limited to Sealants and Insulation	Mechanical Room, Attic, and Roof	RACM	10 Linear Feet
Fire-Rated Doors, Including but Not Limited to Insulation and Gasket	Boiler Room and Mechanical Room	Category II Non-Friable	50 Square Feet or 2 Door Slabs

Asbestos-Containing Materials Scheduled for Removal and Disposal			
Description of Material	Location(s)	NESHAP Category	Quantity (See Note 1)
Internal Boiler Components, Including but Not Limited to Gaskets, Chinking, Insulation, Sealants and Bricks)	Boiler Room	RACM	Assumed 25 Square Feet

[1] All quantities and locations are approximate. The abatement contractor is responsible for field-verifying and confirming the actual quantities and locations of ACM prior to submitting bids and performing the work.

4.2 Additional Considerations and Work

If during the course of the abatement activities of materials listed in Table 2, the abatement contractor causes other materials not listed in Table 2 to become contaminated and/or impacted by identified ACM and or any water used during asbestos abatement activities, the abatement contractor shall be responsible for the decontamination of the contaminated and/or impacted material. If decontamination of the contaminated and/or impacted material is not possible (e.g. carpet, soil, wood, etc.) then the abatement contractor shall be responsible for the removal and disposal of the material. The contactor is responsible for all costs incurred by this paragraph.

The abatement contractor will assume the building in “As Is” condition; therefore, moving any and all furniture, equipment, fixtures, etc. necessary for abatement activities will be the abatement contractor’s responsibility. This will not be cause for a change order.

This facility is considered a child-occupied building. Due to the building’s age, all existing paints shall be presumed to be lead-based paint. Any contractor who disturbs lead-based paint during the project must be certified by the EPA as a Lead-safe renovation contractor and perform work in accordance with the Renovation, Repair, and Painting (RRP) rules. All contractors shall perform all work in accordance with OSHA’s Lead in Construction Standard 1926.62.

4.3 Regulated Area Preparation

Prepare each regulated area in the following order:

1. As necessary, the abatement contractor shall provide temporary power and lighting, and ensure safe installation of temporary power services and equipment, as specified in applicable electrical code requirements. Provide ground-fault interrupt circuits at a power source for electrical equipment. The Owner’s licensed electricians, or an appointed representative, reserve the right to inspect, and require modifications of, any power and lighting established by the abatement contractor. The abatement contractor shall not deliver, or hook-up, faulty electrical panels for use on this project.
2. Shut down and isolate heating, cooling, and ventilating air systems such as, but not limited to, fans, air handlers, and unit ventilators to prevent contamination of the units and fiber dispersion to other areas of the structure. Seal all electrical components and equipment tightly to prevent moisture or water damage. During the work, vents within the regulated area shall be sealed with tape and 6-mil plastic sheeting.
3. The abatement contractor shall be responsible for the removal and decontamination of any movable equipment that may be contaminated.

4. Install HEPA-filtered air-filtration devices in the regulated area and vent exhaust ducts through openings to the outside of the facility. Seal openings around exhaust ducts. No exhaust from the air-filtration devices shall be allowed to be discharged within the building, unless specified in Section 4.4.

5. Introduce scaffolding, ladders, and other large equipment into the regulated area and install the worker and equipment decontamination enclosure systems. Once the decontamination enclosure systems are in place, they shall be used as specified for the entrance and exit of all personnel and equipment.

6. Seal off all openings (including but not limited to corridors, doorways, windows, skylight, ducts, diffusers, and any other penetrations of the regulated area) with plywood and/or 6-mil plastic sheeting sealed with tape. Doorways and corridors that will not be used for passage during work shall be sealed with plastic barriers.

7. Pre-clean contaminated movable objects (such as desks and chairs, etc.) within the regulated area using HEPA-filtered vacuums and wet cleaning methods. Remove the decontaminated furniture from the regulated area and store in an uncontaminated area of the facility or as directed by the Owner.

8. Pre-clean fixed objects within the proposed regulated area (such as but not limited to shelving, bookcases, hot water heaters, pumps, radiators, unit ventilators, fans, ductwork, and motors) using HEPA-filtered vacuums and/or wet cleaning methods as appropriate, and enclose with 4-mil (minimum) plastic sheeting sealed with tape.

9. Remove and wet wipe and/or HEPA vacuum ceiling mounted objects (such as lights, speakers, and other items not previously sealed off) that could interfere with asbestos hazard abatement activities. Any item remaining in the regulated area shall be enclosed with 6-mil plastic sheeting sealed with tape.

10. For OSHA Class I work, cover all floors with a minimum of two layers of 6-mil plastic sheeting sealed with tape. Cover floors with plastic extending at least 12 inches up on all walls. Cover all walls with a minimum of one layer of 6-mil plastic sheeting and overlap floors sheeting by at least 24 inches. Install a 6-mil poly drop cloth in all regulated areas undergoing asbestos abatement, including glovebag regulated areas. In addition, drop cloths with a minimum thickness of 6-mil shall be installed in all staging areas and commonly traveled areas. Seal all joints with tape and/or spray adhesive. Location and methods of attachment of plastic sheeting to finished surfaces shall be approved by the Owner of their designated representatives in advance.

11. Floor drains shall be blocked and covered during ACM removal and cleanup to prevent discharge of asbestos to the sewer system. The floor drains may be reopened after all ACM and visible debris is removed, cleanup is complete.

Waste containers may be placed anywhere onsite as authorized by the Owner or their designated representatives, but must be labeled and secured pursuant to applicable NESHAP, OSHA, and/or DOT regulations. **Use of open-top waste containers shall not be permitted for storage or transportation of any type of ACM waste.**

4.4 Asbestos Removal Procedures

This project will include the removal of the ACM in accordance with the work practices specified in the OSHA Asbestos in Construction Standard 29 CFR 1926.1101. and will comply with all other applicable AHERA, NESHAP, OSHA, Ohio EPA, and DOT regulations.

For locations with more than one type of ACM being abated, use of the more stringent work class and engineering controls are required. Regulated areas shall be grouped as appropriate to minimize clearance activities (visual and air sampling), if any are performed.

Work practices and engineering controls for the removal of **boiler insulation, fire bricks, and similar items** in the building using **gross removal techniques** are to be completed in accordance with OSHA Class I work practices in accordance with 29 CFR 1926.1101 as required at a minimum and include but not limited to:

1. All work to be supervised by a competent person.
2. Establish regulated area by installing asbestos hazard warning signs and limiting access.
3. Two layers of impermeable 6-mil polyethylene sheeting shall be placed on the floor and surfaces of the regulated area sufficient to establish the required negative pressure enclosure.
4. Install critical barriers over all openings to the regulated area and three-stage decontamination/air-lock unit including a shower.
5. At least one inspection port is needed between four and six feet from the floor that allows for a clear view of as much of the asbestos removal regulated area as possible without requiring entry to the regulated area. Multiple inspection ports must be used when necessary.
6. Utilize HEPA air-filtration device(s) in the regulated area to create a negative pressure enclosure with a minimum of four air changes per hour and achieve a minimum of -0.02 column inches of water pressure differential, relative to outside pressure. A calibrated manometer with recording capabilities and an alarm shall be utilized to document the regulated area remains under negative pressure throughout its use.
7. The HEPA air-filtration devices must be vented to the exterior of the building. Measures should be taken to ensure that the building remains secure (e.g., vent hoses through plywood board in window rather than polyethylene sheeting).
8. Prior to initiating removal of asbestos, abatement contractor will inspect the enclosure for breaches, will smoke-test for leaks, and will verify that a sustainable pressure differential is established. Any identified leaks are to be sealed by the abatement contractor.
9. Use of high-speed abrasive disc saws, compressed air, and dry clean-up activities (e.g., sweeping, shoveling) is prohibited. The insulation is to be thoroughly wetted with amended water prior to and during removal and removed as intact as possible.
10. Prompt clean-up and disposal of wastes and debris with asbestos in leak tight containers. Vacuums equipped with HEPA filters shall be used to collect debris and dust.
11. Double bag and “goose neck” waste in 6-mil bags. Attach asbestos warning labels to bags. Wet wipe all bags prior to removing from regulated area.
12. Wet wipe to clean surfaces on and around abated area; use HEPA-vacuum when applicable. Following a satisfactory visual inspection by supervisor after the initial cleaning, remove the inner layer of plastic sheeting and inspect for dust and debris on the remaining layer of plastic sheeting. Wet wipe areas containing duct and debris. DET will conduct a visual clearance inspection of the regulated area following the removal of the inner plastic sheeting, and cleaning if necessary. Polyethylene sheeting used in the regulated area should be treated as asbestos-containing waste.
13. Transport and dispose of ACM in accordance with this specification, DOT and NESHAP requirements.

Work practices and engineering controls for the removal **boiler insulation, gaskets, and similar items** in the building using **glove bag and/or wrap-and-cut techniques** are to be completed in accordance with OSHA Class I work practices in accordance with 29 CFR 1926.1101 as required at a minimum and include but not limited to:

1. All work to be supervised by a competent person. A minimum of two persons are required for OSHA Class I glovebag and/or wrap-and-cut removal operations.
2. Establish regulated area by installing asbestos hazard warning signs and limiting access.
3. Impermeable drop cloths shall be placed on surfaces under removal activity.
4. Install critical barriers over all openings to the regulated area.
5. The regulated area shall be ventilated with an air-filtration device with HEPA filters. The air-filtration devices should be vented to the outside of the building, if possible.
6. Glovebags shall:
    a. Be seamless and made of 6-mil polyethylene.
    b. Designed for the purpose they are used and not modified.
    c. Installed to completely cover the circumference of the pipe.
    d. Never be reused.
7. Prior to initiating removal of asbestos, DET will inspect the glovebag for breaches and will smoke-test for leaks. Any identified leaks are to be sealed by the abatement contractor.
8. Use of high-speed abrasive disc saws, compressed air, and dry clean-up activities (e.g., sweeping, shoveling) is prohibited.
9. Glovebags are to be collapsed by removing the air using a HEPA vacuum.
10. Insulated pipes may be removed using “wrap and cut” methods. These portions are to be wrapped and sealed in two layers of 6-mil polyethylene with the ends and seams sealed with duct tape and the entire length “candy caned” with duct tape.
11. Prompt clean-up and disposal of wastes and debris with asbestos in leak tight containers. Vacuums equipped with HEPA filters shall be used to collect debris and dust.
12. Double bag and “goose neck” waste in 6-mil bags. Attach asbestos warning labels to bags. Polyethylene sheeting used in the regulated area should be treated as asbestos-containing waste. Wet wipe all bags prior to removing from regulated area.
13. Wet wipe to clean surfaces on and around abated area; use HEPA-vacuum when applicable.
14. Transport and dispose of ACM in accordance with this specification, DOT and NESHAP requirements.

Work practices and engineering controls for the removal of **caulking, sealants, ceiling tile mastics, and other ACMs that will not remain intact or will become friable during removal** in the building are to be completed in accordance with OSHA Class II work practices in accordance with 29 CFR 1926.1101 as required at a minimum and include but not limited to:

14. All work to be supervised by a competent person.
15. Establish regulated area by installing asbestos hazard warning signs and limiting access.
16. Two layers of impermeable 6-mil polyethylene sheeting shall be placed on the floor and surfaces of the regulated area sufficient to establish the required negative pressure enclosure.
17. Install critical barriers over all openings to the regulated area and three-stage decontamination/air-lock unit including a shower.

18. At least one inspection port is needed between four and six feet from the floor that allows for a clear view of as much of the asbestos removal regulated area as possible without requiring entry to the regulated area. Multiple inspection ports must be used when necessary.
19. Utilize HEPA air-filtration device(s) in the regulated area to create a negative pressure enclosure with a minimum of four air changes per hour and achieve a minimum of -0.02 column inches of water pressure differential, relative to outside pressure. A calibrated manometer with recording capabilities and an alarm shall be utilized to document the regulated area remains under negative pressure throughout its use.
20. The HEPA air-filtration devices must be vented to the exterior of the building. Measures should be taken to ensure that the building remains secure (e.g., vent hoses through plywood board in window rather than polyethylene sheeting).
21. Prior to initiating removal of asbestos, abatement contractor will inspect the enclosure for breaches, will smoke-test for leaks, and will verify that a sustainable pressure differential is established. Any identified leaks are to be sealed by the abatement contractor.
22. Use of high-speed abrasive disc saws, compressed air, and dry clean-up activities (e.g., sweeping, shoveling) is prohibited. The insulation is to be thoroughly wetted with amended water prior to and during removal and removed as intact as possible.
23. Prompt clean-up and disposal of wastes and debris with asbestos in leak tight containers. Vacuums equipped with HEPA filters shall be used to collect debris and dust.
24. Double bag and “goose neck” waste in 6-mil bags. Attach asbestos warning labels to bags. Wet wipe all bags prior to removing from regulated area.
25. Wet wipe to clean surfaces on and around abated area; use HEPA-vacuum when applicable. Following a satisfactory visual inspection by supervisor after the initial cleaning, remove the inner layer of plastic sheeting and inspect for dust and debris on the remaining layer of plastic sheeting. Wet wipe areas containing duct and debris. DET may conduct a visual clearance inspection of the regulated area following the removal of the inner plastic sheeting, and cleaning if necessary. Polyethylene sheeting used in the regulated area should be treated as asbestos-containing waste.
26. Transport and dispose of ACM in accordance with this specification, DOT and NESHAP requirements.

Work practices and engineering controls for the removal of **caulking, sealants, door slabs, flues, boiler units, and other similar items that will remain intact and non-friable during removal,** are to be completed in accordance with OSHA Class II work practices in accordance with 29 CFR 1926.1101 as required at a minimum and include but not limited to:

1. All work to be supervised by a competent person.
2. Establish regulated area by installing asbestos hazard warning signs and limiting access.
3. Place a drop cloth inside the regulated area for decontamination purposes sufficient in size to accommodate equipment and personnel removing personal protective equipment.
4. Impermeable drop cloths shall be placed on surfaces under removal activity.
5. If abatement activities occur on the exterior or the building (e.g. window caulking, glazing compound, etc.), the abatement contractor shall thoroughly clean up all related debris located on the ground, soil, vegetation, roofing, etc. in and around work area. Upon cleanup of debris, the abatement contractor shall cover all ground surfaces below the removal activity a minimum of 10 feet in all directions with impermeable drop cloths. If outdoor work occurs at heights above 6 feet from ground level, the abatement contractor shall cover all ground surfaces, in all directions, below the removal activity a minimum of 1.5 times the working height. Measures must be taken to avoid damage to the drop

cloths. Any damage to the drop cloths shall be repaired immediately. All drop cloths shall be secured to the exterior of the building using spray-adhesive, tape, and/or wood furring strips.

6. Isolate the HVAC system in regulated area by sealing air supply and return vents with 2 layers of 6-mil polyethylene.
7. Install critical barriers over all openings to the regulated area and single-stage decontamination/air-lock unit. Critical barriers will be needed to isolate the windows and doorways from the regulated areas.
8. Cutting, abrading or breaking the material is prohibited. The ACM are to be removed intact and thoroughly wetted with amended water prior to and during removal.
9. Removed ACM shall be wetted with amendable water and immediately bagged or wrapped following removal. Double bag and "goose neck" waste in 6-mil bags or wrap in two sheets of 6-mil polyethylene sheeting. Attach asbestos warning labels to bags/polyethylene sheeting. Polyethylene sheeting used in the regulated area should be treated as asbestos-containing waste. Wet wipe all bags prior to removing from regulated area.
10. Wet wipe to clean surfaces on and around abated area; use HEPA-vacuum when applicable.
11. Transport and dispose of ACM in accordance with this specification, DOT and NESHAP requirements.

Work practices and engineering controls for the removal of **floor tile, floor tile mastics, and floor levelers** are to be completed in accordance with OSHA Class II work practices in accordance with 29 CFR 1926.1101 as required at a minimum and include but not limited to:

1. All work to be supervised by a competent person.
2. Establish regulated area by installing asbestos hazard warning signs and limiting access.
3. Install critical barriers over all openings to the regulated area.
4. A three-stage decontamination/air-lock unit shall be erected.
5. Impermeable plastic sheeting shall be placed on objects adjacent to the floor tile and secured with duct tape or the equivalent.
6. Impermeable plastic sheeting shall be placed on walls adjacent to the floor tile to a height of two feet above the floor.
7. Utilize HEPA air-filtration device(s) in the regulated area to create a negative pressure enclosure with a minimum of four air changes per hour and achieve a minimum of -0.02 column inches of water pressure differential, relative to outside pressure. A calibrated manometer with recording capabilities and an alarm shall be utilized to document the regulated area remains under negative pressure throughout its use.

8. The regulated area shall be ventilated with HEPA air-filtration devices. The air-filtration devices should be vented to the outside of the building, if possible.
9. Where carpet is installed over the floor tile, the carpet should only be removed after items 1-8 above are completed. If the carpet can be removed without disturbing the floor tile, or the floor tiles do not detach from the floor, the carpet may be disposed of as construction debris. If the floor tile is disturbed during the carpet removal, the carpet must be contained, handled and disposed of as asbestos waste.
10. Floor tiles shall be removed intact, if possible, and thoroughly wetted with amended water prior to and during removal. Cutting, abrading or excessive breaking the floor tile is prohibited.
11. Remove the associated mastic using amended water or solvent, as necessary.

12. Removed ACM shall immediately be bagged or wrapped following removal. Double bag and "goose neck" waste in 6-mil bags, or wrap in two sheets of 6-mil polyethylene. Attach asbestos warning labels to bags/polyethylene. Plastic sheeting used in the regulated area should be treated as asbestos-containing waste. Wet wipe all bags prior to removing from regulated area.
13. Wet wipe to clean all surfaces around the abated area and/or use vacuums equipped with HEPA filters, as appropriate.
14. Transport and dispose of ACM in accordance with this specification, DOT and NESHAP requirements.

4.5 Alternative Procedures

Procedures described in this specification are to be utilized at all times. If specified procedures cannot be utilized, a request must be made in writing providing details of the problem encountered and recommended alternatives. Alternative procedures shall provide equivalent or greater protection than procedures that they replace.

4.6 Commencement of Work

Commencement of work shall not occur until:

- All pre-abatement submissions, notifications, postings and permits have been provided and are satisfactory to the Owner, or their designated representative.
- All equipment for abatement, clean up and disposal are on hand.
- All worker training (and certification) is completed.
- Abatement contractor receives permission from the Owner or their designated representatives to commence abatement.

4.7 Removal and Disposal of Asbestos Waste

The following procedures are to be used during the removal and disposal of asbestos-containing waste.

- Move seated single-bagged waste material to the washroom of the equipment decontamination enclosure system. Wet clean each bag thoroughly. Move the single-bagged material into the decontamination chamber and immediately place it in another bag. Twist the bag opening tightly, bend the twisted end downward and seal it with tape. The double-bagged material will immediately be placed in a drum if the material contains sharp objects that may puncture the bags.
- After the containers are decontaminated, the abatement contractor may make arrangements for a hauler or truck driver from the waste disposal site to transport the asbestos waste and contaminated material to the disposal site. Transportation of all materials from the worksite shall be in accordance with all applicable DOT, OSHA, and EPA regulations. All waste shall be properly disposed of at a landfill approved by the Environmental Protection Agency.
- All asbestos-containing waste inside the regulated area shall be removed and items decontaminated before any cleanup work is started and before the isolation structures are dismantled.

- The abatement contractor shall be responsible for complying with current waste handling and disposal regulations.
- Fill disposal containers to a level that workers can handle safely, and with ease, so that the containers remain air-tight and water-tight.
- As disposal containers are filled, seal and move them into the staging area for decontamination through the equipment decontamination enclosure.
- If conventional removal practices are used, clean external surfaces of containers thoroughly by wet sponging in the designated areas of the regulated area that is part of the equipment decontamination enclosure system. Move containers to the washroom, wet clean each container thoroughly, and move them to the holding areas pending removal to uncontaminated areas. Place decontaminated, sealed plastic bags containing asbestos material into a second clean bag; twist the bag opening tightly, bend the twisted end downward, and seal with tape. Move all disposal containers to the holding area to await disposal at an approved landfill. Place caution labels on containers in accordance with 29 CFR 1926.1101, 49 CFR Parts 171 and 172, and 40 CFR Part 61, Subpart M. Ensure that containers are removed from the holding area by workers who have entered from uncontaminated areas dressed in clean coveralls; ensure that workers do not enter from uncontaminated areas into the washroom of the regulated area; and ensure that contaminated workers do not exit the regulated area through the equipment decontamination enclosure system.
- To prevent exceeding available storage capacity on site as the work progresses, remove sealed and labeled containers of asbestos waste to a roll-off box or other suitable receptacle designated for ACM waste (as described below), and dispose of such containers at an authorized disposal site in accordance with the requirements of the disposal authority and these specifications.
- All friable and non-friable ACM waste shall be placed in waste transportation containers for transport of ACM waste from the building to the waste disposal site. All waste transportation containers shall meet applicable DOT and EPA regulations. In addition, all waste transportation containers must be completely closed and shall be secured by lock when not being loaded. **Use of open top waste containers shall not be permitted for storage or transportation of any type of ACM waste.**
- After the waste containers are decontaminated, the abatement contractor may make arrangements for a hauler or truck driver from the waste disposal site to transport the asbestos waste and contaminated materials to the disposal site. Transportation of all materials from each regulated area shall be in accordance with all applicable DOT and EPA regulations.
- All asbestos-containing waste collected inside the regulated area shall be removed and items decontaminated before any cleanup work is started and before the isolation structures are dismantled.
- The abatement contractor shall dispose of all asbestos waste material at an EPA-approved landfill only. Appropriate notifications and provisions shall be made with each agency having jurisdiction over asbestos waste disposal.
- The abatement contractor shall ensure that all employees discarding or handling the regulated waste shall wear approved respiratory protection and protective clothing in accordance with these Specifications.

- In certain instances, plastic bags or fiber and metal drums may not be adequate or suitable to handle some ACM. As an alternative, the abatement contractor may remove ACM that is bulky or cumbersome in two layers of 6-mil plastic sheeting that is sealed tightly at all joints with tape and/or spray adhesive. The waste shall be properly labeled before transportation to the approved disposal site. All metal, brick and mortar waste and non-friable ACM that could tear or puncture plastic disposal bags shall be deposited and disposed of in air-tight and water-tight drums. All drums shall be appropriately labeled before transportation to the appointed disposal site.

4.8 Cleanup Procedures

The following procedures are to be used for the cleanup of a regulated area:

1. Remove visible accumulations of asbestos material and debris. Wet clean all surfaces within the regulated area.
2. Remove the plastic sheets from walls and floors only. The windows, doors, HVAC vents, and other equipment and penetrations shall remain sealed, and any HEPA air-filtration devices and decontamination enclosure systems shall remain in service.
3. Clean all surfaces in the regulated area, and any other contaminated areas, with amended water and/or with HEPA filtered vacuum equipment. After cleaning the regulated area, wait 12 to 24 hours to allow dust to settle, and wet-clean, or clean with HEPA-filtered vacuum equipment, all surfaces in the regulated area a second time. After completion of the second cleaning operation, visually inspect the entire regulated area to ensure that it is free of visible asbestos dust and debris.
4. Sealed containers and all equipment used in the regulated area shall be included in the cleanup and shall be removed from regulated areas, via the equipment decontamination enclosure system, at an appropriate time in the cleaning sequence.
5. If the Owner or their designated representatives find visible accumulations of asbestos debris in the regulated area after cleaning, the abatement contractor shall repeat the wet-cleaning and/or HEPA vacuuming, at his/her own expense, until the regulated area is in compliance.
6. When a final inspection and air monitoring, if any, are conducted and determines that the area is free of accumulations of visible asbestos debris and airborne fibers, the decontamination enclosure systems shall be removed, all areas shall be thoroughly wet-cleaned and materials from the equipment room and shower shall be disposed of as contaminated waste.
7. Following the removal of ACM and waste removal from the regulated area, HEPA vacuum and wet-clean all surfaces within the regulated area. All non-essential abatement equipment which is non-porous and reusable (I.e. ladders, shovels, spud bars), shall be removed and cleaned through the decontamination unit and passed outside the regulated area. Porous equipment or tools (i.e. scratch pads. cloths etc.) shall be assumed to be contaminated and shall be disposed of as asbestos containing. Any large equipment (i.e. scaffolding, etc.) may remain within the regulated area once cleaned. The abatement contractor shall allow sufficient time for any dust to settle.
8. Cleanup work should begin at the farthest point away from the air filtration device unit and progress toward the unit. Any waste generated during the cleanup process must be

properly bagged, labeled and removed from the regulated area, via proper waste load-out procedures, and disposed of as asbestos containing waste.

9. All pre and/or intermediate air filtration device filters shall be disposed as asbestos containing waste, properly bagged and labeled and removed from the regulated area or containment via proper waste load-out procedures. New, uncontaminated pre and/or intermediate air filtration device filters shall be installed on all active units. Any inactive units must be sealed at the inlet and outlet sides of the air filtration device. HEPA filters must remain in place at all times.
10. Upon final cleaning within the regulated area or containment, the abatement contractor shall clean with the use of HEPA vacuums and wet-wiping methods.
11. The abatement contractor shall visually inspect the entire regulated area to ensure that it is free of visible asbestos debris.

4.9 Determination of Abatement Completion

Currently, DET is not contracted to perform final clearance activates for this project; however, at any time during the project, the Owner, or their designated representatives reserves the right to perform post-abatement clearance activities as described in this section

If clearance activities are performed at the request of the Owner, DET may conduct a thorough first visual inspection of each regulated area after the abatement contractor has indicated that all specified asbestos-containing materials have been completely removed. The first inspection will be conducted before the plastic sheets have been wet-cleaned and sealant applied, but after all gross debris has been cleaned up. Items to be checked during the first visual inspection include, but are not limited to, the following:

- The adequacy of the removal of asbestos-containing material from the substrates.
- The presence of adhering material or accumulated material on exposed surfaces.

After the regulated area has passed the first visual inspection, the abatement contractor shall clean all surfaces in the regulated area and any other contaminated areas with water and/or HEPA-filtered vacuum equipment. The plastic sheets on the walls shall be sprayed with sealant provided that loose debris has been removed from the plastic and that the plastic sheets are sufficiently clean (in the judgment of DET) to allow the sealant to effectively bond any residual material to the plastic.

If clearance activities are performed, DET may conduct a second visual inspection of the regulated area after application of the sealant. Items to be checked during the second visual inspection include, but are not limited to, the following:

- Cleanliness of the regulated area and decontamination areas.
- Complete coverage of the exposed surfaces by the sealant.

After the regulated area has passed the second visual inspection, the abatement contractor shall remove the non-critical plastic sheets from walls, floors and etc. The windows, doors, HVAC vents, containment walls, etc. that are also critical barriers shall remain sealed. All air-filtration devices and decontamination enclosure systems will remain operative during this time.

After an adequate settling period, the abatement contractor will wet-clean, and/or HEPA vacuum all objects and surfaces in the regulated area.

If clearance activities are performed, DET shall conduct a final visual inspection of the worksite to ensure that it is free of visible dust after completion of the final cleaning operation. After the work site has passed the third visual inspection and the walls, floor, and all exposed surfaces are dust-free, final air monitoring may be performed by DET.

Clearance Air Monitoring

Upon completion of final cleaning, DET recommends waiting a minimum of 24 hours to collect air samples so that the air within the regulated area has adequate time to scrub. The abatement contractor may request air sampling to be performed earlier; however, the abatement contractor assumes full responsibility and costs associated with failed air clearance.

Clearance air monitoring will be performed to determine and document air quality upon completion of abatement activities in each regulated area. All clearance air sampling will be conducted by an Asbestos Hazard Evaluation Specialists/Asbestos Hazard Abatement Air Monitoring Technician certified by the Ohio EPA DET shall perform the final air testing after each regulated area has passed the final visual inspection process.

Clearance air monitoring will be performed after the regulated area has passed the final visual inspection. Fans and blowers will be used to circulate air in the regulated area during the final air testing to simulate building-use conditions (aggressive sampling). Samples will be collected by use of high-volume electric sampling pumps calibrated to a flow rate of approximately 9.5 liters per minute for analysis by Transmission Electron Microscopy (TEM) methods.

The abatement contractor shall provide adequate electricity, extension cords, and GFCIs within each regulated area for use by DET for the collection of air samples using 5 high volume sampling pumps.

Collected air samples will be analyzed and evaluated using the following methods:

- If at least 1,200 liters of air for a 25 mm filter or 2,799 liters of air for a 37 mm filter is collected for each regulated area sample and the arithmetic mean concentration of structures per square millimeter of filter is less than, or equal to, 70 structures per square millimeter, the abatement work is complete and no further analysis is needed.

- If the arithmetic mean concentration of structures per square millimeter of filter is greater than, 70 structures per square millimeter, the abatement contractor must re-clean the regulated area. Following recleaning activities, another set of air samples will be collected and analyzed in accordance with the procedures above. Re-cleaning and re-sampling will continue until the samples pass. Any re-cleaning, re-sampling and reanalysis will be performed at the abatement contractor's expense.

Final clearance will only be collected from within each regulated area. Air samples from outside of the regulated area will not be collected for a statistical test (the Z-Test).

The abatement contractor shall bear all cost and not seek reimbursement from the Owner Architect, or their designated representatives for labor, materials and equipment fees utilized to address failed clearance inspection(s) of a/the regulated area(s). Furthermore, the selected

abatement contractor will be responsible for reimbursement of all costs associated with subcontractors, materials and equipment fees incurred in regards to additional clearance service activities performed by DET. If this situation occurs, the additional cost incurred by Owner, Architect, or their designated representatives for DET's additional services will be deducted from the selected abatement contractor's final invoice or in accordance with contract documents.

4.10 Sealant Application

In all areas from where asbestos-containing materials were removed, an approved sealant shall be used to lock down any residual airborne asbestos fibers to the substrate and to prevent them from becoming airborne again.

All sealant, encapsulant and lock down products utilized shall be compatible with replacement materials and adhesives. The abatement contractor is responsible to determine compatibility and shall provide to the Building Owner written documentation of compatibility, for renovation projects (not required for demolition projects). The sealant shall be applied with low-pressure, airless spray equipment. The sealant shall be used and applied in strict accordance to manufacturer's specifications. The abatement contractor shall apply a thin, visible, contiguous film of sealant to all areas specified. Additional applications shall be required if the first application does not adequately cover the substrates or lockdown residual airborne asbestos fibers.

4.11 Regulated Area Containment Removal

Upon thorough clean-up, sealant application, and if performed passing final clearance the abatement contractor shall remove the regulated area isolation containment.

Work shall proceed as follows; removal of demarcation signs, removal of wall polyethylene sheeting from non-removable structures, removal of the decontamination structure, sealing (inlet and outlet sides) and de-activating the air filtration devices.

All removed polyethylene sheeting shall be properly disposed of as asbestos-containing waste. The decontamination structure shall not be reused.

4.12 Re-Establishment of Regulated Area and Systems

Re-establishment of the regulated area shall only occur following the completion of clean-up procedures and after clearance air monitoring (if performed) and documented to the satisfaction of the Building Owner or their designated representative.

- The abatement contractor shall visually inspect the regulated area for any remaining visible residue. Evidence of contamination will necessitate additional cleaning in accordance with Section 4.8.
- Additional air monitoring may be performed in accordance with Section 4.9, if additional cleaning is necessary.
- Following satisfactory clearance of the regulated area, remaining barriers shall be removed and disposed of as asbestos-contaminated waste. At the discretion of the abatement contractor, mandatory requirements for personal protection equipment may be waived following the removal of all barriers.

5.1 MATERIALS AND EQUIPMENT

5.1 Materials

All materials shall be delivered in their original packages, containers, or bundles bearing the name of the manufacturer and the brand name. Safety Data Sheets (SDS) shall be required for all materials brought on site by the abatement contractor. All materials subject to damage shall be stored off the ground, away from wet or damp surfaces, and under sufficient cover to prevent damage or contamination. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be disposed of in accordance with applicable regulations.

Plastic Sheeting

All plastic sheeting shall be fire-retardant polyethylene sheeting. Plastic sheeting for covering walls and stationary objects shall be a minimum of 6-mil thick. For floors and all other uses, sheeting of at least 6-mil thickness shall be used. All plastic sheeting shall be sized in appropriate lengths and widths to minimize the frequency of joints. Plastic sheeting used for worker decontamination enclosure systems shall be opaque or black in color.

Methods for attaching polyethylene sheeting may include any combination of duct tape or other waterproof tape, furring strips, spray glue, staples, nails, screws or other effective procedures capable of sealing adjacent sheets of polyethylene. The methods should also be capable of sealing polyethylene to dissimilar finished or unfinished surfaces, under both wet and dry conditions (including the use of amended water). Polyethylene sheeting used to wrap removed components shall be sealed with duct tape or other waterproof tape.

Tape

Tape must be capable of sealing joints of adjacent plastic sheets, capable of attaching plastic sheets to finished or unfinished surfaces of dissimilar materials, and capable of adhering under dry and wet conditions, including use of amended water. **NOTE:** Paper-type masking tape shall not be allowed on this project.

Surfactant

A commercially-available asbestos wetting agent/surfactant, or a surfactant consisting of 50 percent polyoxyethylene ether and 50 percent polyoxyethylene ester, or equivalent, shall be mixed with water to provide a concentration of one ounce surfactant to five gallons of water, or mixed and used according to the manufacturer's specifications.

Impermeable Containers

Impermeable containers must be suitable for receiving and retaining any asbestos-containing or asbestos-contaminated materials. Disposal bags shall be of black, 6-mil polyethylene with pre-printed labels, as required by EPA Regulation 40 CFR 61.152 (b)(1)(iv) or OSHA regulation 29 CFR 1910.1001 and 1926.1101. Stick-on labels compliant with EPA or OSHA requirements for disposal drums shall be placed on all waste containers prior to disposal at the landfill. Disposable drums shall be either metal, open-top drums with lids with gaskets and lock rings, or fiberboard with locking ring tops. The containers shall be labeled in accordance with 29 CFR1926.1101, 49 CFR Parts 171 and 172, and 40 CFR Part 61, Subpart M. Containers shall be both air-tight and water-tight and acceptable to the landfill operator.

Encapsulants

Encapsulating sealants (applied to exposed ends/edges of remaining ACM or to inaccessible ACM that cannot be removed) shall be the bridging or penetrating type, capable of adhering permanently to the ACM and/or substrate and not interfering with the adhesion of newly-applied materials. Encapsulants selected for use by the abatement contractor shall be one of those demonstrating effective performance under the tests conducted by Battelle Laboratories for the EPA or one specifically formulated and acceptable for safe use on ACM, and compliant with applicable codes and requirements.

Other requirements for the encapsulant shall include:

- The encapsulant shall not add any toxic substance to the ACM and shall not break down under direct flame impingement to release any toxic gases or an undue amount of smoke.
- The encapsulant shall be capable of adhering to the substrate surface.
- The encapsulant shall be able to be applied with minimum effort and skill.
- The encapsulant shall have impact resistance, flexibility, and resistance to penetration to withstand physical contact.
- The encapsulant shall be water-insoluble when cured.
- The encapsulant shall be nontoxic, low or no odor, and free of toxic fumes during application and drying.
- The encapsulant shall have sufficient aging characteristics to withstand normal atmospheric changes for a minimum of six years and still have sufficient surface integrity to allow recoating.

Warning Labels and Signs

As required by 29 CFR 1926.1101(k)(2)(iii), 29 CFR 1910.1001 (j)(2), and EPA Regulation 40 CFR 61.150 (a)(1)(v).

Glovebags

Glovebags may be used to remove ACM from straight runs of piping, elbows, and other connections. Glovebags shall be made of 6-mil thick plastic and shall be seamless at the bottom as specified in 29 CFR 1926.1101. Use glovebags in accordance with the prescribed work practices specified in 29 CFR 1926.1101(g)(5)(ii) and (iii).

Plexiglas

The abatement contractor shall install Plexiglas partitions or windows in doorways or containment barriers around abatement areas (where feasible or as directed by the Owner or their designated representative. This is required so the Owner or their designated designated representatives can observe abatement activities without actually having to enter into the regulated area.

Plexiglas viewing windows shall be installed in each containment area by the abatement contractor, upon request of the Owner or their designated representatives. Placement of the windows will be determined by the Owner or their designated representative. The windows shall be at least 10" by 10" square in size. If more windows are deemed necessary by the Owner of their designated representative, the abatement contractor shall have sufficient materials to insert additional windows.

Other Materials

The abatement contractor shall provide all other materials, such as lumber, nails and hardware that may be required to construct and dismantle the decontamination area and the barriers that isolate the regulated area.

General

A sufficient supply of scaffolds, ladders, lifts and hand tools (e.g. scrapers, wire cutters, brushes, utility knives, etc.) shall be provided as needed. Airless sprayers shall be used for the application of amended water and encapsulants in full containments.

- All materials subject to damage should be stored off the ground, away from wet or damp surfaces and under cover sufficiently enough to prevent damage or contamination.

5.2 Tools and Equipment

Tool and equipment requirements include:

- Air movement equipment - A negative air pressure shall be established in the regulated area by means of mechanical ventilation equipment in order to keep airborne fibers confined to the regulated area, decrease humidity and temperature, and to reduce fiber levels in the regulated area. This shall be accomplished through the use of HEPA-filtered air-filtration devices in compliance with ANSI Z 9.2, Local Exhaust Ventilation. All exhausts shall be directed outside of the building through metal reinforced plastic ducts. Air filtration devices shall not discharge asbestos fibers into the building surrounding the regulated area, unless otherwise specified in section 4.5 of this specification. Filters shall be changed, as required, to maintain filtering efficiency. The abatement contractor should refer to 29 CFR 1926.1101, Appendix F - Work Practices and Engineering Controls for Major Asbestos Removal, Renovation and Demolition Operations.
- Respirators provided should be selected in accordance with OSHA Regulation 1926.1101, (H)(2). Respirators shall be provided that have been tested and approved by the National Institute of Occupational Safety and Health for use in asbestos contaminated atmospheres. Respirators shall also have been fit-tested to the specific individual wearing the respirator within the past six (6) months, in accordance with OSHA Regulation 1926.1101(h)(4)(i)(ii).

- Full-body disposable protective clothing consisting of material impenetrable by asbestos fibers (Tyvek or equivalent) shall be provided to all workers and authorized visitors in sizes adequate to accommodate movement without tearing. Any used or torn clothing shall be discarded in double sealed bags with appropriate labels, and drummed for disposal.
- All vacuums utilized to clean up asbestos containing materials in or around the regulated area shall be equipped with HEPA filters in compliance with ANSI Z 9.2.
- Rubber dustpans and rubber-squeegees shall be provided for cleanup.
- Brushes utilized for removing loose asbestos-containing material from polyethylene sheeting shall have nylon or fiber bristles, not metal.
- The abatement contractor shall install a digital/analog pressure differential gauge with a strip chart recorder to continuously measure the pressure differential between the clean area and the regulated area as per 29 CFR 1926.1101(g)(5)(i)(a)(3). All recorded measurements shall be provided to the Construction Manager.
- All trucks and dumpsters used to transport or hold asbestos-containing waste material shall be lined with at least one layer of 6-mil thickness poly, unless otherwise specified. All trucks and dumpsters shall be covered, lockable and properly labeled. **Use of open top waste containers shall not be permitted for storage or transportation of any type of ACM waste.**

The abatement contractor shall not use tools or equipment of the Building Owner, unless permission in writing is granted by the Building Owner.

5.3 Substitutions

The following addresses issues related to possible substitutions:

- The contract is based on the materials, equipment and methods described in the work practices documented herein. The Building Owner or their designated representatives will consider proposals for substitutions of materials, equipment and methods only when such proposals are accompanied by full and complete technical data.
- Substitutions may only be used when specifically approved in writing by the Building Owner or their designated representatives.
- Where the phrase *"or equal"* or *"or equal as approved by the Building Owner or their designated representatives"* occurs in this document. The abatement contractor may not assume that materials, equipment or methods will be approved by the Building Owner or their designated representatives unless the item has received specific written approval for this work by the Building Owner or their designated representatives. The decision of the Building Owner or their designated representatives shall be final.
- Verify prior to bidding that all items will be available in time for use during orderly and timely progress of the work. In the event that specified items will not be available, the abatement contractor must notify the Building Owner or their designated representatives prior to the submission of bid.

6.0 POST- ABATEMENT SUBMITTALS

6.1 Application for Payment

Applications for payment will be prepared pursuant to the directives and requirements of the contract documents.

6.2 Close-out Documentation

Throughout the progress of the work, the abatement contractor's supervisor or foreman of each crew shall compile the following documentation to be submitted to the Owner, Architect, or their designated representatives within 20-working days following the substantial completion of work on each phase of this project. This will be done so that the "Project Record Documents" can be annotated to provide factual information regarding all aspects of the work. The abatement contractor shall be required to submit all items listed below before final payment can be issued or as described per the contract documents.

1. Personnel air monitoring data (including sample ID number, employee's social security number (last 4 digits only), rate, time, volume, limits of detection, calibration data, and concentration).
2. Copies of all signed transport and disposal manifests, landfill forms/dump receipts.
3. Copy of Supervisor's Daily Project Log, including amounts of material abated and daily sign-in sheets.
4. Copies of up-to-date state accreditation, initial and any refresher EPA training certificates for all abatement contractor's employees.
5. Documentation of medical physical and respirator fit tests for all abatement contractor's employees.
6. Copy of abatement contractor's Ohio EPA license.
7. Abatement contractor's Federal Tax Identification Number.
8. Copies of ALL regulatory notifications (EPA/Ohio EPA) or enforcement actions (if any).
9. Duplicates of approved change orders.
10. Copies of any amendments to the work specification or changes in the scope of work.
11. Documentation of de-pressurization maintained on negative-pressure enclosure. Specifically, manometer strip chart recordings.
12. A signed Certificate of Completion -See Appendix B
13. Singed Certificate of Worker's Acknowledgment for each employee who worked at the Project Site (including all employees and subcontractors) - See Appendix C
14. Signed Affidavit of Medial Surveillance, Respiratory Protection, and Training/Accreditation - See Appendix D
15. Special permits (if required).
16. A copy of the EPA Renovate Right Pamphlet, a copy of the Pre-Renovation Education Form signed by the building owner, and a copy of the completed Post-Renovation Checklist and Report.

17. If the abatement contractor uses leased or rented vehicles and/or equipment that will come into contact with asbestos during any portion of the abatement project (e.g., transportation of asbestos-containing waste, use within a regulated area, etc.) a signed statement from the lease/rental company must be submitted to the Owner, Architect, or their designated representatives stating that the company is aware that their vehicle and/or equipment is being used to transport asbestos-containing waste. All carriers transporting asbestos-containing waste shall be lined with two layers of 6-mil polyethylene plastic. A copy of the signed statement from the lease/rental company shall be included in the final closeout submittals.
18. Any other submittals as required by the Owner or their designated representatives.

All forms shall be signed physically or electronically; however electronic signatures must be in accordance with the United States Electronic Signatures in Global and National Commerce (ESIGN) Act and/or the Uniform Electronic Transactions Act (UETA).

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Attachment A
Pre-Renovation Asbestos Survey Report

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Dayton
Environmental Testing, LLC
"Protecting You With Our Experience"

Pre-Renovation Asbestos Survey Report

Clark County Department of Job & Family Services
Family & Children Services Visitation Center
525 E. Home Road
Springfield, Ohio 45503

Prepared for:
Clark County Department of Job & Family Services
1345 Lagonda Avenue
Springfield, Ohio 45503
(937) 327-1700

Report Date: April 23, 2026
Project Number: 26-330-001

Prepared by:
Dayton Environmental Testing, LLC
2750-B Indian Ripple Road, Suite 211
Beavercreek, Ohio 45440
(937) 751-7872
www.daytontesting.com

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Dayton Environmental Testing, LLC

"Protecting You With Our Experience"

April 23, 2026

Mr. Tom McGrath
Director
Clark County Job & Family Services
1345 Lagonda Avenue
Springfield, Ohio 45503
(937) 327-1700

Re: Pre-Renovation Asbestos Survey Report
Clark County Department of Job & Family Services
Family & Children Services Visitation Center
525 E. Home Road
Springfield, Ohio 45503

DET Project Number: 26-330-001

Dear Mr. McGrath;

Dayton Environmental Testing, LLC (DET) has prepared this report to document the purpose, scope, methodology, and results of the pre-renovation asbestos survey completed for the Family & Children Services Visitation Center building located at 525 E. Home Road in Springfield, Ohio (Project Site).

PURPOSE AND SCOPE

The National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 61, Subpart M and the Ohio Administrative Code (OAC) Chapter 3745-20 both require the owner or operator of any renovation operation have the affected facility or part of the facility where a renovation operation will occur thoroughly inspected for asbestos-containing material (ACM), prior to the commencement of the renovation. In Ohio, this inspection must be performed by a certified Asbestos Hazard Evaluation Specialist.

The Clark County Department of Job & Family Services (Client) requested that DET to perform a pre-renovation asbestos survey limited to Family & Children Services Visitation Center building located at the Project Site.

INSPECTION METHODOLOGY

This assessment was performed by Ohio-certified Asbestos Hazard Evaluation Specialists Michael Lee on April 10, 2026.

Samples were randomly collected from selected homogeneous areas sampled in accordance with the sampling procedures described under the Asbestos Hazard Emergency Response Act (AHERA). Each sample was collected and placed in a clean, sealable vial or sealed bag and labeled with a unique sample identification number. This sample number was recorded on an Asbestos Bulk Sampling Log and the sample vial or bag. Supplemental information was also recorded on the Asbestos Bulk Sampling Log, including inspection date, the building name (or number), a brief description and location of the sample, and the type of material sampled (e.g., ceiling tile). The Asbestos Bulk Sampling Log is included in Attachment C.

LABORATORY ANALYSIS

Samples collected by DET during this assessment were transported, under chain of custody, to Schneider Laboratories Global, Inc. (Schneider) in Richmond, Virginia and Eurofins Built Environment Testing in Cary (Eurofins), North Carolina for analysis. Schneider and Eurofins are both fully accredited by the National Voluntary Laboratory Accreditation Program (NVLAP # 101150-0 and #101768-0, respectively), the agency sponsored by the National Institute of Standards and Technology providing EPA accreditation of laboratories analyzing bulk samples for asbestos content by Polarized Light Microscopy (PLM) under AHERA.

Bulk samples were analyzed for asbestos content using EPA Method 600/M4-82/020, and when applicable EPA Method 600/R-93/116. Bulk sample analysis incorporates the use of stereoscopic microscopy and PLM coupled with dispersion staining. The analytical methods listed above, which the EPA currently recommends for the determination of asbestos in bulk samples of friable insulation materials, can be used for qualitative identification of six (6) morphologically different types of asbestos fibers: chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite asbestos.

The EPA method specifies that the asbestos content in a bulk sample shall be estimated and reported as a finite percentage (rounded to the nearest percent) within the range of 0 to 100. Minute quantities of asbestos in bulk samples may be reported as "trace" or less than 1 percent (<1%). The analytical method determined the "*area percent*" asbestos or the percentage of the area of a microscopic field of view that is occupied by asbestos fibers.

Under NESHAP, if bulk analysis indicates that a sample to be less than ten percent asbestos by visual estimation the material can either be assumed ACM or reanalyzed using PLM point counting procedures. If conducted, the analytical results of the PLM point counting are used to determine whether or not the material is ACM, rather than the results of the original PLM bulk analysis. Point counts were not completed for any of the materials found to contain

asbestos; therefore, all materials containing any concentration of asbestos shall be treated as ACM.

The results of bulk samples are reported in a standard written laboratory report. The written report includes the client's name, the laboratory identification numbers assigned to each bulk sample upon receipt by the laboratory sample custodian, and the sample number assigned to each bulk sample during the building inspection. The composition of the bulk sample is reported in percentages of asbestos (i.e., chrysotile, amosite, crocidolite, or other) and non-asbestos (i.e., cellulose, fiberglass, synthetic, or other) components.

SUMMARY OF IDENTIFIED ASBESTOS

Confirmed ACM

PLM bulk analysis indicated that asbestos was detected in the following materials:

- Black mastic associated with floor tile underneath vinyl plank flooring
- Gray caulk associated with interior door frames
- Gray to tan caulk/sealant associated with the seams of the masonry ledge around the entire perimeter of the building
- Gray caulk associated with the old window frame (public restroom)
- Tan caulk associated with entrance door frames and lintels
- Brown mastic associated with 12" x 12" ceiling tiles

Assumed ACM

The following components could not be thoroughly inspected for ACM without causing extensive damage to these items or impacting the integrity of the component. As a result, the following materials are assumed to be ACM:

- Boiler and furnace flues
- Fire-rated doors
- Interior boiler components

Additional details of the materials assessed for asbestos during this asbestos inspection are summarized on the Asbestos Inspection and Assessment Summary in Attachment A. This summary includes where the material is located, material color, material description, the analytical result, and the estimated quantities of ACM, if applicable.

Excluded Suspect ACM

According to the Client's onsite representative, the suspect ACM listed below are not anticipated to be impacted by the planned renovation activities. Since sampling these

materials would have resulted in substantial damage to the building components, they were excluded from this survey.

- Components with the exterior brick, block, and stone walls, including but not limited to water resistive barriers behind stone and brick walls and insulating materials.
- Components associated with the fireplace and associated chimney

If the scope of the project expands to include disturbance of the materials listed above, they must either be assumed as ACM or properly sampled to determine if they are ACM.

RECOMMENDATIONS

An Ohio-licensed Asbestos Hazard Abatement Contractor must remove any confirmed or assumed ACM that may be disturbed by the project prior to the start of renovation activities. Components that were assumed to contain asbestos may be sampled for confirmation once the item has been taken out of service and can be safety evaluated.

Based on the age of this building, lead-based paint may be present on interior or exterior surfaces. Because this is a child-occupied facility, any contractor who replaces doors or windows, or who disturbs painted surfaces, must be certified as a Lead-Safe Renovator under the EPA's Renovation, Repair, and Painting (RRP) Program.

Please notify DET if you would like a proposal for us to provide asbestos abatement specifications, on-site asbestos abatement monitoring, post-abatement air clearance services, or other additional services to support this project.

EXCLUSIONS AND LIMITATIONS

This asbestos survey report has been prepared exclusively for the client and for the specific project scope defined at the time of assessment. The findings, conclusions, and recommendations apply only to the areas and building materials inspected and the conditions observed during the survey. The information contained in this report is based on professional judgment and industry-accepted practices at the time of the survey. No warranty, expressed or implied, is made regarding conditions not observed, materials not sampled, or changes occurring after the date of assessment.

DET used reasonable efforts to inspect all building materials that are expected to be disturbed by renovation activities; however, DET cannot guarantee that additional suspect ACM will not be encountered during renovations. Any suspect ACM discovered during the course of abatement or demolition should be assumed to be ACM unless confirmed otherwise by an Ohio-certified Asbestos Hazard Evaluation Specialist.

Existing Knowledge of Environmental Hazards — As of the preparation date of this report, the Owner has not provided DET with any previous environmental documentation

or knowledge of existing environmental hazards. Should any relevant reports or information exist, please notify DET so that these materials may be evaluated and incorporated into this report where applicable.

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Limitations of PLM Analysis - All analytical results are based solely on polarized light microscopy (PLM) bulk analysis, the method recognized by federal and state regulations for compliance. PLM may not detect very small fibers or fibers obscured by cellulose or organic binders. The EPA recommends transmission electron microscopy (TEM) confirmation for organically bound non-friable materials and cellulose-containing ceiling tiles that test negative by PLM. Notify DET within 15 days of the report date if TEM confirmation is desired.

Non-Use for Bidding — This report is not intended for bidding, pricing, or contractor solicitation. Quantities and observations included herein are for survey purposes only and shall not be relied upon for bid preparation. Please notify DET if you would like us to prepare a formal abatement design or specification for bidding purpose.

Other Hazardous Materials –This assessment addresses asbestos only. No sampling or evaluation of other hazardous materials (including but not limited to polychlorinated biphenyls (PCBs), mercury, lead-based paint, mold, or other regulated substances) was performed. Materials such as caulks, paints, adhesives, lighting components, electrical equipment, and surface coatings may contain hazardous substances not evaluated in this survey. Renovation, demolition, or disposal activities may require additional investigation and laboratory testing by qualified environmental professionals to determine the presence and regulatory status of such materials.

We appreciate the opportunity to provide this service to you. Please do not hesitate to contact me if you have any questions regarding this report, or if we can be of further assistance.

Respectfully,

Dayton Environmental Testing, LLC

Michael B. Lee, CIEC
Senior Project Manager
Ohio Asbestos Hazard Evaluation Specialist # ES34954

ATTACHMENTS

A - Asbestos Inspection and Assessment Summary
B - Building Floor Plans
C - Laboratory Analytical Reports
D - Photographs
E - Qualifications of Assessors
F - Laboratory's NVLAP Certificate

Attachment A

Asbestos Inspection and Assessment Summary

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Dayton Environmental Testing, LLC

Asbestos Inspection and Assessment Summary

Pre-Renovation Asbestos Survey Report
Clark County Department of Job & Family Services
Family & Children Services Visitation Center
525 E. Home Road, Springfield, Ohio 45503
Project Number: 26-330-001

HA ID #	Material	Description	Locations of Material	*Friable or Non-Friable	*NESHAP Category	Sample Numbers Collected	Photo #	Laboratory Results	Asbestos Determination	**Estimated Quantity
1	Boiler Insulation	Brown Fiberglass Insulation Inside Boiler	Boiler Room	Not Applicable	Not Applicable	1-1 1-2 1-3	1	No Asbestos Detected	Non-ACM	Not Applicable
2	Sealant Mastic	Tan Sealant Mastic Associated with Fiberglass Pipe Insulation	Pipe Insulation Located Throughout the Building	Not Applicable	Not Applicable	2-1* 2-2 2-3	2	No Asbestos Detected	Non-ACM	Not Applicable
3	Cove Base and Mastic	4" Gray Cove Base with Tan Mastic and Brown Mastic	Various Walls Throughout the Building	Not Applicable	Not Applicable	3-1 3-2	3	No Asbestos Detected	Non-ACM	Not Applicable
4	Flooring	Gray Vinyl Plank Flooring with Clear Mastic over Tan Floor Tile with Black Mastic	Flooring Throughout the Building Excluding the Boiler and Mechanical Rooms	Not Applicable	Not Applicable	4-1 4-2	4	Vinyl Plank Flooring = No Asbestos Detected Clear Mastic = No Asbestos Detected Floor Tile = No Asbestos Detected Black Mastic = 5% Chrysotile Asbestos	**ACM**	3,500 Square Feet
5	Drywall System	White Drywall Board with White Joint Compound	Various Walls and Soffits Throughout the Building	Not Applicable	Not Applicable	5-1 5-2 5-3 5-4 5-5 5-6	5	No Asbestos Detected	Non-ACM	Not Applicable
6	Grout and Mastic	White Grout and Brown Mastic Associated with Ceramic Wall Tile	Public Restroom, Shower Walls	Not Applicable	Not Applicable	6-1 6-2	6	No Asbestos Detected	Non-ACM	Not Applicable
7	Attic Insulation	White Blown-In Attic Insulation	Attic	Not Applicable	Not Applicable	7-1* 7-2 7-3	7	No Asbestos Detected	Non-ACM	Not Applicable

Dayton Environmental Testing, LLC

Asbestos Inspection and Assessment Summary

Pre-Renovation Asbestos Survey Report
Clark County Department of Job & Family Services
Family & Children Services Visitation Center
525 E. Home Road, Springfield, Ohio 45503
Project Number: 26-330-001

HA ID #	Material	Description	Locations of Material	*Friable or Non-Friable	*NESHAP Category	Sample Numbers Collected	Photo #	Laboratory Results	Asbestos Determination	**Estimated Quantity
8	Caulk	Gray Caulking Associated with Interior Door Frames (Between Steel Frame and Concrete Block Walls)	Throughout the Building	Not Applicable	Not Applicable	8-1 8-2 8-3	8	2% Chrysotile Asbestos	ACM	12 Square Feet or 15 Door Frames
9	Ceiling Tile and Mastic	12" x 12" White Ceiling Tile (Random Small Fissures) and Tan Mastic	Appears to be Replacement Tiles in Various Areas of the Building	Not Applicable	Not Applicable	9-1* 9-2	9	No Asbestos Detected Note: It is Assumed that Residual ACM Mastic (HA ID 20 Exists Above These Ceiling Tiles)	Non-ACM	Not Applicable
10	Hard Plaster	Hard Plaster (White Skim Coat over Light Gray Base Coat) with White Gypsum Board	Various Ceilings Throughout the Building	Not Applicable	Not Applicable	10-1 10-2* 10-3 10-4 10-5 10-6 10-7	10	No Asbestos Detected	Non-ACM	Not Applicable
11	Mortar Bed	Gray Mortar Bed Associated with 1" Ceramic Floor Tile	Public Restroom Floor	Not Applicable	Not Applicable	11-1 11-2	11	No Asbestos Detected	Non-ACM	Not Applicable
12	Grout	Gray Grout Associated with 1" Ceramic Floor Tile	Public Restroom Floor	Not Applicable	Not Applicable	12-1 12-2	12	No Asbestos Detected	Non-ACM	Not Applicable
13	Caulk	White Caulk Associated with Newer Windows (Interior Side)	Newer Windows Throughout the Building	Not Applicable	Not Applicable	13-1 13-2*	13	No Asbestos Detected	Non-ACM	Not Applicable
14	Caulk	Gray to Tan Caulk/Sealant Associated with Seams of Masonry Ledge Under Windows Around the Entire Perimeter of the Building	Exterior Walls	Not Applicable	Not Applicable	14-1 14-2	14	2% Chrysotile Asbestos	ACM	5 Square Feet

Dayton Environmental Testing, LLC

Asbestos Inspection and Assessment Summary

Pre-Renovation Asbestos Survey Report
Clark County Department of Job & Family Services
Family & Children Services Visitation Center
525 E. Home Road, Springfield, Ohio 45503
Project Number: 26-330-001

HA ID #	Material	Description	Locations of Material	*Friable or Non-Friable	*NESHAP Category	Sample Numbers Collected	Photo #	Laboratory Results	Asbestos Determination	**Estimated Quantity
15	Caulk	Brown Caulk Associated with Exterior Wood Siding	Exterior Walls/Windows	Not Applicable	Not Applicable	15-1 15-2	15	No Asbestos Detected	Non-ACM	Not Applicable
16	Caulk	Gray Caulk Associated with Old Window (Around Frames, Sill, and Lintels)	Public Restroom Window	Not Applicable	Not Applicable	16-1 16-2	16	4% Chrysotile Asbestos	**ACM**	1 Square Feet or 1 Window Opening
17	Glazing Compound	Light Gray Window Glazing Compound Associated with Old Window	Public Restroom Window	Not Applicable	Not Applicable	17-1 17-2	17	No Asbestos Detected	Non-ACM	Not Applicable
18	Caulk	White Caulk Associated with Newer Windows (Exterior Side)	Newer Windows Throughout the Building	Not Applicable	Not Applicable	18-1 18-2	18	No Asbestos Detected	Non-ACM	Not Applicable
19	Roof Shingle and Tar Paper	Black Asphalt Roof Shingle with Black Tar Underlayment Paper	Roof	Not Applicable	Not Applicable	19-1 19-2	19	No Asbestos Detected	Non-ACM	Not Applicable
20	Ceiling Tile and Mastic	12" x 12" Brown Celling Tile with White Face (Small Holes and Long Fissures) and Brown Mastic	Appeasers to be the Original Ceiling Tile Throughout the Building. It is Assumed that this Mastic Also Remains Above Newer Ceiling Tiles (HA ID 9)	Not Applicable	Not Applicable	20-1 20-2*	20	Ceiling Tile = No Asbestos Detected Mastic = 2% Chrysotile Asbestos	**ACM**	3,250 Square Feet
21	Caulk	Tan Caulking Associated with Entrance Door Frames and Lintels	Entrance Doors to Building and Boiler Room	Not Applicable	Not Applicable	21-1 21-2	21	2% Chrysotile Asbestos	**ACM**	7 Square Feet or 4 Door Openings

Dayton Environmental Testing, LLC

Asbestos Inspection and Assessment Summary

Pre-Renovation Asbestos Survey Report
Clark County Department of Job & Family Services
Family & Children Services Visitation Center
525 E. Home Road, Springfield, Ohio 45503
Project Number: 26-330-001

HA ID #	Material	Description	Locations of Material	*Friable or Non-Friable	*NESHAP Category	Sample Numbers Collected	Photo #	Laboratory Results	Asbestos Determination	**Estimated Quantity
22	Boiler Flue	Boiler Flue (Including but Not Limited to Sealants and Insulation	Boiler Room, Attic, and Roof	Non-Friable	Category II Non-Friable	No Samples	22	Not Applicable	**Assumed ACM**	10 Linear Feet
23	Hot Water Heater Flue	Hot Water Heater Flue (Including but Not Limited to Sealants and Insulation	Mechanical Room, Attic, and Roof	Non-Friable	Category II Non-Friable	No Samples	23	Not Applicable	**Assumed ACM**	10 Linear Feet
24	Fire-Rated Doors	Including but Not Limited to Insulation and Gaskets	Boiler and Mechanical Rooms	Non-Friable	Category II Non-Friable	No Samples	24	Not Applicable	**Assumed ACM**	50 Square Feet (2 Doors)
25	Internal Boiler Components	Including but Not Limited to Gaskets, Chinking, Insulation, Sealants and Bricks)	Boiler Room	Assumed Non-Friable	Category II Non-Friable	No Samples	25	Not Applicable	**Assumed ACM**	Assumed 25 Square Feet

*These samples were split and analyzed separately by two different laboratories for quality assurance and quality control purposes.
**Quantities are estimates only and not for bidding purposes.

Attachment B

BUILDING FLOOR PLAN

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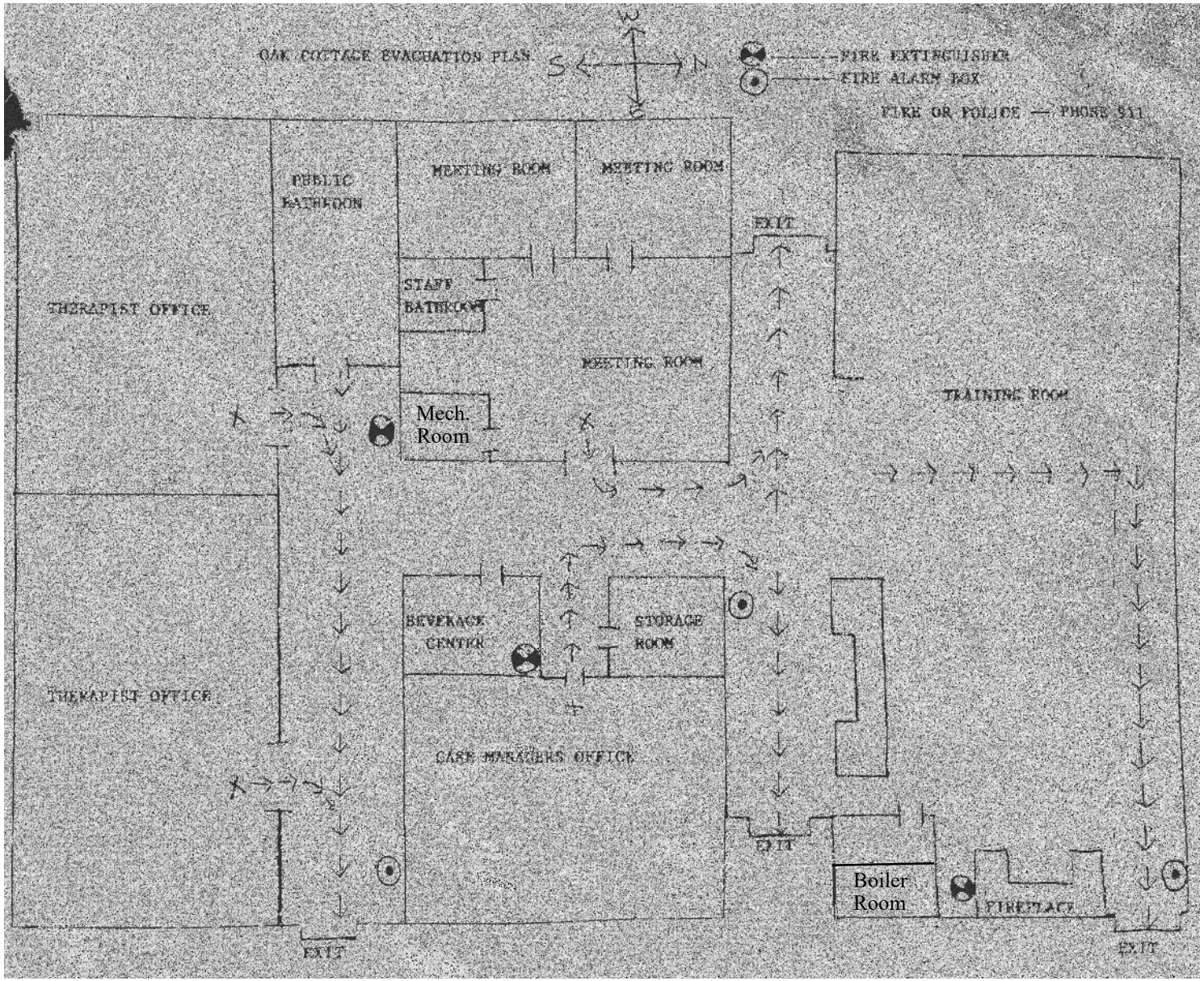

Building Floor Plan
Clark County Family & Children Services Visitation Center
525 E. Home Road, Springfield, Ohio 45503

Sampling Date(s): April 10, 2026

Project #: 26-330-001

Dayton Environmental Testing, LLC
2750-B Indian Ripple Road, Suite 211
Dayton, Ohio 45459
(937) 751-7872
www.daytontesting.com

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Attachment C

Laboratory Analytical Reports with Chain-of-Custody Form and Bulk Sampling log

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Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Dayton Environmental Testing, LLC (4738)
Address: 2750-B Indian Ripple Rd
Suite 211
Dayton, OH 45440

Attn:

Order #: 681239

Received 04/13/26
Analyzed 04/21/26
Reported 04/23/26

Project: Clark County - Family 7 Child
Location: 525 E. Home Rd, Springfield OH
Number: 26-330-001

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
681239-001	04/10/26	1-1	Boiler Rm		
Layer 1: Insulation Brown, Fibrous				No Asbestos Detected	95% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
681239-002	04/10/26	1-2	Boiler Rm		
Layer 1: Insulation Brown, Fibrous				No Asbestos Detected	95% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
681239-003	04/10/26	1-3	Boiler Rm		
Layer 1: Insulation Brown, Fibrous				No Asbestos Detected	95% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
681239-004	04/10/26	2-1	Boiler Rm		
Layer 1: Sealant Mastic Tan, Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Pipe Insulation Yellow, Fibrous				No Asbestos Detected	95% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
681239-005	04/10/26	2-2	Near Rear Exit		
Layer 1: Sealant Mastic Tan, Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Pipe Insulation Yellow, Fibrous				No Asbestos Detected	95% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL

Report Amended. Rechecked sample #52 and #53.

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. Laboratory estimated asbestos error rates available upon request. The test results apply to the sample as received.

Project: Clark County - Family 7 Child
Location: 525 E. Home Rd, Springfield OH
Number: 26-330-001

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
681239-006	04/10/26	2-3	Case Mngrs Office		
Layer 1: Sealant Mastic Tan, Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Pipe Insulation Yellow, Fibrous				No Asbestos Detected	95% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
681239-007	04/10/26	3-1	Strg Rm Near Mngrs Off		
Layer 1: Cove Base Gray, Rubbery				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastics Tan/Brown, Soft/Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL
Unable to separate individual layers.					
681239-008	04/10/26	3-2	Mtg Rm Near Mechncl		
Layer 1: Cove Base Gray, Rubbery				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastics Tan/Brown, Soft/Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL
Unable to separate individual layers.					
681239-009	04/10/26	4-1	Strg Rm Nease Mngrs Off		
Layer 1: Vinyl Flooring Gray, Organically Bound				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Clear, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Floor Tile Tan, Organically Bound				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 4: Mastic Black, Bituminous				5% CHRYSOTILE	95% NON FIBROUS MATERIAL

Report Amended. Rechecked sample #52 and #53.

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. Laboratory estimated asbestos error rates available upon request. The test results apply to the sample as received.

Project: Clark County - Family 7 Child
Location: 525 E. Home Rd, Springfield OH
Number: 26-330-001

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
681239-010	04/10/26	4-2	Mtg Rm Mechncl		
Layer 1: Vinyl Flooring Gray, Organically Bound				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Clear, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Floor Tile Tan, Organically Bound				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 4: Mastic Black, Bituminous				5% CHRYSOTILE	95% NON FIBROUS MATERIAL
681239-011	04/10/26	5-1	Pub Restrm Shower Wall		
Layer 1: Drywall White, Powdery				No Asbestos Detected	8% CELLULOSE FIBER 92% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Drywall System White, Powdery/Granular				No Asbestos Detected	4% CELLULOSE FIBER 96% NON FIBROUS MATERIAL
681239-012	04/10/26	5-2	Pub Restrm Soffit		
Layer 1: Drywall White, Powdery				No Asbestos Detected	8% CELLULOSE FIBER 92% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Drywall System White, Powdery/Granular				No Asbestos Detected	4% CELLULOSE FIBER 96% NON FIBROUS MATERIAL

Report Amended. Rechecked sample #52 and #53.

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. Laboratory estimated asbestos error rates available upon request. The test results apply to the sample as received.

Project: Clark County - Family 7 Child
Location: 525 E. Home Rd, Springfield OH
Number: 26-330-001

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
681239-013	04/10/26	5-3	NW Mtg Rm Ceiling		
Layer 1: Drywall White, Powdery				No Asbestos Detected	8% CELLULOSE FIBER 92% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Drywall System White, Powdery/Granular				No Asbestos Detected	4% CELLULOSE FIBER 96% NON FIBROUS MATERIAL
681239-014	04/10/26	5-4	NW Mtg Rm Ceiling		
Layer 1: Drywall White, Powdery				No Asbestos Detected	8% CELLULOSE FIBER 92% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Drywall System White, Powdery/Granular				No Asbestos Detected	4% CELLULOSE FIBER 96% NON FIBROUS MATERIAL
681239-015	04/10/26	5-5	Training Rm W Wall		
Layer 1: Drywall White, Powdery No joint compound found.				No Asbestos Detected	8% CELLULOSE FIBER 92% NON FIBROUS MATERIAL
681239-016	04/10/26	5-6	Training Rm E Wall Above		
Layer 1: Drywall White, Powdery				No Asbestos Detected	8% CELLULOSE FIBER 92% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Drywall System White, Powdery/Granular				No Asbestos Detected	4% CELLULOSE FIBER 96% NON FIBROUS MATERIAL

Report Amended. Rechecked sample #52 and #53.

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. Laboratory estimated asbestos error rates available upon request. The test results apply to the sample as received.

Project: Clark County - Family 7 Child
Location: 525 E. Home Rd, Springfield OH
Number: 26-330-001

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
681239-017	04/10/26	6-1	Pub Restrm E Shower		
Layer 1: Ceramic Tile White, Hard				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Brown, Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Grout White, Hard/Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-018	04/10/26	6-2	Pub Restrm W Shower		
Layer 1: Ceramic Tile White, Hard				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Brown, Brittle				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Grout White, Hard/Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-019	04/10/26	7-1	Attic N		
Layer 1: Insulation White, Fibrous				No Asbestos Detected	95% FIBERGLASS 5% NON FIBROUS MATERIAL
681239-020	04/10/26	7-2	Attic S		
Layer 1: Insulation White, Fibrous				No Asbestos Detected	95% FIBERGLASS 5% NON FIBROUS MATERIAL
681239-021	04/10/26	7-3	Attic W		
Layer 1: Insulation White, Fibrous				No Asbestos Detected	95% FIBERGLASS 5% NON FIBROUS MATERIAL
681239-022	04/10/26	8-1	NW Mtg Rm		
Layer 1: Caulking Beige, Soft No gray caulking found.				2% CHRYSOTILE	98% NON FIBROUS MATERIAL

Report Amended. Rechecked sample #52 and #53.

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. Laboratory estimated asbestos error rates available upon request. The test results apply to the sample as received.

Project: Clark County - Family 7 Child
Location: 525 E. Home Rd, Springfield OH
Number: 26-330-001

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
681239-023	04/10/26	8-2	Strg Rm Mngrs Off		
Layer 1: Caulking Beige, Soft No gray caulking found.				2% CHRYSOTILE	98% NON FIBROUS MATERIAL
681239-024	04/10/26	8-3	E Therapist Off		
Layer 1: Caulking Multi-Colored, Soft				2% CHRYSOTILE	98% NON FIBROUS MATERIAL
681239-025	04/10/26	9-1	NW Mtg Rm		
Layer 1: Ceiling Tile White, Fibrous				No Asbestos Detected	40% CELLULOSE FIBER 40% MINERAL/GLASS WOOL 20% NON FIBROUS MATERIAL
Layer 2: Mastic Tan, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-026	04/10/26	9-2	NW Mtg Rm		
Layer 1: Ceiling Tile White, Fibrous				No Asbestos Detected	40% CELLULOSE FIBER 40% MINERAL/GLASS WOOL 20% NON FIBROUS MATERIAL
Layer 2: Mastic Tan, Soft				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-027	04/10/26	10-1	Strg Rm Training Rm		
Layer 1: Plaster White, Hard/Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Base Coat Light Gray, Brittle No skim coat found.				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-028	04/10/26	10-2	Strg Rm Mngrs Off		
Layer 1: Plaster White, Hard/Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Base Coat Light Gray, Brittle No skim coat found.				No Asbestos Detected	100% NON FIBROUS MATERIAL

Report Amended. Rechecked sample #52 and #53.

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. Laboratory estimated asbestos error rates available upon request. The test results apply to the sample as received.

Project: Clark County - Family 7 Child
Location: 525 E. Home Rd, Springfield OH
Number: 26-330-001

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
681239-029	04/10/26	10-3	Mtg Rm Restrm		
Layer 1: Plaster White, Hard/Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Base Coat Light Gray, Brittle No skim coat found.				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-030	04/10/26	10-4	Public Restrm		
Layer 1: Plaster White, Hard/Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 2: Base Coat Light Gray, Brittle No skim coat found.				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-031	04/10/26	10-5	Mechancl Rm Attic		
Layer 1: Gypsum Board White, Powdery				No Asbestos Detected	8% CELLULOSE FIBER 92% NON FIBROUS MATERIAL
Layer 2: Plaster White, Hard/Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Base Coat Light Gray, Brittle No skim coat found.				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-032	04/10/26	10-6	Mechancl Rm Water Heater		
Layer 1: Gypsum Board White, Powdery				No Asbestos Detected	8% CELLULOSE FIBER 92% NON FIBROUS MATERIAL
Layer 2: Plaster White, Hard/Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Base Coat Light Gray, Brittle No skim coat found.				No Asbestos Detected	100% NON FIBROUS MATERIAL

Report Amended. Rechecked sample #52 and #53.

Reporting Limit: 1% Gravimetrically Reduced Reporting Limit: 0.01% PLM analysis is based on Visual Estimation and NESHAP recommends that any friable sample with an asbestos content less than 10 percent be verified by Point Count or TEM Analysis. The EPA recommends that any attic loose fill vermiculite should be treated as asbestos containing material. This report must not be reproduced except in full with the approval of the laboratory. Laboratory estimated asbestos error rates available upon request. The test results apply to the sample as received.

Project: Clark County - Family 7 Child
Location: 525 E. Home Rd, Springfield OH
Number: 26-330-001

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
681239-033	04/10/26	10-7	Mechancl Rm Door		
Layer 1: Gypsum Board White, Powdery				No Asbestos Detected	8% CELLULOSE FIBER 92% NON FIBROUS MATERIAL
Layer 2: Plaster White, Hard/Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Base Coat Light Gray, Brittle No skim coat found.				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-034	04/10/26	11-1	Pub Restrm Floor		
Layer 1: Mortar Gray, Hard/Granular No ceramic tile found.				No Asbestos Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
681239-035	04/10/26	11-2	Pub Restrm Floor		
Layer 1: Mortar Gray, Hard/Granular No ceramic tile found.				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-036	04/10/26	12-1	Pub Restrm Floor		
Layer 1: Grout Gray, Hard/Granular No ceramic tile found.				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-037	04/10/26	12-2	Pub Restrm Floor		
Layer 1: Grout Gray, Hard/Granular No ceramic tile found.				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-038	04/10/26	13-1	Case Mngrs Off N Win		
Layer 1: Caulk White, Rubbery				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-039	04/10/26	13-2	Case Mngrs Off E Win S		
Layer 1: Caulk White, Rubbery				No Asbestos Detected	100% NON FIBROUS MATERIAL

Report Amended. Rechecked sample #52 and #53.

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Project: Clark County - Family 7 Child
Location: 525 E. Home Rd, Springfield OH
Number: 26-330-001

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
681239-040	04/10/26	14-1	Blw Win NE Mtg Rm		
Layer 1: Caulk Gray/Tan, Granular				2% CHRYSOTILE	98% NON FIBROUS MATERIAL
Unable to separate individual layers.					
681239-041	04/10/26	14-2	E Under Window Mngrs Off		
Layer 1: Caulk Gray/Tan, Granular				2% CHRYSOTILE	98% NON FIBROUS MATERIAL
Unable to separate individual layers.					
681239-042	04/10/26	15-1	N Elevation NE Mtg Rm		
Layer 1: Caulk Brown, Rubbery				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-043	04/10/26	15-2	E of Training Rm		
Layer 1: Caulk Brown, Rubbery				No Asbestos Detected	100% NON FIBROUS MATERIAL
681239-044	04/10/26	16-1	Pub Restrm Win		
Layer 1: Caulk Gray, Granular				4% CHRYSOTILE	96% NON FIBROUS MATERIAL
681239-045	04/10/26	16-2	Pub Restrm Win		
Layer 1: Caulk Gray, Granular				4% CHRYSOTILE	96% NON FIBROUS MATERIAL
681239-046	04/10/26	17-1	Pub Restrm Win		
Layer 1: Window Glazing Light Gray/White, Granular				No Asbestos Detected	98% NON FIBROUS MATERIAL 2% WOLLASTONITE
681239-047	04/10/26	17-2	Pub Restrm Win		
Layer 1: Window Glazing Light Gray/White, Granular				No Asbestos Detected	98% NON FIBROUS MATERIAL 2% WOLLASTONITE
681239-048	04/10/26	18-1	S W Therapist Off		
Layer 1: Caulk White, Granular				No Asbestos Detected	100% NON FIBROUS MATERIAL

Report Amended. Rechecked sample #52 and #53.

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Project: Clark County - Family 7 Child
Location: 525 E. Home Rd, Springfield OH
Number: 26-330-001

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
681239-049	04/10/26	18-2	E Elevation Mgrs Off		
Layer 1: Caulk White, Granular				No Asbestos Detected	98% NON FIBROUS MATERIAL 2% WOLLASTONITE
681239-050	04/10/26	19-1	Roof E Side S End		
Layer 1: Roof Shingle Black, Granular/Bituminous/Fibrous				No Asbestos Detected	40% CELLULOSE FIBER 60% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
Layer 2: Tar Black, Bituminous				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Underlayment Black, Fibrous/Bituminous				No Asbestos Detected	20% CELLULOSE FIBER 80% NON FIBROUS MATERIAL
681239-051	04/10/26	19-2	Roof E Side N End		
Layer 1: Roof Shingle Black, Granular/Bituminous/Fibrous				No Asbestos Detected	40% MINERAL/GLASS WOOL 60% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
Layer 2: Tar Black, Bituminous				No Asbestos Detected	100% NON FIBROUS MATERIAL
Layer 3: Underlayment Black, Fibrous/Bituminous				No Asbestos Detected	20% CELLULOSE FIBER 80% NON FIBROUS MATERIAL
681239-052	04/10/26	20-1	NW Mtg Rm Closet		
Layer 1: Ceiling Tile White/Brown, Fibrous				No Asbestos Detected	90% CELLULOSE FIBER 10% NON FIBROUS MATERIAL
Layer 2: Mastic Brown, Brittle				<1% CHRYSOTILE	100% NON FIBROUS MATERIAL
681239-053	04/10/26	20-2	Hallway N Mngrs Off		
Layer 1: Ceiling Tile White/Brown, Fibrous				No Asbestos Detected	90% CELLULOSE FIBER 10% NON FIBROUS MATERIAL
Layer 2: Mastic Brown, Brittle				<1% CHRYSOTILE	100% NON FIBROUS MATERIAL

Report Amended. Rechecked sample #52 and #53.

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Project: Clark County - Family 7 Child
Location: 525 E. Home Rd, Springfield OH
Number: 26-330-001

Method: EPA 600/R-93/116 & 40 CFR App. E Sub. E Pt. 763 **PLM Analysis**

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
681239-054	04/10/26	21-1	Front Entrance Door		
Layer 1: Caulking Tan, Soft				2% CHRYSOTILE	98% NON FIBROUS MATERIAL
681239-055	04/10/26	21-2	Rear Entrance Door		
Layer 1: Caulking Tan, Soft				2% CHRYSOTILE	98% NON FIBROUS MATERIAL

EPA Regulatory Limit: 1%
Total layers analyzed on order: 98

681239-04/23/26 09:52 AM

Analyst **Thoria Nadiem**

Reviewed By: **Eisen Zhao**
Analyst

Report Amended. Rechecked sample #52 and #53.

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SCHNEIDER LABORATORIES GLOBLAL, INC.
2512 West Cary Street, Richmond, Virginia 23220-5117
804-353-6778 · 800-785-LABS (5227) · Fax 804-359-1475
www.slabinc.com e-mail: info@slabinc.com

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UPS 1Z2E28998498227669

Submitting Co.	Dayton Environmental Testing, LLC	**Lab WO #**		**Phone**	937-751-7872
2750-B Indian Ripple Road, Suite 211		**Acct #**	4738	**Fax / Email**	Lee@DaytonTesting.com
Dayton, Ohio 45440		****State of Collection**	Ohio	****Cert Required**	☐ Yes ☐ No
Project Name:	Clark County - Family & Children Services Visitation Center			**Special Instructions [Include requests for special reporting or data packages]**	
Project Location:	525 E. Home Road, Springfield, Ohio 45503			**REMARKS: See Attached Asbestos Bulk Sampling Log.**	
Project Number:	26-330-001				
PO Number:					

Turn Around Time

- ☐ 2 hours*
- ☐ Same day*
- ☐ 1 business day
- ☐ 2 business days
- ☐ 3 business days
- X 5 business days
- ☐ Full TCLP (10d)
- ☐ Weekend*

* not available for all tests

Schedule rush organics, multi-metals & weekend tests in advance.

Matrix / Sample Type (Select ONE)

All samples on form should be of SAME matrix type. Use additional forms as needed.

☐ Air	☐ Solid
☐ Aqueous	☐ Waste
X Bulk	☐ Wastewater
☐ Hi-Vol Filter (PM10)	☐ Water, Drinking
☐ Hi-Vol Filter (TSP)	☐ Compliance
☐ Oil	☐ Wipe
☐ Paint	☐ Wipe, Composite
☐ Sludge	☐ _____
☐ Soil	☐ _____

Tests / Analysis (Select ALL that Apply)

Asbestos Air / Fiber Counts

- ☐ PCM (NIOSH 7400)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II)
- ☐ _____

Miscellaneous Tests

- ☐ Total Dust (NIOSH 0500)
- ☐ Resp. Dust (NIOSH 0600)
- ☐ Silica - FTIR (NIOSH 7602)
- ☐ Silica - XRD (NIOSH 7500)
- ☐ Mold Analysis

Asbestos Bulk / Asb ID

- X PLM (EPA 600/R-93/116)
- ☐ PLM (EPA Point Count)
- ☐ PLM (Qualitative Only)
- ☐ NYELAP 198.1/.4/.6
- ☐ CAELAP (EPA Inerim)
- ☐ TEM (Chatfield)
- ☐ _____

FOR ASBESTOS AIR:

TYPE OF RESPIRATOR USED: _____

Metals-Total Conc.

- ☐ Lead
- ☐ RCRA Metals
- ☐ _____
- ☐ _____

Metals-Extract

- ☐ TCLP / Lead
- ☐ TCLP / RCRA Metals
- ☐ TCLP / Full (w/orgainics)

Others

Sample #	Date Sampled**	Time Sampled**	Sample Identification (Employee SSN, Bldg, Material,	Wiped Area (ft2)	pH / Temp*	Time[2] Start	Time[2] Stop	Flow Rate[3] Start	Flow Rate[3] Stop	Total[4] Air

[1]Type: A=area B=blank P=personal E=excursion [2]Beginning/End of Sample Period [3] Pump Calibration in Liters/Minute [4]Volume in Liters [time in min * flow in L/min]

Sampled by

Name: Michael Lee

Signature:

Date/Time: 4/10/2026 @ 12:00 pm

Relinquished to lab by

Name: Michael Lee

Signature:

Date/Time: 4/11/2026 @ 12:00 pm

☐ Sample Return Requested ☐ Ambient temp ☐ Ice___ ☐ Cl ___ ☐R ☐S ☐X

☐ Receive a physical copy of report

Sample Disposal:

☐ Return to Sender

☐ Disposal by lab

Shipping Methods

☐ UPS ☐ FX ☐ USM ☐ HD ☐ DB

*Temperature taken with IR Gun A. **Required. Chain-of-Custody documentation continued internally within lab. Terms and conditions page 2.

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Dayton
Environmental Testing, LLC

Asbestos Bulk Sampling Log

Pre-Renovation Asbestos Survey
Clark County Department of Jobs & Family Services
Family & Children Services Visitation Center - 525 E. Home Road, Springfield, Ohio 45503
Project Number: 26-330-001

Sample #	Group #	Collection Date	Material	Color/Description	Sample Location	Collected By
1-1	1	4/10/2026	Boiler Insulation	Brown Fiberglass Insulation Inside Boiler	Boiler Room	M. Lee
1-2	1	4/10/2026	Boiler Insulation	Brown Fiberglass Insulation Inside Boiler	Boiler Room	M. Lee
1-3	1	4/10/2026	Boiler Insulation	Brown Fiberglass Insulation Inside Boiler	Boiler Room	M. Lee
2-1	2	4/10/2026	Sealant Mastic	Tan Sealant Mastic Associated with Fiberglass Pipe Insulation	Boiler Room	M. Lee
2-2	2	4/10/2026	Sealant Mastic	Tan Sealant Mastic Associated with Fiberglass Pipe Insulation	Near Rear Exit	M. Lee
2-3	2	4/10/2026	Sealant Mastic	Tan Sealant Mastic Associated with Fiberglass Pipe Insulation	Case Manager's Office	M. Lee
3-1	3	4/10/2026	Cove Base and Mastic	4" Gray Cove Base with Tan Mastic and Brown Mastic	Storage Room Near Case Manager's Office	M. Lee
3-2	3	4/10/2026	Cove Base and Mastic	4" Gray Cove Base with Tan Mastic and Brown Mastic	Meeting Room Near Mechanical Room	M. Lee
4-1	4	4/10/2026	Flooring	Gray Vinyl Plank Flooring with Clear Mastic over 9" x 9" Tan Floor Tile with Black Mastic	Storage Room Near Case Manager's Office	M. Lee
4-2	4	4/10/2026	Flooring	Gray Vinyl Plank Flooring with Clear Mastic over 9" x 9" Tan Floor Tile with Black Mastic	Meeting Room Near Mechanical Room	M. Lee
5-1	5	4/10/2026	Drywall System	White Drywall Board with White Joint Compound	Public Restroom Wall Near Shower Room	M. Lee
5-2	5	4/10/2026	Drywall System	White Drywall Board with White Joint Compound	Public Restroom, Soffit	M. Lee
5-3	5	4/10/2026	Drywall System	White Drywall Board with White Joint Compound	Northwest Meeting Room Ceiling	M. Lee
5-4	5	4/10/2026	Drywall System	White Drywall Board with White Joint Compound	Northwest Meeting Room Ceiling	M. Lee
5-5	5	4/10/2026	Drywall System	White Drywall Board with White Joint Compound	Training Room, West Wall	M. Lee
5-6	5	4/10/2026	Drywall System	White Drywall Board with White Joint Compound	Training Room, East Wall Above Door	M. Lee
6-1	6	4/10/2026	Grout and Mastic	White Grout and Brown Mastic Associated with Ceramic Wall Tile	Public Restroom, East Shower Wall	M. Lee
6-2	6	4/10/2026	Grout and Mastic	White Grout and Brown Mastic Associated with Ceramic Wall Tile	Public Restroom, West Shower Wall	M. Lee

Dayton
Environmental Testing, LLC

Asbestos Bulk Sampling Log

Pre-Renovation Asbestos Survey
Clark County Department of Jobs & Family Services
Family & Children Services Visitation Center - 525 E. Home Road, Springfield, Ohio 45503
Project Number: 26-330-001

Sample #	Group #	Collection Date	Material	Color/Description	Sample Location	Collected By
7-1	7	4/10/2026	Attic Insulation	White Blown-In Attic Insulation	Attic, North	M. Lee
7-2	7	4/10/2026	Attic Insulation	White Blown-In Attic Insulation	Attic, South	M. Lee
7-3	7	4/10/2026	Attic Insulation	White Blown-In Attic Insulation	Attic, West	M. Lee
8-1	8	4/10/2026	Caulk	Gray Caulking Associated with Interior Door Frames	Northwest Meeting Room	M. Lee
8-2	8	4/10/2026	Caulk	Gray Caulking Associated with Interior Door Frames	Storage Room Near Case Manager's Office	M. Lee
8-3	8	4/10/2026	Caulk	Gray Caulking Associated with Interior Door Frames	East Therapist Office	M. Lee
9-1	9	4/10/2026	Ceiling Tile and Mastic	12" x 12" White Ceiling Tile (Random Small Fissures) and Tan Mastic	Northwest Meeting Room	M. Lee
9-2	9	4/10/2026	Ceiling Tile and Mastic	12" x 12" White Ceiling Tile (Random Small Fissures) and Tan Mastic	Northwest Meeting Room	M. Lee
10-1	10	4/10/2026	Hard Plaster	Hard Plaster (White Skim Coat over Light Gray Base Coat)	Storage Room Near Training Room	M. Lee
10-2	10	4/10/2026	Hard Plaster	Hard Plaster (White Skim Coat over Light Gray Base Coat)	Storage Room Near Case Manager's Office	M. Lee
10-3	10	4/10/2026	Hard Plaster	Hard Plaster (White Skim Coat over Light Gray Base Coat)	Meeting Room Restroom	M. Lee
10-4	10	4/10/2026	Hard Plaster	Hard Plaster (White Skim Coat over Light Gray Base Coat)	Public Restroom	M. Lee
10-5	10	4/10/2026	Hard Plaster	Hard Plaster (White Skim Coat over Light Gray Base Coat) with White Gypsum Board	Mechanical Room (Near Attic Scuttle)	M. Lee
10-6	10	4/10/2026	Hard Plaster	Hard Plaster (White Skim Coat over Light Gray Base Coat) with White Gypsum Board	Mechanical Room (Above Hot Water Heater)	M. Lee
10-7	10	4/10/2026	Hard Plaster	Hard Plaster (White Skim Coat over Light Gray Base Coat) with White Gypsum Board	Mechanical Room (Near Door)	M. Lee
11-1	11	4/10/2026	Mortar Bed	Gray Mortar Bed Associated with 1" Ceramic Floor Tile	Public Restroom Floor	M. Lee
11-2	11	4/10/2026	Mortar Bed	Gray Mortar Bed Associated with 1" Ceramic Floor Tile	Public Restroom Floor	M. Lee
12-1	12	4/10/2026	Grout	Gray Grout Associated with 1" Ceramic Floor Tile	Public Restroom Floor	M. Lee

Dayton
Environmental Testing, LLC

Asbestos Bulk Sampling Log

Pre-Renovation Asbestos Survey
Clark County Department of Jobs & Family Services
Family & Children Services Visitation Center - 525 E. Home Road, Springfield, Ohio 45503
Project Number: 26-330-001

Sample #	Group #	Collection Date	Material	Color/Description	Sample Location	Collected By
12-2	12	4/10/2026	Grout	Gray Grout Associated with 1" Ceramic Floor Tile	Public Restroom Floor	M. Lee
13-1	13	4/10/2026	Caulk	White Caulk Associated with Newer Windows (Interior Side)	Case Manager's Office, North Window	M. Lee
13-2	13	4/10/2026	Caulk	White Caulk Associated with Newer Windows (Interior Side)	Case Manager's Office, East Window, South	M. Lee
14-1	14	4/10/2026	Caulk	Gray to Tan Caulk/Sealant Associated with Seams of Masonry Ledge Under Windows	Below Window Outside Northeast Meeting Room	M. Lee
14-2	14	4/10/2026	Caulk	Gray to Tan Caulk/Sealant Associated with Seams of Masonry Ledge Under Windows	East Elevation Under Windows of the Case Manager's Office	M. Lee
15-1	15	4/10/2026	Caulk	Brown Caulk Associated with Exterior Wood Siding	North Elevation Near the Northeast Meeting Room	M. Lee
15-2	15	4/10/2026	Caulk	Brown Caulk Associated with Exterior Wood Siding	East Elevation of the Training Room	M. Lee
16-1	16	4/10/2026	Caulk	Gray Caulk Associated with Old Window	Public Restroom Window	M. Lee
16-2	16	4/10/2026	Caulk	Gray Caulk Associated with Old Window	Public Restroom Window	M. Lee
17-1	17	4/10/2026	Glazing Compound	Light Gray Window Glazing Compound Associated with Old Window	Public Restroom Window	M. Lee
17-2	17	4/10/2026	Glazing Compound	Light Gray Window Glazing Compound Associated with Old Window	Public Restroom Window	M. Lee
18-1	18	4/10/2026	Caulk	White Caulk Associated with Newer Windows (Exterior Side)	South Elevation, West Therapist Office	M. Lee
18-2	18	4/10/2026	Caulk	White Caulk Associated with Newer Windows (Exterior Side)	East Elevation, Case Manger's Office	M. Lee
19-1	19	4/10/2026	Roof Shingle and Tar Paper	Black Asphalt Roof Shingle with Black Tar Underlayment Paper	Roof, East Side, South End	M. Lee
19-2	19	4/10/2026	Roof Shingle and Tar Paper	Black Asphalt Roof Shingle with Black Tar Underlayment Paper	Roof, East Side, North End	M. Lee
20-1	20	4/10/2026	Ceiling Tile and Mastic	12" x 12" Brown Celling Tile with White Face (Small Holes and Long Fissures) and Brown Mastic	Northwest Meeting Room Closet	M. Lee
20-2	20	4/10/2026	Ceiling Tile and Mastic	12" x 12" Brown Celling Tile with White Face (Small Holes and Long Fissures) and Brown Mastic	Hallway North of Case Manager's Office	M. Lee
21-1	21	4/10/2026	Caulk	Tan Caulking Associated with Entrance Door Frames	Front Entrance Door	M. Lee

Dayton
Environmental Testing, LLC

Asbestos Bulk Sampling Log

Pre-Renovation Asbestos Survey
Clark County Department of Jobs & Family Services
Family & Children Services Visitation Center - 525 E. Home Road, Springfield, Ohio 45503
Project Number: 26-330-001

Sample #	Group #	Collection Date	Material	Color/Description	Sample Location	Collected By
21-2	21	4/10/2026	Caulk	Tan Caulking Associated with Entrance Door Frames	Rear Entrance Door	M. Lee

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April 22, 2026

Michael Lee
DAYTON ENVIRONMENTAL TESTING LLC
35 Compark Rd
Dayton, OH 45459

CLIENT PROJECT: Clark Co. Family & Children Services, 26-330-001
LAB CODE: 742657-1

Dear Michael,

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on 04/16/26. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials and EPA 40 CFR Appendix E to Subpart E of Part 763: Interim Method of the Determination of Asbestos in Bulk Insulation Samples.

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

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

Kind Regards,

Kamila Reichert

Kamila Reichert,
Laboratory Director

NVLAP 600323-0

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ASBESTOS ANALYTICAL REPORT
By: Polarized Light Microscopy

Prepared for

DAYTON ENVIRONMENTAL TESTING LLC

CLIENT PROJECT:	Clark Co. Family & Children Services, 26-330-001
LAB CODE:	742657-1
TEST METHOD:	EPA 600 / R93 / 116 and EPA 40 CFR Appendix E to Subpart E of Part 763
REPORT DATE:	04/22/26
TOTAL SAMPLES ANALYZED:	8
# SAMPLES >1% ASBESTOS:	1
TOTAL LAYERS ANALYZED:	9

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Asbestos Report Summary
By: Polarized Light Microscopy

Project: Clark Co. Family & Children Services, 26-330-001

Lab Code: 742657-1

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

Client ID	Lab ID	Layer	Sample Description	Asbestos %
2-1	4342527		Tan sealant	None Detected
7-1	4342528		White insulation	None Detected
9-1	4342529		White/beige ceiling tile	None Detected
9-1 (2)	4364532		Tan mastic	None Detected
10-2	4342530	Layer A	White plaster skim coat	None Detected
		Layer B	Light-gray plaster base coat	None Detected
13-2	4342531		White caulk	None Detected
20-2	4342532		White/brown ceiling tile	None Detected
20-2 (2)	4364700		Brown mastic	Chrysotile 2%

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ASBESTOS BULK ANALYSIS
By: Polarized Light Microscopy

Client: DAYTON ENVIRONMENTAL TESTING LLC
35 Compark Rd
Dayton, OH 45459

Lab Code: 742657-1
Date Received: 04/16/26
Date Analyzed: 04/22/26
Date Reported: 04/22/26

Project: Clark Co. Family & Children Services, 26-330-001

Method: ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
2-1 4342527	Sealant	Homogeneous Tan Non-Fibrous Bound			100%	Mastic	**None Detected**
7-1 4342528	Insulation	Homogeneous White Fibrous Loosely Bound	100%	Glass			**None Detected**
9-1 4342529	Ceiling Tile	Heterogeneous White/beige Fibrous Loosely Bound	60% 20%	Cellulose Glass	15% 5%	Perlite Paint	**None Detected**
9-1 (2) 4364532	Mastic	Homogeneous Tan Non-Fibrous Bound			100%	Mastic	**None Detected**
10-2 Layer A 4342530	Plaster Skim Coat	Heterogeneous White Non-Fibrous Bound			60% 35% 5%	Binder Silica Paint	**None Detected**
Layer B 4342530	Plaster Base Coat	Homogeneous Light-gray Non-Fibrous Bound			80% 20%	Binder Perlite	**None Detected**
13-2 4342531	Caulk	Heterogeneous White Non-Fibrous Bound			95% 5%	Caulk Paint	**None Detected**

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ASBESTOS BULK ANALYSIS
By: Polarized Light Microscopy

Client: DAYTON ENVIRONMENTAL TESTING LLC
35 Compark Rd
Dayton, OH 45459

Lab Code: 742657-1
Date Received: 04/16/26
Date Analyzed: 04/22/26
Date Reported: 04/22/26

Project: Clark Co. Family & Children Services, 26-330-001

Method: ASBESTOS BULK PLM, EPA 600 METHOD

Client ID / Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS Fibrous		Non-Fibrous		ASBESTOS %
20-2 4342532	Ceiling Tile	Heterogeneous White/brown Fibrous Loosely Bound	95%	Cellulose	5%	Paint	None Detected
20-2 (2) 4364700	Mastic	Homogeneous Brown Non-Fibrous Bound			98%	Mastic	Chrysotile 2%

LEGEND:

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

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

REPORTING LIMIT: 1% by calibrated visual estimation

REGULATORY LIMIT: 1%

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

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

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

Olivia Gardner
Analyst

DATA QA: Madelyn Schmidt

Madelyn Schmidt
4/22/2026

APPROVED BY: Kamila Reichert

Kamila Reichert,
Laboratory Director

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RES Job #: 742657

SUBMITTED BY		INVOICE TO		CONTACT INFORMATION		SERIES
Company:	DAYTON ENVIRONMENTAL TESTING LLC	Company:	DAYTON ENVIRONMENTAL TESTING LLC	Contact:	Michael Lee	-1 PLM Standard
Address:	35 Compark Rd	Address:	35 Compark Rd	Phone:	(937) 751-7872	
	Dayton, OH 45459		Dayton, OH 45459	Fax:		
				Cell:	(937) 751-7872	
Project Number and/or P.O. #:	None Given	Project Zip Code:		Final Data Deliverable Email Address:		
Project Description/Location:	Clark Co. Family & Children Services, 26-330-001			lee@daytontesting.com		

ASBESTOS LABORATORY

PLM / PCM / TEM / NYS DTL RUSH PRIORITY STANDARD

CHEMISTRY LABORATORY

Dust RUSH PRIORITY STANDARD

Metals RUSH PRIORITY STANDARD *PRIOR NOTICE REQUIRED FOR SAME DAY TAT

Organics* SAME DAY RUSH PRIORITY STANDARD

MICROBIOLOGY LABORATORY

Viable Analysis** PRIORITY STANDARD **TAT DEPENDENT ON SPEED OF MICROBIAL GROWTH

Medical Device Analysis RUSH STANDARD

Mold Analysis RUSH PRIORITY STANDARD

****Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.****

Special Instructions:
Ohio

REQUESTED ANALYSIS

VALID MATRIX CODES

Air = A | Bulk = B
Dust = D | Food = F
Paint = P | Soil = S
Surface = SU | Swab = SW
Tape = T | Wipe = W
Drinking Water = DW
Waste Water = WW
ASTM E1792 approved wipe media only

Client Sample ID Number (Sample ID's must be unique)	ASBESTOS: PLM - PLM Short Report (EPA/600/R-93/116)	ASBESTOS: TEM	ASBESTOS: PCM	ASBESTOS: NYS	CHEMISTRY: DUST	CHEMISTRY: METALS	CHEMISTRY: ORGANICS	MICROBIOLOGY: VIABLES	MICROBIOLOGY: MEDICAL	MICROBIOLOGY: MOLD	ICO	Sample Volume (L) / Area	Sample Temperature (°C)	Length(or Aliquots) x Width(or Area/Aliquot)	Matrix Code	# of Containers	Date Collected mm/dd/yy	Time Collected hh:mm	Laboratory Analysis Instructions
1 2-1	X														B			
2 7-1	X														B			
3 9-1	X														B			
4 10-2	X														B			
5 13-2	X														B			
6 20-2	X														B			

Eurofins Built Environment Testing East, LLC establishes a unique Lab Sample ID, for each sample, by preceding each unique Client Sample ID with the laboratory RES Job Number.
Eurofins Built Environment Testing East, LLC will analyze incoming samples based on information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing, client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall consitute an analytical services agreement with payment terms of NET30. Failure to comply with payment terms may result in a 18% APR finance charge.

Relinquished By:		Date/Time: 04/16/2026 14:11:11	Sample Condition: Acceptable
Received By:	Carlos Romero	Date/Time: 04/16/2026 14:42:49	Carrier: Fed-Ex

6

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CHAIN OF CUSTODY

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:	
CEI Lab Code:	742657
CEI Lab I.D. Range:	

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact: Michael Lee
Company: Dayton Environmental Testing, LLC	Email / Tel: Lee@DaytonTesting.com / (937) 751-7872
Address: 2750-B Indian Ripple Road, Suite 211	Project Name: Clark Co. Family & Children Services
Dayton, Ohio 45440	Project ID#: 26-330-001
Email: Lee@DaytonTesting.com	PO #:
Tel: (937) 751-7872 Fax:	STATE SAMPLES COLLECTED IN: Ohio

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	☐	☐	☐	☐	☐	☒
PLM POINT COUNT (400)	EPA 600	☐	☐	☐	☐	☐	☐
PLM POINT COUNT (1000)	EPA 600	☐	☐	☐	☐	☐	☐
PLM GRAV w POINT COUNT	EPA 600		☐	☐	☐	☐	☐
PLM BULK	CARB 435		☐	☐	☐	☐	☐
PCM AIR	NIOSH 7400	☐	☐	☐	☐	☐	☐
TEM AIR	EPA AHERA	☐	☐	☐	☐	☐	☐
TEM AIR	NIOSH 7402	☐	☐	☐	☐	☐	☐
TEM AIR (PCME)	ISO 10312	☐	☐	☐	☐	☐	☐
TEM AIR	ASTM 6281-15	☐	☐	☐	☐	☐	☐
TEM BULK	CHATFIELD		☐	☐	☐	☐	☐
TEM DUST WIPE	ASTM D6480-05 (2010)	☐	☐	☐	☐	☐	☐
TEM DUST MICROVAC	ASTM D5755-09 (2014)	☐	☐	☐	☐	☐	☐
TEM SOIL	ASTM D7521-16			☐	☐	☐	☐
TEM VERMICULITE	CINCINNATI METHOD			☐	☐	☐	☐
TEM QUALITTATIVE	IN-HOUSE METHOD		☐	☐	☐	☐	☐
OTHER:		☐	☐	☐	☐	☐	☐

REMARKS / SPECIAL INSTRUCTIONS:
See Attached Air Sampling Log

☒ Accept Samples
☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	4/10/26 @ 1100	[signature]	4-14-26 9:45

Samples will be disposed of 30 days after analysis

Dayton
Environmental Testing, LLC

Asbestos Bulk Sampling Log

Pre-Renovation Asbestos Survey
Clark County Department of Jobs & Family Services
Family & Children Services Visitation Center - 525 E. Home Road, Springfield, Ohio 45503
Project Number: 26-330-001

2-1	2	4/10/2026	Sealant Mastic	Tan Sealant Mastic Associated with Fiberglass Pipe Insulation	Boiler Room	M. Lee
7-1	7	4/10/2026	Attic Insulation	White Blown-In Attic Insulation	Attic, North	M. Lee
9-1	9	4/10/2026	Ceiling Tile and Mastic	12" x 12" White Ceiling Tile (Random Small Fissures) and Tan Mastic	Northwest Meeting Room	M. Lee
10-2	10	4/10/2026	Hard Plaster	Hard Plaster (White Skim Coat over Light Gray Base Coat)	Storage Room Near Case Manager's Office	M. Lee
13-2	13	4/10/2026	Caulk	White Caulk Associated with Newer Windows (Interior Side)	Case Manager's Office, East Window, South	M. Lee
20-2	20	4/10/2026	Ceiling Tile and Mastic	12" x 12" Brown Celling Tile with White Face (Small Holes and Long Fissures) and Brown Mastic	Hallway North of Case Manager's Office	M. Lee

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Attachment D

Photographs

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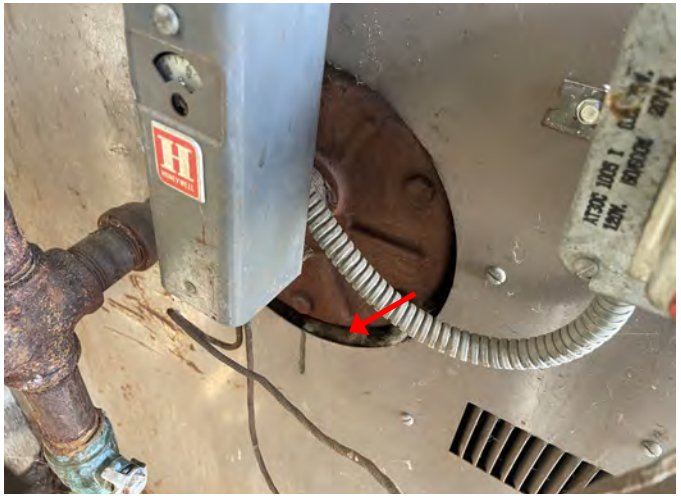
Dayton
Environmental Testing, LLC

Photographs

Pre-Renovation Asbestos Survey Report
Clark County Department of Job & Family Services
Family & Children Services Visitation Center
525 E. Home Road, Springfield, Ohio 45503
Date of Photographs: April 10, 2026



Photograph 1

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Photograph 6

Photograph 7

Photograph 8

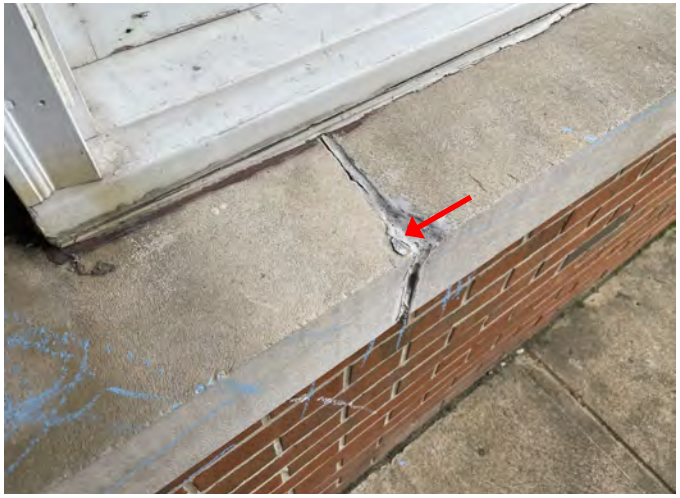
Photograph 9

Photograph 10

Photograph 11

Photograph 12

Photograph 13



Photograph 14

Photograph 15

Photograph 16

Photograph 17

Photograph 18

Photograph 19

Photograph 20

Dayton
Environmental Testing, LLC

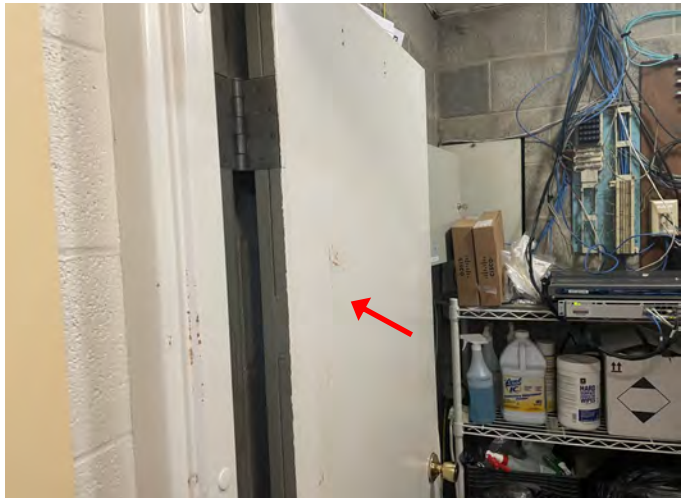
Photographs

Pre-Renovation Asbestos Survey Report
Clark County Department of Job & Family Services
Family & Children Services Visitation Center
525 E. Home Road, Springfield, Ohio 45503
Date of Photographs: April 10, 2026

Photograph 21

Photograph 22

Photograph 23



Photograph 24

Photograph 25

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Attachment E

Qualifications of Assessors

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1/27/2026

Michael Lee
Michael B. Lee
P.O. Box 1084
Marysville, OH 43040

RE: Evaluation Specialist
Certification Number: ES34954
Expiration Date: 3/10/2027

Dear Michael Lee:

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

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

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

Sincerely,

Brandon M. Schwendeman

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

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Attachment F

Laboratory's NVLAP Certificate

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United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101768-0

Eurofins Built Environment Testing East- Cary, NC

Cary, NC

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

Asbestos Fiber Analysis

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

2026-04-01 through 2027-03-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101150-0

Schneider Laboratories Global, Inc.

Richmond, VA

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

Asbestos Fiber Analysis

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

2026-04-01 through 2027-03-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

Attachment B

Certificate of Completion

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APPENDIX B

CERTIFICATE OF COMPLETION

PROJECT NAME: Clark County Family Services – Renovations to Visitation Building
PROJECT ADDRESS: 525 E. Home Road, Springfield, Ohio 45503
ABATEMENT CONTRACTOR'S NAME:_____

1. I certify that I have personally inspected, monitored and supervised the asbestos abatement Work of the Clark County Family Services – Renovations to Visitation Building Abatement Project which took place from _____to _____.

2. That throughout the Work all applicable requirements/regulations and the Client's specifications were met.

3. That any person who entered the regulated area was protected with the appropriate personal protective equipment and respirator and that they followed the proper entry and exit procedures and the proper operating procedures for the duration of the Work.

4. That all employees of the Abatement Contractor engaged in this Work were trained in respiratory protection, were experienced with abatement Work, had proper medical surveillance documentation, were fit-tested for their respirator, and were not exposed at any time during the Work to asbestos without the benefit of appropriate respiratory protection.

5. That I performed and supervised all inspection and testing specified and required by applicable regulations and abatement specifications.

6. That the conditions inside the regulated area were always maintained in a safe and healthy condition and the maximum fiber count never exceeded 0.5 f/cc, except as described below.

7. That the negative pressure system was installed, operated and maintained in order to provide a minimum of 4 actual air changes per hour with a continuous -0.02" of water column pressure.

Signature: _____

Date: _____

Signature: _____

Date: _____

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Attachment C

Certificate of Workers Acknowledgment

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APPENDIX C

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME: Clark County Family Services – Renovations to Visitation Building
PROJECT ADDRESS: 525 E. Home Road, Springfield, Ohio 45503
ABATEMENT CONTRACTOR'S NAME:_____

WORKING WITH ASBESTOS CAN BE HAZARDOUS TO YOUR HEALTH. INHALING ASBESTOS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCERS. IF YOU SMOKE AND INHALE ASBESTOS FIBERS YOUR CHANCES OF DEVELOPING LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract with the owner for the above project requires that: You must be supplied with the proper personal protective equipment including an adequate respirator and be trained in its use. You must be trained in safe and healthy Work practices and in the use of the equipment found at an asbestos abatement project. You must receive/have a current medical examination for Working with asbestos. These things shall be provided at no cost to you. By signing this certificate, you are indicating to the owner that your employer has met these obligations.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators and have been informed of the type of respirator to be used on the above indicated project. I have a copy of the written Respiratory Protection Program issued by my employer. I have been provided for my exclusive use, at no cost, with a respirator to be used on the above indicated project.

TRAINING COURSE: I have been trained by a third party, State/EPA accredited trainer in the requirements for an AHERA/OSHA Asbestos Abatement Worker training course, 32 hours minimum duration. I currently have a valid State accreditation certificate. The topics covered in the course include, as a minimum, the following:
Physical Characteristics and Background Information on Asbestos
Potential Health Effects Related to Exposure to Asbestos
Employee Personal Protective Equipment
Establishment of a Respiratory Protection Program
State of the Art Work Practices
Personal Hygiene
Additional Safety Hazards
Medical Monitoring
Air Monitoring
Relevant Federal, State and Local Regulatory Requirements, Procedures, and Standards
Asbestos Waste Disposal

MEDICAL EXAMINATION: I have had a medical examination within the past 12 months which was paid for by my employer. This examination included: health history, occupational history, pulmonary function test, and may have included a chest x-ray evaluation. The physician issued a positive written opinion after the examination.

Signature: _____ Date: _____

Printed Name: _____ Witness: _____

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Attachment D

Affidavit of Medical Surveillance, Respiratory Protection, and Training/Accreditation

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APPENDIX D

AFFIDAVIT OF MEDICAL SURVEILLANCE, RESPIRATORY PROTECTION AND TRAINING/ACCREDITATION

PROJECT NAME: Clark County Family Services – Renovations to Visitation Building
PROJECT ADDRESS: 525 E. Home Road, Springfield, Ohio 45503
ABATEMENT CONTRACTOR'S NAME:_____

1. I verify that the following individual

   Name:_____ who is proposed to be employed in asbestos abatement Work Associated with the above project by the named. Abatement Contractor, is included in a medical surveillance program in accordance with 29 CFR 1926.1101(m), and that complete records of the medical surveillance program as required by 29 CFR 1926.1101(m)(n) and 29 CFR 1910.20 are kept at the offices of the Abatement Contractor at the following address.

   Address:_____

2. I verify that this individual has been trained, fit-tested and instructed in the use of all appropriate respiratory protection systems and that the person is capable of working in safe and healthy manner as expected and required in the expected Work environment of this project.

3. I verify that this individual has been trained as required by 29 CFR 1926.1101(k). This individual has also obtained a valid State accreditation certificate. Documentation will be kept on-site.

4. I verify that I meet the minimum qualifications criteria of the Owner's specifications for a Competent Person.

   Signature of Competent Person: _____

   Printed Name of Competent Person: _____

   Date: _____

   Signature of Abatement Contractor: _____

   Printed Name of Abatement Contractor: _____

   Date: _____

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Attachment E

Abatement Contractor/Competent Person(s) Review and Acceptance of Asbestos Abatement Specifications

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APPENDIX E

ABATEMENT CONTRACTOR/COMPETENT PERSON(S) REVIEW AND ACCEPTANCE OF ASBESTOS ABATEMENT SPECIFICATIONS

PROJECT NAME: Clark County Family Services – Renovations to Visitation Building
PROJECT ADDRESS: 525 E. Home Road, Springfield, Ohio 45503
ABATEMENT CONTRACTOR'S NAME:_____

This form shall be signed by the Asbestos Abatement Contractor Owner and the Asbestos Abatement Contractor's Competent Person(s) prior to any start of work related to the Clark County Family Services – Renovations to Visitation Building Asbestos Abatement Specifications. If the Asbestos Abatement Contractor's/Competent Person(s) has not signed this form, they shall not be allowed to Work on-site.

I, the undersigned, have read the Clark County Family Services – Renovations to Visitation Building Asbestos Abatement Specifications. I understand the requirements of these specifications and agree to follow these requirements as well as all required rules and regulations of OSHA/EPA/DOT and State/Local requirements. I have been given ample opportunity to read the Clark County Family Services – Renovations to Visitation Building Asbestos Abatement Specifications and have been given an opportunity to ask any questions regarding the content and have received a response related to those questions. I do not have any further questions regarding the content, intent and requirements of the Clark County Family Services – Renovations to Visitation Building Asbestos Abatement Specifications.

At the conclusion of the asbestos abatement, I will certify that all asbestos abatement Work was completed in accordance with the Clark County Family Services – Renovations to Visitation Building Asbestos Abatement Specifications and all specified ACM was removed properly and no fibrous residue remains on any abated surfaces.

Abatement Contractor Owner's Signature _____

Date_____

Abatement Contractor Competent Person(s) _____

Date_____

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Attachment F
Definitions and Terminology

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Asbestos	The generic term for naturally-occurring inorganic hydrated silicates, occurring in layered structures composed of chains of silicon/oxygen tetrahedral, which can be subdivided into flexible fibers. Asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, actinolite, and any of these minerals that have been chemically treated and/or altered. In accordance with 29 CFR 1926.1101 (b), "asbestos" includes presumed asbestos-containing material (PACM), as defined below.
Asbestos-containing Material (ACM)	Any material or product which contains more than one percent asbestos
Asbestos-containing Building Material (ABCM)	Surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a school building
Abatement	Procedures to control fiber release from asbestos-contaminated materials; i.e., removal, encapsulation, or enclosure.
Adequately Wetted	To sufficiently mix or penetrate with Liquid to prevent the release of particulate. If visible emissions are observed coming from ACM, then the material has not been adequately wetted.
Air Lock	A system for permitting entry or egress without permitting air movement between a I contaminated area or an uncontaminated area, typically consisting of two contained doorways at least six feet apart.
Air Monitoring	The process of measuring the fiber content of a specific volume of air in a stated I period of time. Phase contrast microscopy in accordance with NIOSH Method No. 7400 and transmission electron microscopy in accordance with the Asbestos Hazard Emergency Response Act or NIOSH Method No. 7402 are the prescribed methods of sampling and analyses.
Air Sampling Technician	A person trained and experienced in air sampling techniques and schemes who performs air sampling under the direction of the Asbestos Project Manager or C.I.H.
Amended Water	Water to which a surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate the ACM.
Asbestos Project Manager	An individual qualified by virtue of experience and education, designated by the Owner's Representative, responsible for supervising the air sampling technician and helping to ensure compliance with the job specifications.
Authorized Owner's Representative	Architect, Project Engineer, Construction Manager, Supervising Engineer, Consultant, or other personnel designated by the Owner. Authorized representatives of the Owner shall have the authority to stop work of the Contractor if methods used, safety precautions, or personnel protection are not being carried out in accordance with the specifications and regulations cited herein.
Asbestos Hazard Emergency Response Act (AHERA)	Congressional Act which requires local education agencies to identify friable and non-friable asbestos-containing building materials (ACBM) in public and private elementary and secondary schools, submit management plans to the Governor of their state, implement management plans in a timely manner, and maintain complete record keeping of any action involving the disturbance of ACBM.
Authorized Visitor	Any person authorized by the employer and required by work duties to be present in regulated areas. The Owner's Representatives, Air Sampling Technician, Asbestos Project Manager, Consultant, or a representative of any regulatory or other agency having jurisdiction over the project.
Barrier	Plastic sheeting and/or other materials used along with the floors, ceilings, and walls of a structure to form an isolated work environment that separates the contaminated work area from the uncontaminated area.
Bridging Encapsulant	A liquid designed to form a tough membrane over the surface of ACM.

Breathing Zone	The areas near the collar or lapel, forward of the shoulders.
Category I Non-friable Asbestos-containing Material	Asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing Asbestos-containing I products containing more than one percent asbestos as determined using the Material method specified in Appendix A, Subpart F, 40 CFR part 763, Section 1, Polarized-Light Microscopy.
Category II Non-friable Asbestos-containing Material	Any ACM, excluding Category I Non-friable ACM, containing more than one percent I Asbestos-containing I asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR part 763, Section I, Polarized-Light Microscopy (PLM), that when dry, cannot be crumbled, pulverized, or reduced to a powder by hand pressure.
Certified Industrial Hygienist (CIH)	One who is certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.
Class I Asbestos Work	Activities involving the removal of thermal system insulation (TSI) and surfacing ACM and PACM.
Class II Asbestos Work	Activities involving the removal of ACM that is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.
Class III Asbestos Work	Repair and maintenance operations where ACM and PACM, including TSI and surfacing material, may be disturbed.
Class IV Asbestos Work	Maintenance and custodial activities during which employees contact but do not disturb ACM or PACM, and activities to clean up dust, waste, and debris resulting from Class I, II, and III activities.
Clean Room	An un-contaminated area or room that is part of the workers' decontamination enclosure system, with provisions for storage of workers' street clothes and uncontaminated materials and equipment.
Competent Person	A Contractor's employee (typically the foreman or superintendent) by virtue of his education and experience who is capable of operating an asbestos hazard abatement project in accordance with these specifications and current EPA, OSHA and DOT regulations. Duties of the competent person are as defined in OSHA Standard 29 CFR 1926.1101(b). One who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate them. In addition, for Class I and Class II work, one who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for project designer or supervisor, or its equivalent; and, for Class III and Class IV work, one who is trained in an operations and maintenance (O&M) course developed by the EPA.
Consultant Contaminated	The Asbestos Project Manager, Industrial Hygienist, and/or technician designated by the Owner or the Owner's Representative.
Contaminated	Containing or coated with asbestos.
Curtained Doorway	A device to allow entry or egress from one room to another while minimizing air movement between the rooms, typically constructed by placing two overlapping sheets of plastic over an existing or temporarily formed doorway, securing the vertical edge of one sheet along one vertical side of the doorway, and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. Two curtained doorways spaced a minimum of six feet (two meters) apart from an air-lock.
Decontamination	An enclosed area adjacent and connected to the regulated area and consisting

Area	of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.
Decontamination Enclosure System	A series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A decontamination enclosure system always contains at least one airlock.
Disposal	All herein specified procedures necessary to transport and deposit the asbestos-contaminated materials removed from the building(s) in an approved active waste disposal site in compliance with Section 61.154 of the EPA Regulations (40 CFR Part 61) and DOT Regulations (49 CFR Parts 171 and 172).
Disturbance	Any activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. This term includes activities that disrupt the matrix of ACM or PACM, render ACM or PACM friable, or generate visible debris. Disturbance includes cutting away small amounts of ACM or PACM, no greater than the amount that can be contained in one standard sized glovebag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glovebag or waste bag, which shall not exceed 60 inches in length and width.
Employee Exposure	The exposure to asbestos that would occur if employees were not using respiratory protective equipment.
Encapsulant	A liquid material that can be applied to ACM or cleaned substrates following the removal of ACM to control the possible release of residual asbestos fibers by creating a membrane over the surface.
Encapsulation	All herein specified procedures necessary to coat ACM with a penetrating or bridging encapsulant to control the possible release of asbestos fibers into the ambient air.
Equipment Decontamination Enclosure System	A decontamination enclosure system for materials and equipment, typically consisting of a designated area of the work area, a washroom, a holding area, and an uncontaminated area.
Equipment Room (Change Room)	A contaminated area or room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.
Excursion Limit (EL)	The employer shall ensure that no employee is exposed to airborne concentrations of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f*lcc)* as averaged over a sampling period of 30 minutes as determined by the method prescribed by Appendix A of 29 CFR 1926.1101 (NIOSH Method 7400) or an equivalent method.
Facility Component	Any pipe, duct, boiler, tank, fan, engine, or furnace at or in a facility, or any structural member of a facility.
Fiber	A particulate form of asbestos, five micrometers or longer, with a length-to-diameter ratio of a least three to one.
Fixed Object	A piece of equipment or furniture in the work area that cannot be removed from the work area.
Friable Asbestos Material	Any material containing more than one percent asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR part 763, Section 1, PLM, that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by PLM, verify the asbestos content by point counting using PLM.

Glovebag Technique	A method with limited applications for removing small amounts of ACM from HVAC ducts, piping runs, valves, joints, elbows, and other non-planar surfaces in an uncontaminated (plasticized) work area. The glovebag assembly is a manufactured or fabricated device consisting of a glovebag (typically constructed of 6-mil transparent plastic); two inward-projecting, long-sleeve, rubber gloves; one inward-projecting water wand sleeve; an internal tool pouch; and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and contains all asbestos fibers released during the removal process. All workers who are permitted to use the glovebag technique must be highly trained, experienced, and skilled in this method.
HEPA Filter	A highly-efficiency particulate air (absolute) filter capable of trapping and retaining 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.
HEPA Vacuum	High-efficiency particulate air (absolute) filtered vacuuming equipment with a filter system capable of collecting and retaining asbestos fibers. Filters should be 99.97 percent efficient for retaining 0.3-micrometer particles or larger.
Holding Area	A chamber between the washroom and an uncontaminated area in the equipment decontamination enclosure system. The holding area comprises an air lock.
Movable Object	A piece of equipment or furniture in the work area that can be removed from the work area.
Intact	The ACM that has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.
Leak Tight	A condition in which solids or liquids cannot escape or spill out. It also means dust-tight.
Negative Initial Exposure Assessment	A demonstration by the employer, which complies with the criteria in 29 CFR 1926.1101 paragraph (f)(2)(iii), that employee exposure during an operation is expected to be consistently below the OSHA permissible exposure levels (PELs).
Negative Pressure Ventilation System	A local exhaust system capable of maintaining a detectable pressure differential across containment barriers relative to adjacent unsealed areas.
NESHAPS	The National Emission Standards for Hazardous Air Pollutants (40 CFR Part 61).
NIOSH	The National Institute for Occupational Safety and Health.
OSHA	Occupational Safety and Health Administration.
Owner	Clark County Department of Jobs & Family Services
Penetrating Encapsulant	A liquid designed to saturate the material; thereby, binding asbestos fibers to one another and to other substances in the materials.
Permissible Exposure Limit (PEL)	The employer shall ensure that no employee is exposed to airborne concentrations of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight-hour time-weighted average (TWA), as determined by the method prescribed in Appendix A of 29 CFR 1926.1101 (NIOSH Method 7400) or by an equivalent method. Also see Excursion Limit.
Plasticize	To cover floors, walls, etc., with plastic sheets, as herein specified.
Presumed Asbestos-containing Material (PACM)	Thermal system insulation and surfacing material found in buildings constructed no later than 1980.
Project Designer	A person who has successfully completed the training requirements for an Abatement Project Designer, as established by 40 U.S.C. Sec. 763.90(g).

Regulated Asbestos-containing Material	(EPA-NESHAP; ODOH). Any friable asbestos material, Category I non-friable ACM that has become friable, Category I non-friable ACM that has been subjected to sanding, grinding, cutting, or abrading, or Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.
Regulated Area	An area established by the employer (abatement contractor) to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos exceed or there is a reasonable possibility they may exceed the permissible exposure limit.
Removal	All herein specified procedures necessary to strip or clean up ACM from designated areas and to dispose of these materials at an acceptable disposal site.
Shower Room	A room between the clean room and the equipment room in the worker decontamination enclosure system, with hot, and cold or warm running water and suitable arranged for complete showering during decontamination. The shower room comprises an airlock between contaminated and clean areas.
Staging Area	Either the holding area or an area near the waste-transfer air-lock where containerized asbestos waste has been placed prior to removal from work area.
Stripping	All herein specified procedures necessary to remove ACM or asbestos-contaminated materials from their substrate or from any facility component.
Substrate	The underlying surface or material (piping, duct, boilers, tanks, floors, etc.) to which ACM has been applied.
Surfacing Material (SM)	Material that is sprayed-applied or trowel-applied, or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).
Surfactant	A chemical setting agent added to water to improve penetration.
Thermal System Insulation	ACM applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or heat gain.
Visible Emissions	Any emissions that are visually detectable without the aid of instruments, coming from regulated ACM or asbestos-containing waste material.
Washroom	A room between the work area and the holding area in the equipment decontamination enclosure system. A washroom comprises an air lock.
Waste Shipment Record	The shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of ACM.
Wet Cleaning	The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools that have been dampened with water, and then disposing of these cleaning tools as asbestos-contaminated waste.

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Attachment G
Building Floor Plans

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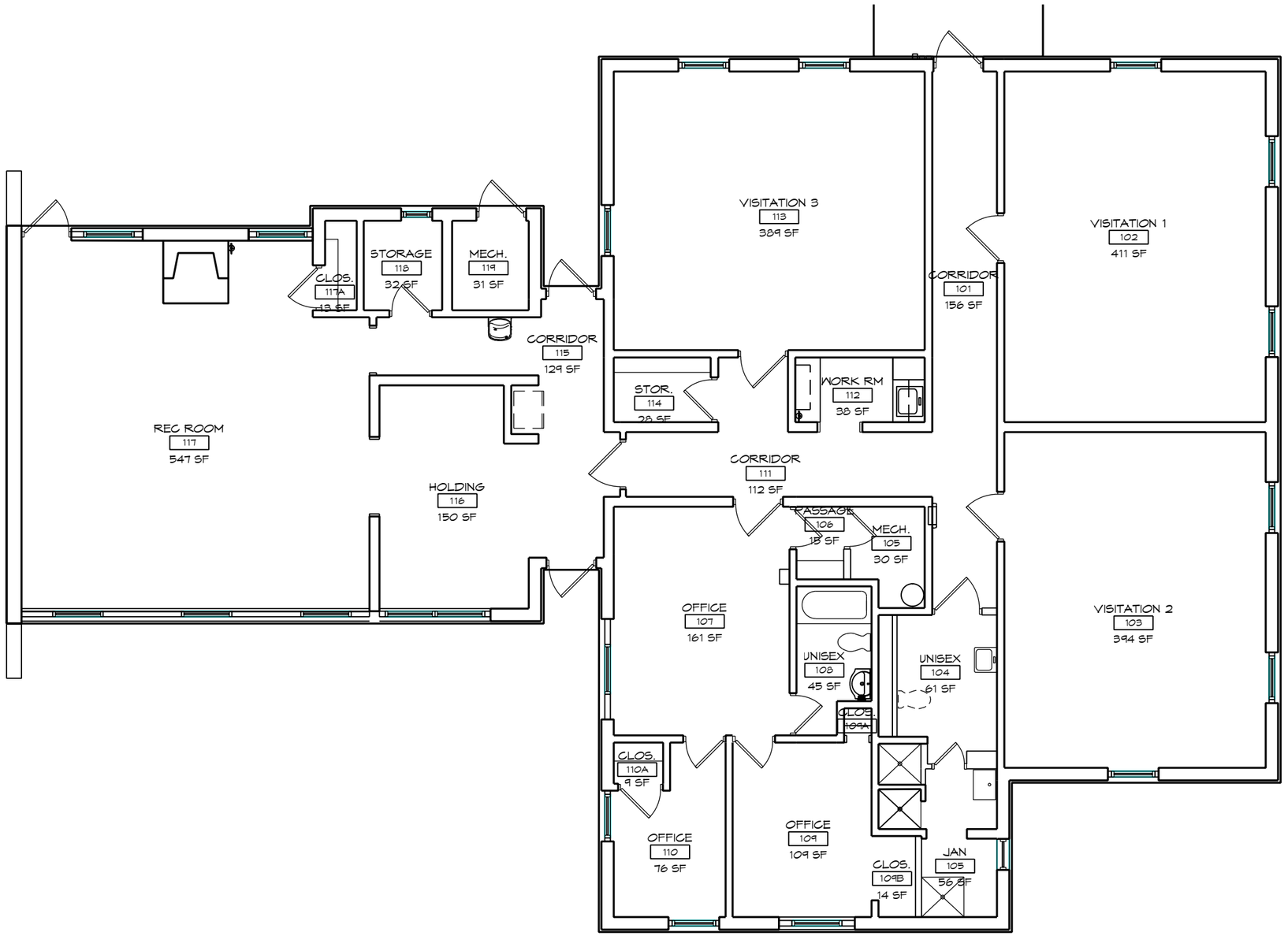
VISITATION 3
113
389 SF
VISITATION 1
102
411 SF
CORRIDOR
101
156 SF
STORAGE
118
32 SF
MECH.
119
31 SF
CLOS.
117A
13 SF
CORRIDOR
115
129 SF
STOR.
114
29 SF
WORK RM
112
38 SF
REC ROOM
117
547 SF
HOLDING
116
150 SF
CORRIDOR
111
112 SF
PASSAGE
106
18 SF
MECH.
105
30 SF
OFFICE
107
161 SF
VISITATION 2
103
394 SF
UNISEX
108
45 SF
UNISEX
104
61 SF
CLOS.
109A
CLOS.
110A
9 SF
OFFICE
110
76 SF
OFFICE
109
109 SF
CLOS.
109B
14 SF
JAN
105
56 SF

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Attachment I
Qualifications

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5/22/2026

Michael Lee
P.O. Box 1084
Marysville, OH 43040

RE: Abatement Project Designer
Certification Number: PD60729
Expiration Date: 7/1/2027

Dear Michael Lee:

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

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

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

Sincerely,

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

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SECTION 02 41 16

SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section Includes:
1. Demolition of designated select structures and/or features at the Visitation Building in Springfield, Ohio, including:
2. Disposal of demolished materials.
3. All manpower, coordination, permitting associated with any street/sidewalk closures necessitated by the demolition.
4. All labor, materials, equipment, special tools and services required for the complete demolition and removal of the buildings and associated items indicated.
5. All labor, materials, tools and equipment required for the work and not specified under another Section, whether or not specifically referred to herein.
6. See Pre-Renovation Asbestos Survey Report included in these specifications and Section 02 82 13 Lead and Asbestos Containing Materials for additional information and requirements.

B. Intent:
1. It is not the intent of the Specifications to include all items of demolition, selective demolition of miscellaneous site components and related required work. The Specifications are provided to describe (in conjunction with the Drawings) the general scope of the demolition requirements.
2. Bidder must, before submitting his bid, carefully examine the Demolition Drawings & Specifications, and the Reference Drawings and visit the project site and fully familiarize himself with the buildings and all conditions affecting the Work, and then determine for himself the full extent of demolition, selective demolition and other work required.

C. Brief Overview of Demolition Work:
1. Existing entities indicated to be demolished shall be completely demolished, except items/portions specifically indicated to remain.
   a. All demolished materials shall be removed from the site. This work includes (but is not limited to) complete removal of slabs, remaining building components & furnishings, mechanical/ electrical/plumbing equipment/piping/ wiring/conduit (within buildings, adjacent to buildings, roof/wall-mounted, and under-slab), septic system structures, and exterior paving.
2. Loose fill shall also be removed as part of the Demolition scope where such loose fill is unsuitable for re-compaction on site.
3. Existing building utility services shall be disconnected as necessary prior to the start of Demolition activities.
4. Contractor shall completely remove existing utilities to the property line and cap unless specifically indicated otherwise. Extent of utility removal is described on the Demolition Site Plans. Demolition Contractor shall hire qualified Plumbing, Electrical and other specialized contractors as required to perform utility disconnections. Coordinate with Utility Companies as required.
5. Mention herein of certain items of selective demolition is for general information only and is not intended to limit the scope of such work or to preclude any other items of selective demolition that are necessary for proper, safe and expeditious execution and completion of the work.
6. The Owner will remove any desired items to be salvaged prior to demolition of the building. The Owner reserves the right to remove (with the Owner's own forces) any objects/components from the building(s) prior to demolition. Any objects left in the building at the scheduled time for demolition to begin shall be considered part of the demolition work to be removed from the site by the Demolition Contractor.
7. Demolition Material: All material removed and not designated for salvage shall become the property of the Demolition Contractor and shall be removed from the site. Items of salvable value to the Contractor may be removed as the work progresses. Salvaged items must be transported from the site as they are removed. Storage or sale of removed items on the site will not be permitted.

D. Hazardous Materials:
   1. Category II Asbestos-Containing Material (ACM): If unexpected suspected Category II ACM is discovered during demolition operations, contact the Architect immediately to coordinate testing by the Abatement Consultant and (if required) removal by the Abatement Contractor.
   2. Category I Non-Friable ACM: The building may contain Category I Non-Friable materials which are assumed to be asbestos-containing. These materials shall not be taken to a recycling facility that will subject these materials to grinding or crushing operations. These materials shall be disposed of at an EPA construction and demolition debris landfill that accepts non-friable asbestos waste or an EPA regulated asbestos landfill.
   3. Other Hazardous Materials: If unexpected hazardous material is discovered during demolition operations, contact the Architect immediately to coordinate testing by the Abatement Consultant and (if possible) removal by the Abatement Contractor.
   4. See Pre-Renovation Asbestos Survey Report by Dayton Environmental Testing included in these specifications for reference.

E. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein. See Section 02 82 13 Lead and Asbestos Containing Materials for additional information and requirements.

1.2 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Conform to applicable local codes for demolition of structures, safety of adjacent buildings and structures, dust control and runoff control.
   2. Submit for and obtain required permits and licenses from authorities having jurisdiction. Pay all associated fees including disposal charges. This includes Ohio Environment Protection agency (OEPA) permits that may be required for the removal of any underground fuel storage tanks, storm water pollution prevention and earthwork; and any other governmental agency or authority having jurisdiction.
   3. Notify affected utility companies before starting work and comply with utility company requirements.
   4. Do not close or obstruct roadways, sidewalks or fire hydrants without permits.
   5. Barricade and mark hazards as necessary.
   6. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials. Notify Construction Manager / Architect immediately upon discovery of hazardous or contaminated materials. Do not commence removals, remediation or abatement without authorization from the Construction Manager.
   7. Comply with applicable requirement of NFPA 241.75 “Safeguarding Building Construction & Demolition Operations”.
   8. Do not remove any part of the Work that will leave the remaining work unstable until adequate temporary bracing and shoring have been provided.
   9. Erosion Control: Provide any required erosion control and maintain throughout duration of project. Remove at completion of project.

B. Performance Criteria:
   1. Fire: Do not use means, methods, techniques or procedures that would produce any fire hazard.
   2. Water: Do not use means, methods, techniques or procedures that would produce excessive water run-off and/or water pollution.
   3. Air Pollution: Do not use means, methods, techniques or procedures that would produce uncontrolled dust, fumes or other damaging air pollution.

1.3 SUBMITTALS

A. Submittal shall specifically include:
   1. Schedule: Prior to start of work, submit proposed schedule, methods and operations of building demolition to the Architect for review. Include in the schedule the coordination for shut-off, capping and continuation of utility services as required.
   2. Procedures for protecting materials and adjacent structures to remain including shoring and/or bracing if required.
   3. Certification that any asbestos-containing material that was abated and/or disposed of under this Section

was legally disposed of in accordance with accepted standards.

1.4 EXISTING CONDITIONS

A. Items indicated for demolition will be discontinued in use and vacated prior to start of Work.

B. The Owner assumes no responsibility for condition of items to be demolished.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Examine areas and conditions where demolition work is to be performed. Verify existing conditions before starting work. Report in writing to the Architect prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the Owner.

B. Utilities:

1. Locate, identify and protect existing utilities to remain. Notify Ohio Utilities Protection Service (OUPS) for all public property as required by law prior to starting work. On all remaining property not covered by OUPS, have a specialty contractor locate all existing utilities in affected areas prior to demolition. The Contractor is responsible for damage to utilities and shall repair any that are damaged at no additional cost to the Owner.
2. Not all utilities on the site will be demolished. Refer to Plans for general extent of demolished utilities. Utilities shall be handled as follows:
   a. Remaining, unmodified: Utilities (primarily those surrounding and serving in-service buildings/structures) intended to remain in service throughout the demolition/construction process and beyond shall be protected and maintained in operation during construction and demolition activities.
   b. Remaining, modified: Utilities intended to remain in service, but must be modified to accommodate the new work (e.g. the addition of a new catch basin or the adjustment of a grate elevation), shall be protected and maintained in service, but shall be modified as described and as required to accommodate the new work. Modification work shall be done using materials and methods appropriate to the existing materials and conditions and shall be in compliance with all authorities having jurisdiction.
   c. Remaining, capped: Utilities intended to be partially demolished with a remaining portion to be capped shall be carefully removed as to not damage the portion of the utilities intended to remain. Capping of utilities shall be done with materials consistent with material to be capped and shall be done by workers qualified to perform such work. Coordinate capping of utilities with Utility companies.
   d. Abandoned: Utilities intended to be taken out of service and abandoned in place shall be appropriately disconnected and left abandoned below grade. Where such utilities are exposed due to new grading, such utilities shall be demolished to a point where they will be concealed below grade.
   e. Abandoned, filled: Utilities intended to be taken out of service, filled with lean concrete and left abandoned in place shall be uncovered as required to facilitate and verify filing operations. Once filled, any such excavations shall be filled with suitable fill material.
   f. Newly installed: New utilities installed in conjunction with the construction of a new building. Such utilities shall be protected from damage from demolition activities.

C. Provide, erect and maintain erosion control devices, dust and noise control measures, temporary barriers and security devices as necessary.

D. Protect appurtenances and structures which are not indicated to be demolished. Repair damage caused by demolition operations at no additional cost to the Owner. Do not perform work until adequate safety and protection measures have been provided.

E. Prevent movement or settlement of adjacent structures. Provide bracing and shoring as required.

F. Review the demolition scheduling, protection requirements and disposal methods with all subcontractors prior to start of work.

3.2 CONSTRUCTION

A. Demolition Requirements:
1. Conduct demolition to minimize interference with adjacent structures or pavements.
2. Stop operations immediately if adjacent structures appear to be in danger. Notify Architect immediately. Do not resume operations until directed by the Architect.
3. Conduct operations with minimum interference to public or private access. Maintain access and egress at all times.
4. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon, or limit access to their property.
5. Sprinkle soil and demolition work area with water to minimize dust. Provide hoses and water connections for this purpose.
6. Comply with governing regulations pertaining to environmental protection.
7. Coordinate removal of any components of construction that are owned by Utility Companies (e.g. exterior transformers). Contact appropriate companies to coordinate disconnection and removal.

B. Demolition:
1. Disconnect and remove designated utilities within demolition areas.
2. Verify structures are unoccupied; then demolish structures completely and remove from site using methods as required to complete work within limitations of governing regulations.
3. Proceed with demolition in systematic manner, from top of structure to ground. Use of explosives is prohibited.
4. Locate demolition equipment and remove materials using procedures to prevent excessive loading to supporting walls, floors, or framing.
5. Demolish concrete and masonry in small sections.
6. Demolish and remove below grade construction and concrete slabs on grade, except where indicated to remain.
7. Protection: Ensure the safe passage of persons around the area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities and persons.
8. Remove abandoned underground storm and sanitary pipe and structure where indicated and where encountered in clearing the site and establishing sub-grade.

C. Filling Voids:
1. Completely fill below grade areas and voids existing or resulting from demolition or removal of structures (foundations, basements, pits, wells, cisterns, etc.) using approved select fill materials consisting of stone, gravel and sand free from debris, trash, frozen materials, roots and other organic matter.
2. Remove standing water, frost, frozen or unsuitable material, trash and debris from areas to be filled before fill placement.
3. Place fill materials in horizontal layers and compact each layer at optimum moisture content of fill material to proposed density.
4. Grade surface to match adjacent grades and to provide flow of surface drainage after fill placement and compaction.
5. Where indicated and/or where existing abandoned pipe or structures occur more than 2’ below subgrade elevation, fill with a cementitious, flowable fill, unless such pipe/structures are indicated to be removed, in which case they shall be completely removed from site.

D. Disposal of Demolished Materials:
1. Remove debris, rubbish and other materials resulting from demolition operations from site. Provide for

frequent and prompt removal of debris.

2. No burning permitted.
3. Transport materials removed from demolished structures with appropriate vehicles and dispose off-site to areas which are approved for disposal by governing authorities having jurisdiction and appropriate property owners.
4. Avoid spillage by covering and securing loads when hauling on or adjacent to public streets or highways.
   a. Remove spillage and sweep, wash or otherwise clean project site, streets or highways.
   b. Comply with local and national regulations.

3.3 CLEANING AND REPAIR

A. Clean adjacent structures and pavement of dust, dirt and debris caused by demolition operations, as directed by Construction manager and governing authorities. Return adjacent areas to conditions existing prior to the start of the work.

B. Any damage done to existing structures, pavement or utilities shall be restored to pre-demolition condition at no cost to the Owner.

END OF SECTION

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SECTION 02 82 13

LEAD AND HAZARDOUS MATERIALS

PART 1 – GENERAL

1.01 WORK INCLUDED:

A. In general, the work shall include that noted in the specifications, drawings and whenever hazardous materials are encountered. The contract time includes the abatement work identified in the report.

B. Contractor shall be responsible and liable for removal and disposal of the identified suspected hazardous materials necessary to complete the identified scope.

C. Based on the age of the Visitation Building, Contractors shall assume there may be lead-based paint present on the interior or exterior surfaces. Because this is a child-occupied facility, any contractor who replaces doors or windows, or who disturbs painted surfaces, must be certified as a Lead-Safe Renovator under the EPA's Renovation, Repair and Painting (RRP) Program.

C. An asbestos inspection has been conducted at the Visitation Building. See Asbestos Abatement Specification and Pre-Renovation Asbestos Survey Report included in the specifications.

1.02 REMOVAL, DISPOSAL, ETC.:

When removing, abating, disposing of lead or asbestos containing materials, the work shall follow the following general requirements:

A.

4. HUD Interim Guidelines for hazard identification and abatement, Latest Edition - Lead Paint.

B. Contractor(s) involved in lead based paint work shall:

1. Be responsible for obtaining approval for a waste disposal site.
2. Post and follow the EPA, HUD and OSHA regulations and any applicable state and local government regulations at the job site.
3. Evidence of such shall be provided to the Owner prior to the execution of the contract documents.
4. Be responsible and liable for all testing, proper handling and disposal of the suspected hazardous materials.
5. Clark County and its employees will not give advice, make recommendations and/or specify this work.
6. The execution of this work shall be the responsibility of the Contractor or his subs and shall indemnify Clark County and design team of any wrongdoing or violation.

C. The Contractor shall bear all expense and liability for testing, removal and disposal of these materials throughout the building.

PART 2 – PRODUCTS (WHEN REQUIRED)

A. Furnish all materials necessary to construct proper barriers to seal off contaminated areas according to OSHA, EPA and State Regulations.

B. Provide proper containers, tools and equipment for the handling, removal and disposal of contaminated

materials in authorized locations.

PART 3 – EXECUTION

A. The Bid Documents are intended to describe the intent and scope of work but do not, nor intend to "specify" or describe neither how the abatement is to be performed nor how the debris is to be disposed of. The contractor is instructed to strictly comply with the latest editions of the following regulations and all other regulatory requirements. The regulations shall "specify" and guide the execution of the work.

B. The Contractor shall be fully responsible for the proper legal removal and disposal of hazardous materials affected by the work. All work shall be performed by trained individuals in accordance with the requirements of this Section, and all current EPA, federal, state and local laws and regulations.

C. Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips by disturbing lead-based paint, which can be harmful to adults and children. To protect against this risk, the EPA issued a rule requiring the use of lead-safe practices and other actions aimed at preventing lead poisoning. Under the rule, contractors performing renovation, repair and painting projects that disturb lead based paint in homes, dwellings, childcare facilities, and schools built before 1978 must be certified and must follow specific work practices to prevent lead contamination. The EPA requires that firms performing renovation, repair, and painting projects that disturb lead-based paint in pre-1978 homes, dwellings, childcare facilities and schools be certified by the EPA and that they use certified renovators who are trained by EPA-approved training providers to follow lead-safe work practices. For additional information refer to www.epa.gov.

D. As a result of this EPA Lead-Safe Work Practices rule, the Contractor shall comply with this EPA regulation and include the cost of compliance in the Base Bid unless the test results or EPA criteria for application of this rule permit exemption from the Lead-Safe Work Practices rule.

E. If the Contractor observes any suspected hazardous containing materials during this work, not identified in owner’s reports, he shall immediately notify the Owner and Architect. The Owner will investigate and pay for any sampling and testing that may be required.

1. U.S. Environmental Protection Agency (EPA) Regulations for Asbestos (Code of Federal Regulations, Title 40, Part 61, Subparts A, M and part 763, U.S. Department of Labor Occupational Safety and Health Administration (OSHA) Asbestos Regulations (Code of Federal Regulations, Title 29, Part 1910, Section 1910, 1001, Section 1910.134 and Section 1926.58).
2. U.S. Environmental Protection Agency Office of Toxic Substances Document, "Asbestos-Containing Materials in School Buildings, Part 1 and Part 2.
3. U.S. Environmental Protection Agency Office of Pesticides and Toxic Substances publication "Guidance or Controlling Friable Asbestos-Containing Materials in Buildings" (EPA 560/5-83-002).
4. National Institute for Occupational Safety and Health (NIOSH) publications, Respiratory Protection. An Employer's Manual and "Respiratory Protection. . . A Guide for the Employee."
5. U.S. Department of Transportation (DOT) Hazardous Materials" Regulations. Code of Federal Regulation, Title 49.
6. American National Standards Institute (ANSI) publications "Fundamentals Governing the Design and Operation of Local Exhaust System" (29.2-79) and “Practices for Respiratory Protection" 288.2-80.
7. Underwriters Laboratories, Inc. (UC) publication “Test Performance of High Efficiency Particulate Air Filter Units" (586-77 R1982).
8. Any and all other state and local ordinances, regulations, or rules pertaining to asbestos, including its storage, transportation, and disposal.
9. State of Ohio Department of Health, Chapter 3701-34, State of Ohio revised code, Department of Health.

END OF SECTION

SECTION 03 10 00

CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.

B. Openings for other work.

C. Form accessories.

D. Form stripping.

1.02 RELATED REQUIREMENTS

A. Section 03 20 00 - Concrete Reinforcing.

B. Section 03 30 00 - Cast-in-Place Concrete.

C. Section 05 12 00 - Structural Steel Framing: Placement of embedded steel anchors and plates in cast-in-place concrete.

1.03 REFERENCE STANDARDS

A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).

B. ACI 301 - Specifications for Structural Concrete; 2016.

C. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014 (Errata 2018).

1.04 SUBMITTALS

A. Product Data: Provide data on void form materials and installation requirements.

B. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties.

C. Designer's Qualification Statement.

D. Design Data: As required by authorities having jurisdiction.

1.05 QUALITY ASSURANCE

A. Designer Qualifications: Design formwork under direct supervision of a Professional Structural Engineer experienced in design of concrete formwork and licensed in the State in which the Project is located.

PART 2 PRODUCTS

2.01 FORMWORK - GENERAL

A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.

B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.

C. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.

2.02 FORMWORK ACCESSORIES

A. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.

B. Embedded Anchor Shapes, Plates, Angles and Bars: As specified in Section 05 12 00.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.02 ERECTION - FORMWORK

A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.

B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

3.03 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

3.04 INSERTS, EMBEDDED PARTS, AND OPENINGS

A. Provide formed openings where required for items to be embedded in passing through concrete work.

B. Locate and set in place items that will be cast directly into concrete.

C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.

3.05 FORMWORK TOLERANCES

A. Construct formwork to maintain tolerances required by ACI 117, unless otherwise indicated.

3.06 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete.

1.02 RELATED REQUIREMENTS

A. Section 03 10 00 - Concrete Forming and Accessories.

B. Section 03 30 00 - Cast-in-Place Concrete.

C. Section 04 20 00 - Unit Masonry: Reinforcement for masonry.

1.03 REFERENCE STANDARDS

A. ACI 301 - Specifications for Structural Concrete; 2016.

B. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014 (Errata 2018).

C. ACI SP-66 - ACI Detailing Manual; 2004.

D. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2018, with Editorial Revision (2018).

E. CRSI (DA4) - Manual of Standard Practice; 2009.

F. CRSI (P1) - Placing Reinforcing Bars; 2011.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
   1. Prepare shop drawings under seal of a Professional Structural Engineer experienced in design of work of this type and licensed in the State in which the Project is located.

C. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301.
   1. Maintain one copy of each document on project site.

PART 2 PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (420 MPa).

2.02 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.

PART 3 EXECUTION

3.01 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position.

3.02 FIELD QUALITY CONTROL

A. An independent testing agency, as specified in Section 01 40 00 - Quality Requirements, will inspect installed reinforcement for conformance to contract documents before concrete placement.

END OF SECTION

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SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Floors and slabs on grade.

B. Concrete shear walls, elevator shaft walls, and foundation walls.

C. Concrete curing.

1.02 RELATED REQUIREMENTS

A. Section 03 10 00 - Concrete Forming and Accessories: Forms and accessories for formwork.

B. Section 03 20 00 - Concrete Reinforcing.

1.03 REFERENCE STANDARDS

A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

C. ACI 301 - Specifications for Structural Concrete; 2016.

D. ACI 302.1R - Guide to Concrete Floor and Slab Construction; 2015.

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).

F. ACI 308R - Guide to External Curing of Concrete; 2016.

G. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014 (Errata 2018).

H. ASTM C150/C150M - Standard Specification for Portland Cement; 2018.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Mix Design: Submit proposed concrete mix design.

1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

PART 2 PRODUCTS

2.01 REINFORCEMENT MATERIALS

A. Comply with requirements of Section 03 20 00.

2.02 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type I - Normal Portland type.

PART 3 EXECUTION

3.01 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

3.02 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

3.03 CONCRETE FINISHING

A. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

3.04 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Final Curing: Begin after initial curing but before surface is dry.

3.05 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 40 00 - Quality Requirements.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

3.06 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.07 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

SECTION 04 01 00

MASONRY RESTORATION,
CLEANING AND STABILIZATION

PART 1 GENERAL

1.1 NOTICE

1.1.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 GENERAL INFORMATION

1.2.1 The Project consists of the repairs of exterior masonry facades. Masonry restoration of the building seeks to restore the appearance and weather tightness of the exterior brick and concrete work.

1.2.2 Related Sections:

1.2.3.1 Division 07 Section "Joint Sealants" for masonry joints along opening perimeter sealants.

1.2.4 The Work at the building includes the following general categories:

.1 Replace sealant systems at all wall penetrations.

.2 Fill all holes that exist in masonry surfaces with like material.

.3 Clean masonry, stone and concrete surfaces

.4 Replace deteriorated brick and CMU units.

1.2.5 Special Project Conditions:

.1 Contractor is to rely on existing building’s 120V receptacles to supply power for and power tools.

.2 Water supply is limited and will require lengths of hose to access.

1.3 REFERENCES

1.4.1 American Society for Testing and Materials:

.2 ASTM C62 - Building Brick

.3 ASTM C67 - Method for Sampling and Testing Brick and Structural Clay Tile

.4 ASTM C91 - Masonry Cement

.5 ASTM C144 - Aggregate for Masonry Mortar

.6 ASTM C150 - Portland Cement

.7 ASTM C207 - Hydrated Lime for Masonry Purposes

.8 ASTM C270 - Mortar for Unit Masonry

.9 ASTM C404 - Aggregates for Masonry Grout

.10 ASTM C476 - Grout for Masonry

.11 ASTM E11 - Wire Cloth Sieves for Testing Purposes

1.4 QUALITY ASSURANCE

1.4.1 Qualifications for Workmen:

.1 Use adequate numbers of skilled workmen thoroughly trained and experienced in the necessary crafts, where the craftsmen have minimum five years' experience and are familiar with the specified requirements of the restoration of buildings and the methods needed for proper performance of Work in this Section.

.2 Superintendents shall have at least five (5) years previous experience in masonry restoration Work as a Superintendent. Submit such experience on resume upon request after bid.

1.4.2 Quality of craftsmanship is essential to the success of the restoration of the masonry. Careful attention must be paid to every aspect of the procedure; the preparation of the surfaces, appropriate flashing precautions and the removal and installation of new sealant systems. Shoddy or inexact workmanship will not be permitted and all such will be replaced at no cost to the owner.

1.4.3 Mortar Color Control: Purchase quantities of the approved aggregate to ensure color uniformity for the job. Mortar analysis of original mortar taken from the building may be required to ensure proper color, texture and composition match. Mortar color should match original adjacent mortar.

1.4.4 Accelerators or anti-freeze admixtures are specifically prohibited in the Work.

1.5 PRE-QUALIFICATION REQUIREMENTS

1.5.1 Contractors/Subcontractors shall provide the following information:

.1 Experience of the Contractor/Subcontractor:

.1.1 Period of time the company has been performing the type of work required for this project as a contractor/subcontractor. Minimum 5 years' experience record is required.

.1.1.1 Certification of Experience: Work shall be performed by experienced and skilled mechanics. The General Contractor shall furnish evidence that the subcontractor for restoration work has been engaged in the business of masonry restoration for a period of at least 5 consecutive years prior to the date of these specifications. After bid, provide evidence of certification of experience in letter form which, in addition to statement of experience, shall contain a list of at least five projects of comparable size and complexity which have been satisfactorily completed, a statement that proper equipment is available for use, and a statement that the work will be under the direct supervision of skilled mechanics only.

1.6 SUBMITTAL

1.6.1 Product Data: Submit full product data for all masonry materials, cleaning materials, patching materials, and associated products. Include manufacturer's printed recommendations for each product and its recommended application method. Include manufacturer's Material Safety Data Sheets for all chemicals and products delivered to the job site.

1.6.2 Samples: Submit, for verification purposes, cured samples of all mortars proposed for pointing. Submit concrete patch samples matching cleaned concrete to be used for precast repair.

1.7 PROJECT RECORD DOCUMENTS

1.7.1 This Paragraph specifies administrative and procedural requirements for Project Record Documents. Project Record Documents required include:

.1 Marked-up copies of Contract Drawings

.2 Marked-up copies of Specifications, Addenda, and Change Orders

.3 Marked-up Product Data submittal

1.7.2 Maintenance of Documents and Samples: Store record documents and Samples in the field office apart from Contract Document used for masonry repair and stabilization Work. Do not permit Record Documents to be used for masonry and sealant repair and stabilization Work purposes. Maintain record documents in good order, and in a clean, dry, legible condition. Make documents and samples available at all times for inspection by the Associate.

1.7.3 Materials Specification Compliance: Contractor shall monitor, collect, and record manufacturer's analyses, material safety data sheets, product application literature, and other product shipping or descriptive data for each material received for each shipment supplied for the Work and shall immediately transfer a written copy of all such documentation to Associate.

1.9 DELIVERY, STORAGE, AND HANDLING

1.9.1 Deliver, store, and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.

1.9.2 Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.

1.9.3 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.

1.9.4 Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Insure that approved Material Safety Data Sheets are provided for all products shipped or maintained on the site and that the MSD sheets are available to emergency medical personnel 24 hours a day during the contract Work.

1.9.5 Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.

1.9.6 Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

1.9.7 Store heavy materials away from the structures in a manner that will not endanger the supporting construction.

1.9.8 Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

1.9.9 Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter. Remove materials that are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials at no additional cost to the Owner.

1.10 ENVIRONMENTAL REQUIREMENTS

1.10.1 Comply with the following:

.1 Timing: Exterior cleaning shall occur prior to patch repairs, pointing, and sealant replacement Work. Cleaning as necessary shall occur after masonry work to clean areas of work. Cleaning of masonry, concrete and stone surfaces after removal of deteriorated mortar and/or sealant, but before placement of new materials, will be prohibited.

.3 Schedule exterior cleaning of concrete to ensure that eminent temperatures do not go below 40 degrees F during the Work. Protect new Work from rain for 48 hours.

.4 Schedule all mortar and water-based patch mix placement work to occur when work temperatures are above 40 degrees. Do not conduct mortar or patch placement when the temperatures are expected to fall below 28 degrees for any time period within 48 hours of executed work. All work that is done when temperatures reside under 40 degrees but above 28 degrees within 48 hours of material placement are to follow the BIA Cold Weather Masonry Guidelines.

.5 Warm and hot weather conditions will require post wetting (maintaining damp condition for 48 hours) cement-based products to insure proper hydration. In wind conditions, contractor is to cover new materials (with visqueen, burlene, etc.) for 24 hours.

1.10.2 Continued Access to be maintained during the Work: Access to the interior spaces of the building shall be maintained during the performance of the Work. Erect OSHA standard tunnel scaffolding at affected entrances.

1.10.3 Contractor Use of Premises: Limit use of the premises to cleaning and repair activities in areas indicated; allow for Owner occupancy and use by the public.

.1 Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which cleaning and repair operations are indicated are not to be disturbed.

.2 Erect barricade fence at all workstations so that the public is prohibited from crossing into the area under or near where work is being performed.

1.10.4 Do not point mortar joints or repair masonry unless air temperatures are above 40 degrees F and will remain so for at least 48 hours after completion of work.

1.10.5 Prevent grout or mortar used in pointing and repair work from staining face of surrounding masonry and other surfaces. Immediately remove grout and mortar in contact with exposed masonry and other surfaces.

1.10.6 Protect sills, ledges, and projections from mortar droppings. Remove immediately, grout and mortar in contact with other surfaces.

1.10.7 Unless an alternate work schedule has been approved in writing by the Associate, comply with the following:

.1 Do not schedule final exterior cleaning work until all repair, and sealant replacement work has been completed and cured for 30 days. Schedule exterior chemical cleaning to ensure that the ambient temperatures do not go below 40 degrees F, including evenings.

.2 Protect trees, shrubs, and other plants and any other non-masonry materials. Collect chemical residue from cleaning and discard in an appropriate manner for each material collected, and in accordance with applicable law. State in your work plan, the method of containment that you will be using in your bid submission.

1.11 SEQUENCING/SCHEDULING

1.11.1 Coordinate the Work of this Section with Work of other related Sections and trades for proper sequencing of the Work. Provide for best possible weather during work performance and durability of the Work and protection of materials and finishes. Do not perform Work under adverse weather conditions.

1.12 COORDINATION

1.12.1 It is possible that a limited amount of existing brick masonry at shifted or bulged areas can be re-used for repair and replacement under this contract. Contractor is to exercise all care in salvaging as many units as possible for re-use. Any new brick required is to be approved prior to installation.

PART 2 PRODUCTS

2.1 SUBSTITUTIONS

2.1.1 Conditions: The Contractor's substitution request will be received and considered by the Associate per General Requirements and Instructions to Bidders.

2.2 MORTAR MIX AND MIXING FOR BRICK

2.3.1 See Sections 04 50 11 Mortar and Masonry Grout and 04 20 00 Unit Masonry.

2.3 POINTING MATERIALS AND MIXES

2.3.1 Individual mortar mixes are specified for brickwork for evaluation by Contractor and approval by Architect. They are to be used for pointing of original brick structure elements of the facility. Required materials include:

.1 Lime: ASTM C207, Type S, hydrated masons lime.

.2 White or Gray Portland Cement for Mortars: ASTM C150, Type I, non-staining.

.3 Aggregates: Provide either natural or manufactured sands that will produce final mortar color matching the existing, conforming to ASTM C144, and with aggregate grading matching existing mortar.

.4 Sand of various size and color.

2.3.2 Water: Clean, potable water, free of deleterious acids, alkalis, or organic materials.

2.4 MASONRY CLEANING MATERIALS

2.4.1 General: Provide masonry cleaning materials and equipment as scheduled here, but in all cases verify the suitability of the cleaning compound with the compound manufacturer prior to beginning Work. Obtain from the manufacturer a written statement referencing this Project, in which the manufacturer states that, in their opinion and after field inspection of the masonry to be cleaned, the products specified are correct and appropriate for use with the application method specified in Part III of this Section. An adequate and clean supply of water must be established prior to any Work. Use only clean, potable water, free from minerals, oils, acids, salts, and organic materials that could cause staining or leave detrimental residues on surfaces of the precast.

2.4.2 Materials for exterior general cleaning and removal of rust stains, biological growth and black crusts on the masonry shall include:

.1 Chemical products for exterior masonry cleaning include:

.1.1 ProSoCo SureKlean 766 Masonry Prewash, as manufactured by ProSoCo, Inc., P.O. Box 1578, Kansas City, Kansas 66117, Phone (913) 281-2700, and 1-800-255-4255. The material may potentially be used as a pretreatment to solubilize heavy carbon deposits on precast. This material is intended as a "spot" or local area pretreatment. It should not be used in bulk application to the building. The material is alkaline with a Ph of 14.

.1.2 SureKlean Light Duty Concrete Cleaner, as manufactured by ProSoCo, Inc., P.O. Box 1578, Kansas City, Kansas 66117, Phone (913) 281-2700, and 1-800-255-4255.

.1.3 SureKlean Revive Cleaner, as manufactured by ProSoCo, Inc., P.O. Box 1578, Kansas City, Kansas 66117, Phone (913) 281-2700, and 1-800-255-4255.

.1.4 SureKlean Light Duty Restoration Cleaner, for brick, as manufactured by ProSoCo, Inc., P.O. Box 1578, Kansas City, Kansas 66117, Phone (913) 281-2700, and 1-800-255-4255.

.1.5 Carlisle Coatings and Waterproofing, Inc. SimpleKleen Heavy Duty –for mortar smears and efflorescence, SimpleKleen Organic Stain Surface Wash for mold and mildew stains.

.2 Diedrich Technologies, Inc. products are equal to Prosoco Products.

.3 For power washing of masonry surfaces following chemical cleaning, provide adequate and clean water supply and spray equipment for water pressure washing of masonry. Use filter in water line to remove particulate matter.

.4 Tools: Plastic, wooden, or stainless steel only.

2.5 WATER REPELLENT MATERIALS

2.5.1 Materials for application of water repellent shall include:

.1. Limestone: Weather Natural Stone Treatment WB, as manufactured by ProSoCo, Inc., P.O. Box 1578, Kansas City, Kansas 66117, Phone (913) 281-2700, and 1-800-255-4255.

.2. Brick, Sandstone & Concrete: Weather Seal Siloxane PD, as manufactured by ProSoCo, Inc., P.O. Box 1578, Kansas City, Kansas 66117, Phone (913) 281-2700, and 1-800-255-4255.

2.4 MISCELLANEOUS MATERIALS:

.1 Use resilient closed cell polyethylene foam joint backer rod manufactured specifically for cold-applied joint sealants. Provide rod sized 1/8 inch to 1/4 inch larger in diameter than joint for which it is intended to ensure it is installed under compression. Choose from the following:

.1.1 Sonneborn "Sonofoam Backer rod"

.1.2 C.R. Laurence Co. “CLR Closed Cell”

.1.3 HBR "Backer Rod"

.2 Joint cleaner: Provide cleaner recommended by the manufacturer of the sealant for the specific joint surface and condition.

.3 Joint Primer and Sealer: Provide compounds recommended by the manufacturer of the sealant for the specific joint surface and condition.

.4 Bond Breaker Tape: Pressure sensitive polyethylene tape.

PART 3 EXECUTION

3.1 SECURITY AND PROTECTION FACILITIES INSTALLATION

3.1.1 Temporary Fire Protection: Install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguisher", and NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations."

.1 Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher at each elevation where Work is underway.

.2 Store combustible materials in containers in fire-safe locations.

.3 Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.

3.1.2 Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate or needed, provide lighting. All barricades and barricade systems and designs are to be approved by prison authorities.

3.1.3 Security Enclosure and Lockup: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism. Areas for storage of materials will be determined prior to the commencement of the Work and approved by the Associate. See notes this section and other sections for daily storage requirements. Unless otherwise approved, all materials, equipment and tools are to be removed daily at the end of the work session.

3.1.4 Environmental Protection: Provide protection, operate temporary facilities, and conduct cleaning and repair in ways and by methods that comply with environmental regulations, and minimize the possibility that the building interior, building air handling and HVAC systems, external atmospheric air, waterways, and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise.

3.2 MASONRY PREPARATION FOR CLEANING

3.2.1 Close all open seams and joints in stonework, concrete and masonry in preparation for final chemical cleaning of the building.

.1 Contractor is to complete sealant system work and ensure the building is weather tight in advance of undertaking final chemical cleaning, and is to insure that all materials shall have cured a full 30 days prior to onset of chemical cleaning.

.2 Contractors shall meet requirements of masonry cleaner manufacturer, Ohio EPA and OSHA for containment of masonry cleaner run-off water. It is to be assumed by contractors that all paint contains lead.

3.3 MASONRY CHEMICAL CLEANING

3.3.1 General: All necessary precautions must be taken when chemical cleaning and pressure water washing or rinsing is in progress. Apply cleaning compounds strictly in accordance with these specifications and the written product application directions of the manufacturer. Obtain written recommendations from the manufacturer's field representative who shall visit the Project prior to issuing his advice. Obtain written approval of any substantial deviation from the agreed upon methods.

.1 Always pre-wet masonry prior to application of chemical cleaners.

.2 Protect surrounding masonry and metal from alkaline cleaners.

.3 Keep adjacent work thoroughly water saturated to prevent chemical attack by chemical cleaner runoff.

.4 Chemical cleaning is always done from the bottom to the top of the building section.

.5 General cleaning of masonry shall occur sequentially during each cleaning drop.

.6 Employ clean potable water for washing.

.7 Use appropriate brushes for application of cleaners following manufacturer's directions. Use low pressure spray (20 psi) equipment for applying cleaning solutions only when recommended by manufacturer.

.8 Apply only the specified products to the masonry on the building in accordance with the specified requirements below. Do not mix systems. Do not apply cleaners other than those specified herein or in manufacturer’s literature. Do not attempt to shorten the cleaning schedule by using more concentrated chemical ratios than specified herein or in manufacturer’s literature.

.9 Use a low to medium pressure (400 to 800 psi) cold water spray for rinsing.

3.3.2 Test Cleaning: Demonstrate the effect of each step of each application technique on a test panel in a location selected by the Architect. Adjust technique, with the approval of the Architect, within manufacturer's limits, to completely clean masonry of stain or soil to be removed.

3.3.3 Protection: In areas where aggressive, corrosive, or caustic compounds are employed, apply masking compounds to vulnerable glass and metal. Protect adjacent vegetation from chemical residue and runoff. Follow manufacturer's directions and apply a very heavy coat or coats of masking material, until no variations in color are apparent. Insufficient thickness of mask will permit acid compounds to etch window glass. Use ProSoCo Sure Klean White Strippable Masking products or equal. Remove and replace any glass that has become etched by the masonry/stone cleaning Work but only with the approval of the A/E. Protect vehicles and vegetation from splatter and run off. Public safety must be insured while utilizing compounds. All necessary precautions shall be taken as specified by the manufacturer of the compounds. Worker safety shall also be carefully observed to avoid extensive exposure scenarios. Necessary safety equipment shall be used, including respirators, safety chemical goggles, face masks, safety gloves, resilient apparel, and footwear. Follow manufacturer's suggestions.

3.3.4 Removal of painted coatings, should any be encountered, shall be accomplished by application of solvent-based paint strippers such as ProSoCo Inc. Sure Klean Heavy Duty Paint Stripper or equal products to the affected masonry/stone. Do not use alkaline-bases paint strippers on concrete if encountered. Contractor shall select and demonstrate to the Architect the recommended paint stripper for use on the building concrete.

3.3.5 Biological growth abatement, if necessary following chemical cleaning, shall be accomplished by application of dilute concentrations of ProSoCo Inc. ReKlaim system or calcium hypochlorite in water, as follows:

.1 Prepare a clean rubber or polyethylene 5 gallon container and fill it with potable water at room temperature. Add five ounces of calcium hypochlorite crystals to the water and stir until dissolved.

.2 Power wash the surface of the masonry to be treated using 160-195 degrees hot pressurized water at pressures up to 800 psi, applied at a minimum wand distance of 12 inches from the precast, using a 30 to 45 degree nozzle.

.3 Using a low pressure stainless steel chemical sprayer; spray the diluted solution on the surface of precast to be cleaned of biological growth. Insure the masonry/stone does not dry by occasionally wetting with the cleaning solution.

.4 Gently agitate the treated area using a stiff bristled nylon brush to insure full wetting of the masonry/stone. Allow up to twenty minutes dwell time for the chemical solution, but do not let surface dry out.

.5 Thoroughly rinse the surface using a pressurized water washer operating at 400 to 800 psi, wand equipped with a 30 to 45 degree tip, and wand and nozzle tip held a minimum of 12 inches from the surface of the precast.

.6 Note that the cleaning method is intended only for removal of the biological growth.

3.3.6 For the removal of iron stains from facade apply the products specified below in order of specification until successful results are obtained. Obtain written approval of the Architect for any substantial deviation from the methods specified below.

.1 ProSoCo SureKlean Limestone Restorer is a blend of acids and wetting agents. It was formulated primarily to clean calcium-based masonry surfaces. This product is sometimes effective at removal of surface iron stains on concrete as well. Apply as follows:

.1.1 Prepare a clean rubber or polyethylene container and fill it with a known quantity of potable water at room temperature. Add ProSoCo SureKlean Limestone Restorer at the ratio of one part restorer to two parts water.

.1.2 Water pre-wet the surface of the masonry/stone to be cleaned of stain.

.1.3 Treat small areas at a time. Apply the diluted Limestone Restorer using a densely filled Tampico masonry washing brush, roller, or by a low pressure spray using a stainless steel chemical sprayer. If cleaning solution is applied by spray, beware of wind drift. DO NOT apply restoration cleaner using high pressure spray.

3.4 REQUIREMENTS FOR POINTING AND SEALING WORK

3.4.1 General: The specified pointing mixes will be used in general pointing as indicated in these specifications and on Drawings. Use pointing mix selected by Architect following Contractor preparation of pointing mortar samples for Architect approval.

3.4.2 Conduct of the Work: Point masonry in a manner that eliminates the necessity for heavy washing or acid cleaning after pointing is finished. Pointed masonry shall be left looking as much like the un-re-pointed masonry as possible.

3.4.3 Protection: Protect adjacent masonry that is not to be pointed from smears and mortar droppings. Conduct pointing in a manner that will leave neighboring areas untouched.

3.4.4 Remove old mortar with hand tools where feasible. Use no electric or pneumatic chisels to clean joints. Special diamond blade power saws may be allowed by the Architect for use in cleaning horizontal joints if contractor can demonstrate that chipping of the brick can be held to a minimal acceptable clearance. The use of a right angle grinder will be in the following manner: A diamond or composite blade no greater than 1/8” in thickness shall be used. It shall be taken directly down the center portion of the mortar joint so as to not come into contact with the brick units in any way. The resultant mortar shall be then be removed by hammer and chisel in a fashion that has the strike emanating from the edge of the brick towards the center of the joint. This results in mitigating the forces acting on the brick unit. Entire process will clean joints to a minimum depth of 1/2 inch, or deeper if necessary to remove weathered mortar. Head joint shall be cut back using hand chisels and hammers. Do not spall or chip brick. Any “rat-tails” are expressly prohibited.

.1 More than 1/4 square inch of chip per square foot of masonry is unacceptable. Replace brick chipped beyond acceptable limits. Clean mortar from the masonry surface within the joint so that new mortar bonds to brick, not to old mortar.

3.4.5 Wet the masonry thoroughly 24 hours before beginning pointing Work. Wet masonry again prior to pointing. Brick joint should be damp but without standing water.

3.4.6 Pointing:

.1 Completely fill joints in thin layers not exceeding 1/4 inch at a time. Push mortar off trowel with steel pointing tool. Take care to keep the mortar off the face of the brick. Hold new mortar back so that the joint appearance after pointing matches existing un-pointed areas.

.2 Fill areas where joints are deeper than 1 inch first. Apply mortar in thin layers, doubling back only after mortar has taken an initial set.

.3 After deepest areas are filled and have taken an initial set to the point of being "thumbprint hard", point remainder of joint in 1/4 inch layers, allowing each successive layer to set up before applying the next.

3.4.7 Tooling;

.1 Tool joints when mortar is "thumbprint hard" with a steel or wood tool. Tool joints to match the profile of the existing joints. When new mortar is just beginning to harden (about

one hour after pointing) stipple joints slightly with a stiff course bristled brush to expose aggregate.

.2 Keep new mortar slightly back to eliminate the appearance of a larger joint in pointed areas.

.3 Keep fresh pointing damp and out of direct sunlight during cure. This is to be for at least 48 hours. Conduct no placement of mortar when temperatures are above 90 degrees or are expected to be within 12 hours.

3.5 MISCELLANEOUS METAL REMOVAL AND PATCHING OF HOLES

3.5.1 Where abandoned metal fasteners, attachments and the like are present or where equipment has been removed from the face, and wherever ferrous fastener anchors or pins are found, remove them from the facade. The appropriate method of removal is by core drilling with a diamond impregnated core drill of a size slightly larger than the fastener to be removed. Clean the surrounding brick/precast of corrosion and debris. Clean metal stains as specified herein.

3.5.2 Prepare a patching mix with material specified, Patching Method for concrete losses, and as described below. For patching mixes to be applied to concrete substrate, consider utilizing cement and lime mortars with aggregate.

3.5.3 Surface Wetting: Wash the surface of the brick with water and a bristle brush to remove debris and dust. Do this cleaning also as a preparation for repair procedures that require a damp surface.

3.5.4 Fill the holes in excess of being flush with the surface of the brick. The fill must exceed the facade surface. Fill must be compacted into the hole firmly with micro-spatulas or similar tools.

3.5.5 When the patch is partially cured to leather hardness, tool patch surface to match adjacent facade surfaces, utilizing the least sharp edged tools required.

3.6 RE-LAY ALL SHIFTED OR BULGING MASONRY

3.6.1 Remove all masonry that is shifted out of plane by more than 1/2”.

.1 Ensure that all areas are protected from falling debris during this operation.

.2 Remove all masonry units using care as it is the intention to reuse all units.

.3 Clean out all debris from behind the affected masonry.

.4 Reset all masonry back in wall system in the same plane and using same joint coursing. Use mortar as specified herein and ensure that resultant appearance matches surrounding masonry exactly.

3.7 CLEAN UP

3.7.1 Keep Work areas free of surplus cleaning compounds and debris by daily cleanup.

3.7.2 At the end of each workday during progress of Work, empty cans, remove rubbish, rags and other discarded materials from the site. Upon completion of the Work, clean concrete, window glass, and other spattered surfaces. Remove spattered coatings by washing, scraping, or other proper methods, using care not to scratch or otherwise damage adjacent finished surfaces. Remove tools, equipment and surplus materials.

3.7.3 Replace or repair Work of all trades soiled or damaged by the façade repair and restoration.

3.7.4 Final Cleaning: Provide final cleaning operations as work progresses. Comply with manufacturer's instructions.

.1 Complete the final cleaning operations before requesting inspection for Certification of Substantial Completion for the entire Project or a portion of the Project.

.2 Clean the Project site, yard, and grounds of rubbish, waste materials, litter, and foreign substances. Sweep paved areas broom clean. Remove chemical spills, stains, and other foreign deposits. Rake grounds that are not planted or paved to a smooth even-textured surface.

.3 Remove tools, cleaning and stabilization equipment, machinery, and surplus material from the site.

.4 Remove debris and surface dust from limited access spaces, including roofs, porches, glass, and similar areas.

.5 All glass surfaces and metal frame surfaces of all windows, doors and louvers on wall areas of building proper are to be professionally cleaned at the completion of all work on specified elevation. If repair work performed on an elevation contaminates cleaned glass from an adjacent elevation, those glass units will need to be re-cleaned.

.6 Leave the Project clean and ready for occupancy.

.7 Remove temporary protection and facilities installed during masonry cleaning and stabilization Work to protect previously completed installations.

.8 Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from the site and dispose of in a lawful manner. Where extra material of value remaining after completion of associated masonry cleaning and stabilization Work have become the Owner's property, dispose of these materials as directed by Associate.

END OF SECTION

SECTION 04 05 11

MORTAR AND MASONRY GROUT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mortar for masonry.

B. Grout for masonry.

1.02 RELATED REQUIREMENTS

A. Section 04 20 00 - Unit Masonry: Installation of mortar and grout.

1.03 REFERENCE STANDARDS

A. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2017a.

B. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2014a.

C. ASTM C387/C387M - Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar; 2015.

D. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2011.

E. ASTM C476 - Standard Specification for Grout for Masonry; 2018.

F. ASTM C1019 - Standard Test Method for Sampling and Testing Grout; 2016.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Include design mix and indicate whether the Proportion or Property specification of ASTM C270 is to be used. Also include required environmental conditions and admixture limitations.

C. Reports: Submit reports on grout indicating compliance of component grout materials to requirements of ASTM C476 and test and evaluation reports to requirements of ASTM C1019.

PART 2 PRODUCTS

2.01 MORTAR AND GROUT APPLICATIONS

A. Mortar Mix Designs: ASTM C270, Property Specification.

B. Grout Mix Designs:

1. Bond Beams and Lintels: 3,000 psi (21 MPa) strength at 28 days; 8-10 inches (200-250 mm) slump; provide premixed type in accordance with ASTM C 94/C 94M.
2. Engineered Masonry: 3,000 psi (21 MPa) strength at 28 days; 8-10 inches (200-250 mm) slump; provide premixed type in accordance with ASTM C 94/C 94M.

2.02 MATERIALS

A. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C387/C387M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.

1. Color: Match existing.

B. Mortar Aggregate: ASTM C144.

C. Grout Aggregate: ASTM C404.

D. Water: Clean and potable.

2.03 MORTAR MIXING

A. Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C270 and in quantities needed for immediate use.

B. Maintain sand uniformly damp immediately before the mixing process.

C. Do not use anti-freeze compounds to lower the freezing point of mortar.

D. If water is lost by evaporation, re-temper only within two hours of mixing.

2.04 GROUT MIXING

A. Mix grout in accordance with ASTM C94/C94M.

B. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476 for fine and coarse grout.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install mortar and grout to requirements of section(s) in which masonry is specified.

B. Work grout into masonry cores and cavities to eliminate voids.

C. Do not displace reinforcement while placing grout.

D. Remove excess mortar from grout spaces.

END OF SECTION

SECTION 04 20 00

UNIT MASONRY

PART 1 GENERAL

1.1 SUMMARY

A. Section includes brick, concrete masonry units, reinforcement, anchorage and accessories.

1.2 PERFORMANCE REQUIREMENTS

A. Clay Masonry Compressive Strength (f'm): 2,500 psi determined by unit strength method.

B. Concrete Masonry Compressive Strength (f'm): 2,000 psi; determined by unit strength method.

1.3 SUBMITTALS

A. Product Data:
   1. Submit data for masonry units and fabricated wire reinforcement, wall ties, anchors and other accessories.
   2. Indicate initial rate of absorption for clay and shale brick.

B. Samples: Submit four samples of face brick units to illustrate color, texture and extremes of color range.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 530 Building Code Requirements for Masonry Structures and ACI 530.1 Specification for Masonry Structures.

B. Fire Rated Wall Construction: Rating as indicated on Drawings.
   1. Tested Rating: Determined in accordance with ASTM E119.

C. Surface Burning Characteristics:
   1. Foam Insulation: Maximum 75/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Requirements: In accordance with ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F (4 degrees C).

B. Hot Weather Requirements: In accordance with ACI 530.1 when ambient temperature is greater than 100 degrees F (38 degrees C) or ambient temperature is greater than 90 degrees F (32 degrees C) with wind velocity greater than 8 mph (13 km/h).

PART 2 PRODUCTS

2.1 UNIT MASONRY ASSEMBLIES

A. Manufacturers:
   1. Redland Brick – 'Harmar Meadowlark Matt'. Good match used at adjacent Family Services Training Building.
   2. The Belden Brick Co.
   3. Elgin Butler Brick Co.
   4. Endicott Clay Products Co.
   5. Substitutions: Permitted, see Division 01 specifications.

2.2 COMPONENTS

A. Facing Brick: ASTM C216, Type FBS, Grade SW, color as selected to match existing. Contractor to provide samples for field verification.

B. Brick Size and Shape: Size to match existing. Furnish special units for 90-degree corners.

C. Hollow Load Bearing Concrete Masonry Units: ASTM C90; normal weight.

D. Solid Load-Bearing Concrete Masonry Units: ASTM; normal weight.

E. Hollow Non-Load Bearing Concrete Masonry Units: ASTM C129; normal weight.

F. Concrete Masonry Unit: Nominal modular size of 8 x 16 x 8 inches. Furnish special units for 90-degree corners, bond beams, lintels and bullnosed corners.

2.3 ACCESSORIES

A. Single Wythe Joint Reinforcement: ASTM A951/A951M; ladder type; steel; 0.188 inch diameter side rods with 0.148 inch (3.8 mm) diameter cross ties; hot dip galvanized.

B. Multiple Wythe Joint Reinforcement: ASTM A951/A951M; ladder type; steel; with moisture drip; adjustable type; 0.148 inch diameter side rods with 0.148 inch (3.8 mm) diameter cross ties; hot dip galvanized.

C. Reinforcing Steel: specified in Section 03 30 00.

D. Wall Ties: ASTM A82/A82M; steel, adjustable type; ASTM A153/A153M hot dip galvanized].

E. Dovetail Anchors: Bent steel strap; ASTM A153/A153M hot dip galvanized].

F. Mortar and Grout: As specified in Section 04 05 11.

G. Thru-Wall Flashing: Self-sticking reinforced, 40 mil polyethylene sheeting type flashing. Hohmann & Bernard Textroflash or equal.

H. End dams: Preformed stainless steel end dams set in sealant.

I. Lap Sealant: Butyl type as specified in Section 07 90 00.

J. Preformed Control Joints: Neoprene material. Furnish with corner and tee accessories.

K. Joint Filler: Closed cell polyethylene; oversized 50 percent to joint width; self expanding.

L. Cavity Drain Material: Open polyethylene mesh thickness required to fill cavity space and shaped to ensure moisture drainage to cavity weeps.

M. Building Paper: ASTM D226; Type II, No. 30 unperforated asphalt felt.

N. Nailing Strips: Softwood, preservative treated for moisture resistance, dovetail shape, sized to masonry joints.

O. Weeps: Preformed plastic louvered head joints vents.

P. Cavity Vents: Molded polyvinyl chloride louvered head joint vents; insect resistant.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify field conditions are acceptable and are ready to receive Work.

3.2 PREPARATION

A. Coordinate placement of anchors supplied by other sections.

B. Wet clay and shale brick before laying when initial rate of absorption is greater than 30 grams when tested in accordance with ASTM C67.

3.3 INSTALLATION

A. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

B. Coursing of Concrete Masonry Units:
   1. Bond: Running. Match existing.
   2. Coursing: One unit and one mortar joint to equal 8 inches.
   3. Mortar Joints: Concave. Match existing.

C. Coursing of Brick Units:
   1. Bond: Running, match existing.
   2. Coursing: Match existing.
   3. Mortar Joints: Match existing.

D. Cut mortar joints flush where ceramic or quarry wall tile is scheduled, cement parging is required, resilient base is scheduled, cavity insulation vapor retarder adhesive is applied, or bituminous dampproofing is applied.

E. Placing And Bonding:
   1. Isolate masonry partitions from vertical structural framing members with movement joint.
   2. Isolate top of masonry from horizontal structural framing members and slabs or decks.

F. Weeps and Vents: Install weeps and vents in outer wythe at 24 inches oc horizontally above through-wall flashing, above shelf angles and lintels, at bottom of walls, and top of cavity walls.

G. Cavity Wall: Do not permit mortar to drop or accumulate into cavity air space or to plug weep holes. Build inner wythe ahead of outer wythe to receive cavity insulation air/vapor retarder adhesive.

H. Joint Reinforcement and Anchorage - Single Wythe Masonry:
   Install horizontal joint reinforcement 16 inches oc. Place joint reinforcement continuous in first and second joint below top of walls.
   1. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.

I. Joint Reinforcement and Anchorage - Masonry Veneer:
   1. Install horizontal joint reinforcement 16 inches oc. Place joint reinforcement continuous in first and second joint below top of walls.
   2. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
   3. Embed wall ties in masonry backing to bond veneer at maximum 16 inches oc vertically and 16 inches o.c. horizontally. Place wall ties at maximum 8 inches oc vertically within 8 inches of jamb of wall openings.

J. Masonry Flashings:
   1. Extend flashings horizontally through outer wythe at foundation walls, above ledge or shelf angles and lintels, at bottom of walls. Extend to outside face of masonry veneer. Provide stainless steel drip under thru-wall flashing.
   2. Turn flashing up minimum 16 inches and terminate into termination bar at face of masonry back-up. Provide sealant at top of termination bar.
   3. Lap end joints and seal watertight.
   4. Turn flashing, fold, and seal at corners, bends, and interruptions.
   5. Provide preformed stainless steel end dams at openings and interruptions of thru-wall flashing.

K. Lintels:
   1. Install loose steel lintels over openings.
   2. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled or indicated.
   3. Maintain minimum 8 inch bearing on each side of opening.

L. Grouted Components:
   1. Reinforce bond beam and pilasters as detailed.
   2. Support and secure reinforcing bars from displacement.
   3. Place and consolidate grout fill without displacing reinforcing.
   4. At bearing locations, fill masonry cores with grout for minimum 12 inches both sides of opening.

M. Control Joints:
   1. Install control joints at the following maximum spacings, unless otherwise indicated on Drawings:
      a. Exterior Walls: 20 feet (6000 mm) on center and within 24 inches (600 mm) on one side of each interior and exterior corner.
      b. At changes in wall height.
   2. Do not continue horizontal joint reinforcement through control joints.
   3. Install preformed control joint device in continuous lengths. Seal butt and corner joints.
   4. Size control joint in accordance with Section 07 90 00 for sealant performance.

N. Built-In Work:

1. As work progresses, install built-in metal door and glazed frames, fabricated metal frames and other items to be built in the work furnished by other sections.
2. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout or mortar. Fill adjacent masonry cores with grout minimum 12 inches from framed openings].

O. Cutting And Fitting:
1. Cut and fit for pipes, conduit, sleeves and grounds. Coordinate with other sections of work to provide correct size, shape, and location.

END OF SECTION

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SECTION 05 12 00

STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

When the information in this Specification Section conflicts with information on the Structural Construction Drawings, the Structural Construction Drawings shall prevail.

1.1 SUMMARY

A. Section Includes:
   1. Structural steel.
   2. Grout.

B. Related Requirements:
   1. Section 05 50 00 "Metal Fabrications" for steel lintels and shelf angles not attached to structural-steel frame, miscellaneous steel fabrications, and other steel items not defined as structural steel.

1.2 DEFINITIONS

A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in AISC 303-10, "Code of Standard Practice for Steel Buildings and Bridges."

1.3 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 anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

1.4 ACTION SUBMITTALS

A. Shop Drawings: Show fabrication of structural-steel components.

   1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
   2. Include Embedment Drawings for steel elements embedded in masonry or concrete.
   3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
   4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.
   5. Erection Drawings

B. One (1) electronic copy (in PDF format) for the structural steel shop drawings shall be submitted for review.

C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs) for Partial Joint Penetration (PJP), Complete Joint Penetration (CJP), and flare bevel groove welds: Provide according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," for each welded joint whether prequalified or qualified by testing, including the following:

1. Power source (constant current or constant voltage).
2. Electrode manufacturer and trade name.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control and special inspection reports.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications:
1. 5 years minimum experience
2. A qualified fabricator that participates in the AISC Certification Program and is designated an AISC-Certified Plant, Category BU at time of bid.

B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

C. Comply with applicable provisions of the following specifications and documents:

1. AISC 303-10 “Code of Standard Practice for Steel Buildings and Bridges.”
2. AISC 360-10 “Specification for Structural Steel Buildings.”
3. RCSC's “Specification for Structural Joints Using ASTM A 325 or A 490 Bolts.”

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.

1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
2. Clean and relubricate bolts and nuts that become dry or rusty before use.
3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

1.8 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' recommendations to ensure that shop primers and topcoats are compatible with one another.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Connections: Provide details of simple shear connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand loads indicated and comply with other information and restrictions indicated.

1. Select and complete connections using schematic details indicated and AISC 360.
2. Use Allowable Stress Design; data are given at service-load level.

2.2 STRUCTURAL-STEEL MATERIALS

A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of pre-consumer recycled content is not less than the following:

1. W-Shapes: 60 percent.
2. Channels, Angles: 60 percent.
3. Plate and Bar: 25 percent.
4. Cold-Formed Hollow Structural Sections: 25 percent.
5. Steel Pipe: 25 percent.
6. All Other Steel Materials: 25 percent.

B. W-Shapes: ASTM A 992.

C. Channels, Angles, M-Shapes: ASTM A 36.

D. Plate and Bar: ASTM A 36.

E. Hollow Structural Sections: ASTM A 1085, structural tubing.

F. Steel Pipe: ASTM A 53, Type E or Type S, Grade B.

G. Welding Electrodes:
1. Use E70XX electrode unless noted otherwise.
2. Comply with AWS requirements.

2.3 BOLTS, CONNECTORS, AND ANCHORS

A. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 1852, Type 1, round head assemblies consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers.

1. Use as default bolt unless noted otherwise.
2. Finish: Plain.

B. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade C, heavy-hex carbon-steel nuts; all with plain finish.

1. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with plain finish.

C. High-Strength Bolts, Nuts, and Washers: ASTM A 490, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade DH, heavy-hex carbon-steel nuts; all with plain finish.

1. Direct-Tension Indicators: ASTM F 959, Type 490, compressible-washer type with plain finish.

D. Unheaded Anchor Rods: ASTM F 1554, Grade 36, U.N.O.

1. Configuration: Straight.
2. Nuts: ASTM A 563 heavy-hex carbon steel.
3. Plate Washers: ASTM A 36 carbon steel.
4. Washers: ASTM F 436, Type 1, hardened carbon steel.
5. Finish: Plain.

E. Threaded Rods: ASTM A 36.

1. Nuts: ASTM A 563 heavy-hex carbon steel.
2. Washers: ASTM F 436, Type 1, hardened carbon steel.
3. Finish: Plain.

2.4 PRIMER

A. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Primer: Fabricator's standard lead- and chromate-free, non-asphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

C. Galvanizing Repair Paint: MPI#18, MPI#19, ASTM A780, or SSPC-Paint 20.

2.5 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.6 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.

1. Camber structural-steel members where indicated.
2. Fabricate beams with rolling camber up.
3. Identify high-strength structural steel according to ASTM A 6 and maintain markings until structural steel has been erected.
4. Mark and match-mark materials for field assembly.
5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.

C. Bolt Holes: Cut, drill, or punch bolt holes perpendicular to metal surfaces.

D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.

E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 2, "Hand Tool Cleaning."

F. Install headed studs on all structural steel beams supporting Concrete Masonry Units directly on the beam's top flange.

G. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.

1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.

H. Closure Plates: Provide minimum 1/4 inch closure plates at all Hollow Structural Steel tube ends, U.N.O. on plans.

2.7 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.

1. Joint Type: Pretensioned.

B. Weld Connections: Comply with AWS D1.1 for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

2.8 SHOP PRIMING

A. Shop prime steel surfaces except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
2. Surfaces to be field welded.
3. Surfaces of high-strength bolted, slip-critical connections.
4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
5. Galvanized surfaces.
6. Surfaces enclosed in interior construction.

B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:

1. SSPC-SP 2, "Hand Tool Cleaning."
2. SSPC-SP 3, "Power Tool Cleaning."

C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

2.9 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/A 123M.

1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.
2. Galvanize lintels shelf angles and welded door frames attached to structural-steel frame and located in exterior walls.

2.10 SOURCE QUALITY CONTROL

A. Bolted Connections: Inspect and test shop-bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

B. Welded Connections: In addition to visual inspection, shop-welded connections will be tested according to AWS D1.1 and the following inspection procedures:

1. Liquid Penetrant Inspection: ASTM E 165.
2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
3. Ultrasonic Inspection: ASTM E 164.
4. Radiographic Inspection: ASTM E 94.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.

3.3 COORDINATION

A. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

3.4 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

B. Baseplates Bearing Plates and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Weld plate washers to top of baseplate.
3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

C. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.

E. Splice members only where indicated.

F. Do not use thermal cutting during erection.

G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

H. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1 and manufacturer's written instructions.

3.5 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint specified.

1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1 for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
2. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," for mill material.
3. Remove backing bars exposed to view, back gouge, and grind welds smooth.

3.6 FIELD QUALITY CONTROL

A. Inspection: Owner will engage a qualified inspector to perform the following inspections:

1. Verify structural-steel materials and inspect steel frame joint details.
2. Verify weld materials and inspect welds.
3. Verify connection materials and inspect high-strength bolted connections.
4. See Contract Drawings for Special Inspection requirements, if required.

B. Bolted Connections: Inspect bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

C. Welded Connections: Visually inspect field welds according to AWS D1.1.

1. In addition to visual inspection, test and inspect field welds according to AWS D1.1 and the following inspection procedures, at Special Inspector's option:

a. Liquid Penetrant Inspection: ASTM E 165.
b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
c. Ultrasonic Inspection: ASTM E 164.
d. Radiographic Inspection: ASTM E 94.

2. 100% of groove welds shall have non-destructive testing

D. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

3.7 REPAIRS AND PROTECTION

A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780.

B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.

END OF SECTION

SECTION 05 52 00

METAL RAILINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes steel tube railings, balusters, and fittings.

B. Related Sections:
1. Section 03 30 00 - Cast-In-Place Concrete: Execution requirements for placement of anchors specified in this section in concrete.
2. Section 01 70 00 – Execution Requirements: Execution requirements for placement of anchors.
3. Section 09 90 00 - Painting and Coating: Paint finish.

1.2 REFERENCES

A. ASTM International:
1. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
2. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
3. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
4. ASTM A513 - Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing.
5. ASTM B177 - Standard Guide for Chromium Electroplating on Steel for Engineering Use.

B. California Department of Health Services:
1. CA/DHS/EHLB/R-174 - Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda.

C. National Ornamental & Miscellaneous Metals Association:
1. NOMMA Guideline 1 - Joint Finishes.

D. SSPC: The Society for Protective Coatings:
1. SSPC - Steel Structures Painting Manual.
2. SSPC Paint 15 - Steel Joist Shop Primer/Metal Building Primer.
3. SSPC Paint 20 - Zinc-Rich Coating, Type I - Inorganic and Type II - Organic.

1.3 DESIGN REQUIREMENTS

A. Design handrail, guardrail, and attachments to resist forces as required by applicable code. Apply loads non-simultaneously to produce maximum stresses.
1. Guard Top Rail and Handrail Concentrated Load: 200 pounds (0.89 kN) applied at any point in any direction.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal requirements.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

1.5 QUALITY ASSURANCE

A. Finish joints in accordance with NOMMA Guideline 1.

1.6 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

PART 2 PRODUCTS

2.1 HANDRAILS AND RAILINGS

A. Manufacturers:
   1. McNichols Company.
   2. The Western Group.
   3. Substitutions: Section 01 60 00 - Product Requirements.

2.2 STEEL RAILING SYSTEM COMPONENTS

A. Tubing: ASTM A513, Type 5, minimum 50 ksi yield strength.

B. Rails and Posts: 1 1/2" inch diameter steel tubing; welded joints. Welds shall be circumferential welds ground smooth and even to produce a railing that is neat in appearance and structurally sound. Rail to post connections shall be coped and fastened by continuous welds.

C. Mounting: Brackets and flanges with steel inserts for casting in concrete.

D. Galvanizing: ASTM A123/A123M; hot dip galvanize after fabrication.

E. Touch-Up Primer for Galvanized Surfaces: SSPC Paint 20 zinc rich.

2.3 FABRICATION

A. Fit and shop assemble components in largest practical sizes for delivery to site.

B. Fabricate components with joints tightly fitted and secured. Furnish spigots and sleeves to accommodate site assembly and installation.

C. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

D. Exterior Components: Continuously seal joined pieces by continuous welds. Drill condensate drainage holes at bottom of members at locations not encouraging water intrusion.

E. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

F. Accurately form components to suit ramps and landings.

G. Accommodate for expansion and contraction of members and building movement without damage to connections or members.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify field conditions are acceptable and are ready to receive work.

C. Verify concealed blocking and reinforcement is installed and correctly located to receive wall mounted handrails.

3.2 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply items required to be cast into concrete with setting templates, to appropriate sections.

3.3 INSTALLATION

A. Install components plumb and level, accurately fitted, free from distortion or defects.

B. Field weld anchors as indicated on shop drawings. Touch-up welds with primer. Grind welds smooth.

3.4 ERECTION TOLERANCES

A. Section 01 40 00 - Quality Requirements: Tolerances.

B. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

C. Maximum Offset From Alignment: 1/4 inch.

D. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

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SECTION 06 00 00

CARPENTRY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Miscellaneous wood framing, incidental rough carpentry required for support or attachment of other construction, pressure preservative treated and fire retardant treated wood including:
   1. Wood blocking inside stud walls for attachment of specialties and other components
   2. Wood blocking around windows in wall cavity space
   3. Wood furring
   4. Misc. wood blocking and related components and attachments indicated and required for the work whether or not specifically referred to herein.

B. Wall sheathing including sheathing joint and penetration treatment and flexible flashing at openings in sheathing.
   1. Glass-Mat Gypsum wall Sheathing
   2. Sheathing work and related materials and attachments indicated and required for the work whether or not specifically referred to herein.

C. Finish Carpentry including:
   1. Interior ornamental woodwork.
      a. Shop and field finished interior woodwork including wood architectural trim.
      b. Wood support board for grab bars, towel dispensers and soap dispensers.
      c. Filling of all holes and surface prep required for finish painting by others.
   2. Interior manufactured work.
   3. All finish carpentry work, related materials and attachment/anchorage accessories not specified under another section but required for the work whether or not specifically referred to herein.

D. Installation of the following:
   1. Door Hardware (supplied in Section 08 71 00).

E. Temporary carpentry work
   1. Temporary barricades, shoring etc. as required for the work.

F. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.02 QUALITY ASSURANCE

A. Perform Work in accordance with the following agencies:
   1. Lumber Grading Agency: Certified by ALSC.
   2. Plywood Grading Agency: Certified by APA.

1.03 SUBMITTALS

A. Submittal shall specifically include:

   1. Certified test reports and/or product data showing compliance with specified performance characteristics.
   2. Shop drawings on all items of architectural woodwork. Indicate materials, component profiles, fastening methods, jointing details, finishes, and accessories.
   3. Samples: Submit two reasonable size samples illustrating wood grain and specified finish for each type of wood trim and millwork.

4. Product Data for Construction Adhesive

PART 2 PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber/Boards:
   1. Maximum moisture content: 19 percent.
   2. Factory mark each piece of lumber with grade stamp.

B. Plywood: Either DOC PS 1 or DOC PS 2, unless otherwise indicated.

C. Oriented Strand Board: DOC PS 2.

D. Low Emitting: All interior Rough Carpentry composite wood (except wood for temporary construction) must contain no added urea-formaldehyde resins.

E. Accessories
   1. Fasteners:
      a. Exterior or in wall cavity: Hot-dip galvanized or stainless steel.
      b. Treated wood locations: Hot-dip galvanized or stainless steel.
      c. High Humidity Areas: Hot-dip galvanized or stainless steel.
      d. Other Areas: Plain steel.
   2. Die Stamped Connectors: galvanized steel as shown.
   3. Joist Hangers: Galvanized steel, sized to suit framing conditions.
   4. Anchors: Hollow block epoxy anchors for anchorage to hollow masonry. Expansion (wedge) bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.

2.2 PRESERVATIVE TREATED (PT) WOOD MATERIALS

A. Preservative Treatment by Pressure Process: AWPA U1. Use Category UC2 for interior construction not in contact with the ground. Use Category UC3b for exterior construction not in contact with the ground. Use Category UC4a for items in contact with the ground.
   1. Preservative Chemicals: Micronized Copper Azole (MCA)
   2. Product specifically approved by manufacturer for use in direct contact with aluminum.
   3. Application: Wood blocking at perimeter of windows, roof/parapet blocking, gutter and aluminum- wrapped trim boards, any wood blocking below grade or in contact with masonry, and other locations specifically indicated to be pressure treated (PT).

2.3 FIRE RETARDANT TREATED (FRT) WOOD MATERIALS

A. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, 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 feet beyond the centerline of the burners at any time during the test.
   1. Use treatment that does not promote corrosion of metal fasteners.
   2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant- treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
   3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when testing according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
   4. The fire retardant chemical shall provide protection against termites and fungal decay.
   5. A corrosion resistant fastener, such as hot-dipped galvanized nails, or better shall be used.
   6. Application: All wood framing and blocking not otherwise indicated shall be fire retardant treated.

B. Wood Blocking
   1. Stud Walls (side with resilient channels):
      a. Material: Plywood (FRT).
      b. Thickness: To match depth of resilient channels.
      c. Width: 12" min.
      d. Length: 16" min., terminating at vertical stud on both ends.
      e. Attachment: Screw-attached to face of each stud with min. 2 fasteners per stud.
   2. Stud Walls (side without resilient channels):
      a. Material: 2x6 min. Lumber (FRT)
      b. Length: 16" min., terminating at vertical stud on both ends.
      c. Attachment: Screw-attached to studs, notched as required to nest in stud lips. Face of blocking shall be flush with face of studs. Two fasteners min. required per stud.
   3. Blocking Verification: The blocking description above should be considered minimum requirements. For blocking that will support significant weight (wall cabinets, etc.), verify blocking requirements with the manufacturer of the items being supported. Provide wider or thicker blocking and/or additional attachment as required to support attached items.

2.4 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4 inch nominal thickness. Painted gray by Contractor providing these panels. Provide as shown on the Electric and/or Technology Drawings. Exact locations of panels shall be coordinated with Technology Contractor and Architect.

2.5 INTERIOR WOODWORK MATERIALS

A. General: Provide materials that comply with requirements of the AWI Woodworking Standard for each type of woodwork and quality grade indicated and, where the following products are part of woodwork, with requirements of the referenced product standards, that apply to product characteristics indicated:
   1. Hardboard: ANSI/AHA A135.4.
   2. High Pressure Laminate: NEMA LD3.
   3. Medium Density Fiberboard: ANSI A208.2
   4. Particleboard: ANSI A208.1, Grade M-2
   5. Softwood Plywood: PS 1.
   6. Hardwood Plywood and Face Veneers: HPVA HP-12
   7. FSC: All Finish Carpentry lumber and plywood must be FSC certified. All Finish Carpentry composite wood must be FSC certified or 100% recycled content.
   8. Low Emitting: All interior Finish Carpentry composite wood must be free of added urea-formaldehyde resins.

B. Trim and Mouldings
   1. Painted Wood Trim Boards: Pre-primed finger jointed redwood in 20 ft. lengths in dimensions shown on drawings, maximum moisture content of 6 percent.
   2. Painted Wood Mouldings: Paint grade poplar. Longest lengths commercially available with joints mitered.
   3. Stained Wood Trim Boards: Stain grade match existing.

C. Misc. Woodwork
   1. Misc. Support: Approx. 3/4" thick MDO plywood, eased edges. Fasteners countersunk and filled. Field painted by Painting Contractor.

2.6 FINISHING OF INTERIOR WOODWORK

A. Quality standard complies with AWI Section 1500. Comply with WIC Section 25, unless otherwise indicated.

1. Grade: Provide finishes of same grades as items to be finished.

B. General:
   1. Field-finished Architectural Woodwork: Finished under Section 09 91 00.

C. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces and similar preparations for finishing of architectural woodwork, as applicable to each unit of work.
   1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative overlay.

PART 3 EXECUTION

3.1 FRAMING

A. Install blocking as required with appropriate fasteners.
   1. Where shown on drawings.
   2. Where required for attachment of specialties or other construction.

B. Erect barricades and temporary enclosures as required. See Division 00 & 01.

3.2 FINISH CARPENTRY INSTALLATION

A. Install work in accordance with AWI Custom Grade Quality Standard. Set and secure materials and components in place, plumb and level.

B. Install wood trim with finish nails or finish screws.

C. Install door hardware supplied by Section 08 71 00 in accordance with manufacturer's instructions.

E. Install bathroom accessories and miscellaneous Division 10 specialties in accordance with manufacturer’s instructions.

D. Support Blocks: Provide support blocks at each accessory as recommended by manufacturer.
   1. CMU Locations: Secure support blocks to wall using masonry screws (countersunk and filled) and construction adhesive.
   2. Stud Wall Locations: Provide blocking in walls at all dispenser block locations. Secure support blocks to wall using wood screws (countersunk and filled) and construction adhesive.
   3. Perimeter: Seal perimeter with paintable sealant.
   4. Wall Tile Locations: Where support blocks occur at wall tile locations, install support blocks on top of wall tile. Drill pilot holes through tiles at attachment locations prior to attachment.

3.3 PREPARATION FOR FINISH

A. Sand work smooth and set exposed fasteners. Apply matching wood filler in exposed fastener indentations.

B. Site Finishing: Refer to Section 09 91 00 for site-applied stained and painted finishes.

END OF SECTION

SECTION 07 21 00

THERMAL/ACOUSTIC INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section Includes:
   1. Organic and inorganic insulation applied for acoustical performance in walls, ceilings, attics.
   2. All building insulation work and related materials not specified under another section but required for the work shall be provided under this section whether or not specifically referred to herein.

B. Related documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.2 SUBMITTALS

A. Submittal shall specifically include:
   1. Product Data for each product.
   2. Manufacturer's recommended adhesive data for rigid insulation board.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Installer experienced to perform work of this section who is specialized in the installation of work similar to that required for this project.

B. All insulation products shall be formaldehyde free.

C. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
   1. Surface-Burning Characteristics: ASTM E 84.
   2. Fire-Resistance Ratings: ASTM E 119.
   3. Combustion Characteristics: ASTM E 136.

1.4 DELIVERY, STORAGE AND HANDLING

A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials protected from exposure to harmful weather to avoid damage.

PART 2 PRODUCTS

2.1 MINERAL FIBER BLANKET INSULATION

A. Acoustic Sound Batt Insulation: Acoustic/Thermal Batts fiberglass batts, complying with ASTM C665, Type I, maximum flame spread and smoke developed value of 25 and 50.
   1. Size: 24" x 48" x 3 1/2" (R-11)
   2. Application: Acoustical assemblies.
   3. Acceptable Products:
      a. Owens-Corning Sonobatts
      b. Knauf Insulation EcoBatt R-11QT
      c. Johns Manville Sound Control Batts

B. Fire Safing Insulation: Safing Insulation/Mineral Wool, unfaced, noncombustible, thickness and size as required, providing up to 3 hour fire resistance rating, complying with ASTM C612, Types I-IV and ASTM E136, flame spread value of 5 and developed smoke value of 0.
   1. Application: Locations indicated or required for sound or fire separation.

2.2 FOAMED-IN-PLACE INSULATION

A. Insulation Gaps: Closed-cell polyurethane foamed-in-place insulation
   1. General: Verify compatibility with substrates. Apply such that expansion of foam does not obstruct ventilation or drainage spaces. Multiple products may be required based on applications.
   2. Applications:
      a. Insulation gaps at cavity wall insulation and roof insulation
      b. Insulation gaps at vented nailboard insulation (not obstructing ventilation space)
      c. Gaps between cavity wall insulation and roof deck at eaves

B. Around Windows and Doors: Closed-cell polyurethane foamed-in-place insulation
   1. General: Verify compatibility with substrates. Use only products specifically recommended for use around window/door frames where expansion of material will not damage or warp frames. Multiple products may be required based on applications.
   2. Application: Foam insulation required between all window and door frames and rough opening construction at heads, jambs, and sills.

C. Acceptable Manufacturers:
   1. Hilti
   2. Dow
   3. CertainTeed

2.3 BLOWN-IN ATTIC INSULATION

A. Blown-in Loosefill Fiberglass Insulation: Basis of Design - Owens Corning ProPink L77 Pink Fiberglass loosefill insulation. Complies with ASTM E84, ASTM E136, and ASTM C764 Type 1. Maximum flame spread and smoke developed value of 0 and 0.
   1. General: Attic insulation to be blown over existing sporadic blown insulation.
   2. R-Value: Average of R-49 throughout all attic spaces.
   3. Accessories: Attic insulation baffles, see below.
   4. Acceptable Products:
      a. Owens-Corning
      b. Certainteed

2.4 ACCESSORIES

A. Adhesive: Type recommended by insulation manufacturer for application. Compliant with the maximum VOC levels permissible by the South Coast Air Quality Management District Rule (SCAQMD) #1168: VOC limit of 50 g/L.

B. Mechanical Fasteners: As recommended by insulation manufacturer.

C. Attic Insulation Baffles: 100% recycled rigid PVC attic baffles for R-49 attic insulation. Brentwood Industries Accuvent, no Substitutions. To be placed in each rafter space in all attic spaces.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation boards are dry and ready to receive insulation and adhesive. Install insulation in accordance with manufacturer’s recommendations and instructions.

3.2 INSTALLATION

A. Blown-in Loosefill Fiberglass Insulation
   1. Install insulation in accordance with insulation manufacturer's instructions.
   2. Install in consistent depth throughout attic spaces. Leave no gaps or voids.
   3. Coordinate installation of blown insulation with installation of new attic ventilation baffles.

B. Foamed-in-place Insulation:

1. Provide at all locations indicated and as required to achieve continuous insulation.
2. Protect adjacent surfaces from staining. Mask/protect as required.
3. Trim foamed-in-place insulation as required after material is fully cured.
4. Coordinate size of gaps and substrate with appropriate foamed-in-place insulation products.

END OF SECTION

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SECTION 07 31 00

ASPHALT SHINGLE ROOFING

PART I GENERAL

1.01 SECTION INCLUDES

A Asphalt roofing shingles.

B Leak barrier and roof deck protection.

C Metal flashing associated with shingle roofing.

D Attic ventilation.

1.02 RELATED SECTIONS

A Section 07 62 00 - Flashing and Sheet Metal: Sheet metal flashing not associated with shingle roofing; gutters and downspouts.

1.03 REFERENCES

American Society for Testing and Materials (ASTM) - Annual Book of ASTM Standards.

1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
3. ASTM D 3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.
4. ASTM D 3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).
5. ASTM D 3462 – Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules.
6. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
7. ASTM D 7158 - Standard Test Method for Wind-Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method).
8. AC438-1011-R1 – New Acceptance Criteria for Alternative Asphalt Roofing Shingles

B Underwriters Laboratories (UL) - Roofing Systems and Materials Guide (TFWZ.R21)

1. UL 790 - Tests for Fire Resistance of Roof Covering Materials.
2. UL 997 - Wind Resistance of Prepared Roof Covering Materials.

C Asphalt Roofing Manufacturers Association (ARMA)

D Sheet Metal and Air Conditioning Contractors National Association, 1nc. (SMACNA) - Architectural Sheet Metal Manual.

E National Roofing Contractors Association (NRCA)

F American Society of Civil Engineers (ASCE).

1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

1.04 DEFINITIONS

A Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

1.05 SUBMITTALS

A Submit copies of product data sheets, detail drawings and samples for each type of roofing product.

1.06 QUALITY ASSURANCE

A Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, leak barrier, and ventilation, by a single manufacturer.

B Installer Qualifications: Installer must be approved for installation of all roofing products to be installed under this section.

1.07 REGULATORY REQUIREMENTS

A Provide a roofing system achieving an Underwriters Laboratories (UL) Class A fire classification.

B Install all roofing products in accordance with all federal, state and local building codes.

C All work shall be performed in a manner consistent with current OSHA guidelines.

1.08 PREINSTALLATION MEETING

A Timing: The meeting shall take place at the start of the roofing installation, no later than 1 week before the roofing project begins.

B Attendees: Meeting to be called for by manufacturer's certified contractor. Meeting's mandatory attendees shall include the certified contractor and the manufacturer's representative. Non-mandatory attendees shall include the owner's representative, architect or engineer's representative, and the general contractor's representative.

C Topics: Certified contractor and manufacturer's representative shall review all pertinent requirements for the project, including but not limited to, scheduling, weather considerations, project duration, and requirements for the specified warranty.

1.09 DELIVERY, STORAGE, AND HANDLING

A Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.

B Store products in a covered, ventilated area, at temperature not more than 110 degrees F (43 degrees C); do not store near steam pipes, radiators, or in direct sunlight.

C Store bundles on a flat, properly drained surface. Maximum stacking height shall not exceed manufacturer's recommendations. Store all rolls on end.

D Store and dispose of solvent-based materials in accordance with all federal, state and local regulations.

1.10 WEATHER CONDITIONS

A Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturer's recommendations

1.11 WARRANTY Provide to the owner a warranty for**:**

1. Shingles covering

a Commercial building – 40 years with the first 5 years non - prorated.

2. Against algae discoloration for 10 years
3. Workmanship errors: 100% coverage for workmanship errors for:
   a Commercial building - 20 years.
4. Roof system NOT installed over an existing roof, all existing roof materials must be removed to the deck.
5. Warranted against algae discoloration for 10 years
6. Follow manufacturer's requirements to meet warranty limitations.

PART I PRODUCTS

1.01 MANUFACTURER

A Acceptable Manufacturers:

1. Certainteed, 20 Moores Rd., Malvern, PA 19355.

B No Substitutions permitted.

1.02 SHINGLES

A Visitation Building: Belmont AR. Granule surfaced, self-sealing asphalt shingle with a strong fiberglass reinforced core and stain protection, which prevents pronounced discoloration from blue-green algae through formulation/unique blends of granules. Dovetail cut tabs and bold shadow lines provide a slate appearance with a 5 5/8 in. exposure. UL 790 Class A rated with ASTM D 7158, Class H; ASTM D 3161 Class F Wind Resistance, Type 1; ASTM D 3018, Type 1; ASTM D 3462; CSA 123.5.

1. Color: Shenandoah. Shingle and color to match adjacent Training Building shingles. Field verify color.

1.03 HIP AND RIDGE SHINGLES

A High profile self sealing hip and ridge cap shingle matching the color of selected roof shingle by same manufacturer.

1.04 STARTER STRIP

A Self sealing starter shingle designed for premium roof shingles by same manufacturer as shingles.

B Pre-cut, color coordinated starter strip shingle designed as a second starter course for shingles with large cut-outs.

1.05 SHINGLE UNDERLAYMENT

A Premium, water repellant, breather type non-asphaltic underlayment. UV stabilized polypropylene construction. Meets or exceeds ASTM D226 and D4869. Approved by Dade Country, Florida Building Code, and ICC. Each roll contains approximately 10 squares (1003 sq. ft.) of material and is 54 in. x 223 ft. **Deck-Armor™** Premium Breathable Roof Deck Protection, by GAF®.

1.06 ROOFING CEMENT

A Asphalt Plastic Roofing Cement meeting the requirements of ASTM D 4586, Type I or II.

1.07 ROOF ACCESSORIES

A Exterior acrylic rust resistant aerosol roof accessory paint.

B UV stable solid molded PVC compression collar, Kynar PVDF coated 24 gauge galvanized flange.

1.08 ATTIC VENTILATION

A High-Capacity Dome Vents

1. High-capacity dome ventilator designed to allow the passage of hot air out of attics. For use in conjunction with eave/ soffit intake ventilation products. Provides 144.0 sq inches in Net Free Ventilation Area per vent. GAF Master Flow High-Capacity Dome Vent or equal.

B Fascia and Soffit/Under Eave Vents

1. Vented fiber cement soffit designed to allow the passage of hot air out of attics at the roof top along the eaves. For use in conjunction with ridge ventilation products. Provides 5.0 sq inches in NFVA per lineal foot. Cement board to be installed over existing plywood soffit. Cut plywood soffit to allow air to flow freely through fiber cement soffit openings. See Drawings.

1.09 NAILS

A Standard round wire, zinc-coated steel or aluminum; 10 to 12 gauge, smooth, barbed or deformed shank, with heads 3/8 inch (9mm) to 7/16 inch (11mm) in diameter. Length must be sufficient to penetrate into solid wood at least 3/4 inch (19mm) or through plywood or oriented strand board by at least 1/8 inch (3.18mm).

1.10 METAL FLASHING

A 24 gauge hot-dip galvanized steel sheet, complying with ASTM A 653/A 653M, G90/Z275.

PART III EXECUTION

3.01 EXAMINATION

A Do not begin installation until the roof deck has been properly prepared.

B If roof deck preparation is the responsibility of another installer, notify the architect or building owner of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A Verify that existing roof is dry, sound, clean and smooth. It shall be free of any depressions, waves, and projections.

B Cover abandoned roof opening where previous penetrations have been removed.

C Cover with sheet metal, all holes over 1 inch (25mm) in diameter, cracks over 1/2 inch (12mm) in width, loose knots and excessively resinous areas.

3.03 PREPARATION OF SUBSTRATE

A Install crickets on the upslope side of all chimneys or rooftop equipment, any chimneys or equipment wider than 12”.

3.04 PREPARATION

A Verify that the deck is structurally sound and free of deteriorated decking. Notify architect of any deteriorated decking.

B Verify that the existing shingles are dry, sound, clean and smooth. All curled, buckled or loose tabs shall be nailed down or removed.

3.05 INSTALLATION OF UNDERLAYMENTS

A General:

1. Install using methods recommended by manufacturer, in accordance with local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.

B Penetrations:

1. Vent pipes: Install a 24 inch (610 mm) square piece of eaves protection membrane lapping over roof deck underlayment; seal tightly to pipe.

2. Vertical walls: Install eaves protection membrane extending at least 6 inches (152mm) up the wall and 12 inches (305mm) on to the roof surface. Lap the membrane over the roof deck underlayment.
3. Chimneys: Install eaves protection membrane around entire chimney extending at least 6 inches (152mm) up the wall and 12 inches (305mm) on to the roof surface. Lap the membrane over the roof deck underlayment.
4. Rake Edges: Install metal edge flashing over eaves protection membrane and roof deck underlayment; set tight to rake boards; lap joints at least 2 inches (51mm) and seal with plastic cement; secure with nails.

3.05 INSTALLATION OF STARTER SHINGLES

A General:

1. Install in accordance with manufacturer's instructions and local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Refer to application instructions for the selected starter strip shingles.

B Placement and Nailing:

1. For maximum wind resistance along rakes & eaves, install any starter strip containing sealant or cement shingles to underlayment and each other in a 4" (102mm) width of asphalt plastic roof cement.
2. Place starter strip shingles 1/4" – 3/4" (6 – 19mm) over eave and rake edges to provide drip edge.
3. Nail approximately 1-1/2" – 3" (38 – 76mm) above the butt edge of the shingle.
4. Rake starter course should overlap eave edge starter strip at least 3" (76mm).

3.06 INSTALLATION OF SHINGLES

A General:

1. Install in accordance with manufacturer's instructions and local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Minimize breakage of shingles by avoiding dropping bundles on edge, by separating shingles carefully (not by "breaking" over ridge or bundles), and by taking extra precautions in temperatures below 40 degrees F (4 degrees C).
3. Handle carefully in hot weather to avoid scuffing the surfacing, or damaging the shingle edges.

B Placement and Nailing:

1. Secure with 4, 5, or 6 nails per shingle per GAF®'s application instructions or local codes.
2. Placement of nails varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
3. Nails must be driven flush with the shingle surface. Do not overdrive or under drive the nails.
4. Shingle offset varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.

C Placement and Nailing:

1. Beginning with the starter strip, trim shingles so that they "nest" within the shingle located beneath it. This procedure will yield a first course that is typically 3 inch (76mm) to 4 inch (102mm) rather than a fully exposed shingle.

2. Laterally, offset the new shingles from the existing keyways, to avoid waves or depressions caused by excessive dips in the roofing materials.
3. Using the bottom of the tab on existing shingles, align subsequent courses.
4. DO NOT install standard sized shingles (5inch exposure) over metric (5 5/8 inch exposure) shingles, as it will overexpose the shingles and reveal the nails. Use standard alignment methods to assure proper shingle placement.
5. Secure with 4, 5, or 6 nails per shingle per manufacturer's instructions or local codes.
6. Placement of nails varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
7. Nails must be driven flush with the shingle surface. Do not overdrive or under drive the nails.
8. Shingle offset varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.

D Valleys

1. Install valleys using the "open valley" method:
   a Snap diverging chalk lines on the metal flashing, starting at 3 inches (76mm) each side of top of valley, spreading at 1/8 inch per foot (9mm per meter) to the eaves.
   b Run shingles to chalk line.
   c Trim last shingle in each course to match the chalk line; do not trim shingles to less than 12 inches (305mm) wide.
   d Apply a 2 inch (51mm) wide strip of plastic cement under ends of shingles, sealing them to the metal flashing.

D Penetrations

1. All Penetrations are to be flashed according to manufacturer, ARMA and NRCA application instructions and construction details.

3.07 INSTALLATION OF ATTIC VENTILATION

A General

1. Ventilation must meet or exceed current F.H.A., H.U.D. and local code requirements.

B Roof ventilation

1. Install dome vents and soffit vents as indicated on Drawings.

3.08 PROTECTION

A Protect installed products from foot traffic until completion of the project.

B Any roof areas that are not completed by the end of the workday are to be protected from moisture and contaminants.

END OF SECTION

SECTION 07 46 46

FIBER CEMENT SIDING – HARDIEPLANK, SOFFIT, AND TRIM

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Fiber Cement Plank Lap Siding.
B. Vented Soffit, Trim, Molding, and Accessories.

1.2 RELATED REQUIREMENTS

A. Section 09 22 16 – Non-Structural Metal Framing
B. Section 06 10 00 – Rough Carpentry.
C. Section 07 21 00 – Thermal Insulation.
D. Section 07 92 00 – Joint Sealants.
E. Section 09 91 00 – Painting.

1.3 REFERENCE STANDARDS

A. ASTM C1185, Standard Test Methods for Sampling and Testing Fiber-Cement Flat Sheet, Roofing and siding Shingles, and Clapboards; 2023.
B. ASTM C1186, Standard Specification for Flat Fiber-Cement Sheets; 2022, with 2023 Editorial Revision.
C. ASTM D3359, Standard Test Methods for Rating Adhesion by Tape Test; 2023.
D. ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials; 2020.
E. ASTM E119, Standard Test Methods for Fire Tests of Building Construction and Materials; 2024.
F. ASTM E136, Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C; 2022.
G. ASTM E330/E330M, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2021.
H. ICC-ES Evaluation Reports ESR-2290 and ESR-2273 (IBC, IRC, CBC, CRC); Current Editions.

1.4 SUBMITTALS

A. See Section 01 30 00, Administrative Requirements.
B. Product Data:
    a. Manufacturer’s product data sheets.
    b. Manufacturer’s storage and handling requirements.
    c. Manufacturer’s preparation instructions.
    d. Manufacturer’s installation instructions.
    e. Manufacturer’s operation and maintenance instructions.
C. Shop Drawings:
    a. Provide detailed drawings showing dimensions, layout, joints, construction details, and attachments.
    b. Indicate atypical non-standard applications outside of manufacturer’s standard details and specifications.
D. Selection Samples:
    a. Provide two complete sets of color ships representing manufacturer’s full range of available colors and patterns for each finish product specified.

E. Verification Samples:
    a. Provide two samples, minimum 4-inch x 6-inch (100 mm x 150 mm) representing selected product, color, texture, and patterns for each finish product specified.
F. Installers qualification statement.
G. Warranty:
    a. Manufacturer’s sample warranty.
    b. Manufacturer’s executed written warranty, completed in Owner’s name and registered with manufacturer.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in work specified in this section with a minimum of 5-years of experience with installation of products of this type.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.
B. Store siding flat on a smooth level surface and carry on its side.
C. Protect edges and corners from chipping.
D. Store materials under dry, waterproof, well-ventilated cover, elevated above grade, and kept dry prior to installation.
E. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of the Authorities Having Jurisdiction.
F. Protect materials from damage, dust, or other detrimental conditions.

1.7 FIELD CONDITIONS

A. Maintain environmental conditions including temperature, humidity, and ventilation in accordance with the limits indicated in the manufacturer’s written instructions.
B. Do not install products in conditions outside of the manufacturer’s stated limits.

1.8 WARRANTY

A. Manufacturer’s Limited, Non Pro-rated Product Warranty:
    a. Plank, Soffit, and Trim: 30-year Warranty.
    b. Color-Plus Finish: 15-year Warranty.
    c. When installed and maintained in accordance with manufacturer’s written requirements, warranty for 15-years from date of purchase covering peeling, cracking, and chipping.
B. Installers Warranty:
    a. Provide 1-year installers warranty covering workmanship for work of this Section.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design: James Hardie Building Products, Inc.; Hardie Plank Lap Siding; www.jameshardie.com.
B. Substitutions: In accordance with the requirements of Division 01, General Requirements.

2.2 FIBER CEMENT – LAP SIDING

A. Fiber Cement Lap Siding:

a. Type A, Grade II, ASTM C1186.
b. Non-combustible Material, ASTM E136.
c. Flame Spread Index: 0, ASTM E84.
d. Smoke Developed Index: <5, ASTM E84.

B. Type:
a. Select Cedarmill:
i. 5-1/4 inches (133 mm) with 4-inches (102 mm) exposure.

C. Color:
a. As selected by Architect from manufacturer's standard range.

D. Product:
a. Basis-of-Design: HardiePlank; www.jameshardie.com.
b. Substitutions: In accordance with the requirements of Division 01, General Requirements.

2.3 FIBER CEMENT VENTED SOFFIT PANELS

A. Type A, Grade II, ASTM C1186.
B. Non-combustible Material, ASTM E136.
C. Flame Spread Index: 0, ASTM E84.
D. Smoke Developed Index: <5, ASTM E84.
E. Net Free Ventilation: 5-square inches per linear foot (10583 sq. mm per linear meter).
F. Thickness: 1/4-inch (6 mm).
G. Type:
a. Smooth:
i. 12-inches x 12-feet or 16-inches x 12-feet as needed.
H. Color:
a. As selected by Architect from manufacturer's standard range.
I. Product:
a. Basis-of-Design: HardieSoffit; www.jameshardie.com.
b. Substitutions: In accordance with the requirements of Division 01, General Requirements.

2.4 ACCESSORIES

A. HardieTrim Trim Boards; www.jameshardie.com:
a. Type A, Grade I, ASTM C1186.
b. Flame Spread Index: 0, ASTM E84.
c. Smoke Developed Index: <5, ASTM E84.
d. Batten Board: 2-1/2 inch (63 mm) width.
e. 4/4 Boards or 5/4 Boards in widths as needed.
f. Color:
i. As selected by Architect from manufacturer's standard range.
g. Texture:
i. Smooth.
h. Length: 12-feet (3658 mm).

B. Seam Tape: HardieWrap; www.jameshardie.com.

C. Flashing:
a. HardieWrap Flashing Tape; www.jameshardie.com.
b. HardieWrap Flex Flashing Tape; www.jameshardie.com.

D. Fasteners:

a. Wood Framing Fasteners:
    i. Corrosion resistant fasteners as recommended by manufacturer for application.
b. Masonry Walls:
    i. Aerico Stud Nail, ET&F ASM No. 144-125, 0.14-inch (3.6 mm) shank x 0.30-inch (7.6 mm) head by 2-inches (51 mm) long corrosion resistant nails.

2.5 FINISHES

A. Factory Primer: Provide factory applied universal primer.
    a. Primer: Factory primed by manufacturer.
    b. Topcoat: Reference Section 09 90 00, Painting and Coating and project Finish Schedule.
B. Factory Finish:
    a. As supplied by manufacturer.
    b. Factory applied finish is finish applied by the same company and in the same facility that manufactures the siding substrate.
    c. Require factory applied finish by fiber cement manufacturer applied in controlled environment within manufacturer's facility utilizing multi-coat, heat cured finish within one manufacturing process.
    d. Each finish color to have documented color match to Delta E of 0.5 or better between product lines, manufacturing lots, or production runs as measured by photospectrometer and verified by third party.
    e. Provide factory applied finish protection prior to transit to site. Remove finish protection after installation.
    f. Accessories: Provide complete finishing system including pre-packaged touch-up kit provided by manufacturer.
    g. Provide quantities as recommended by manufacturer.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.
B. Examine substrate, clean and repair to eliminate conditions detrimental to installation.
C. Do not commence with the Work until unacceptable conditions are remedied.
D. Verify that weather barrier is installed over substrate and ready to receive the Work.
E. If framing preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation prior to commencement of Work.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.
B. Prepare surfaces using methods recommended by manufacturer’s written requirements.
C. Protect surrounding work areas and surface during installation.
D. Repair punctures or tears in weather barrier prior to installation of siding.

3.3 WEATHER BARRIER

A. See Section 07 25 00, Weather Barriers.
B. Ensure weather barrier is installed with penetration and junction flashing in accordance with manufacturer’s written requirements and the Authorities Having Jurisdiction.

3.4 INSTALLATION – LAP SIDING

A. Install in strict accordance with manufacturer's written installation instructions at locations shown on Drawings.
B. General:
    a. Protect siding from Work of other trades.
    b. Surfaces to be dry prior to installation of weather barriers and siding.
    c. Reference trim details on Drawings.
    d. Touch-up cut edges prior to installation.
C. Flashing:
    a. Install above door and window trim and casings.
    b. Install above horizontal trim in field of siding.

3.5 INSTALLATION OF SOFFIT AND VENTED PANELS

A. Install in strict accordance with manufacturer's written installation instructions at locations shown on Drawings.
B. Panels may be installed as soffit or ceiling over wood or steel framing.
C. 20-gauge (33 mil) minimum to 16-gauge (54 mil) in compliance with the Authorities Having Jurisdiction.
D. Additional framing may be necessary to ensure proper fastening of siding.

3.6 INSTALLATION OF TRIM BOARDS

A. Install in strict accordance with manufacturer's written installation instructions at locations shown on Drawings.
B. Install flashing around all wall openings.

3.7 CLEANING

A. See Section 01 70 00, Execution and Closeout Requirements.
B. Clean siding in accordance with manufacturer’s written instructions using materials and methods acceptable to manufacturer.

3.8 PROTECTION

A. Protect installed products until date of Substantial Completion.
B. Touch-up, repair or replace damaged areas prior to date of Substantial Completion.

END OF SECTION

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SECTION 07 71 23

MANUFACTURED GUTTERS AND DOWNSPOUTS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes pre-finished aluminum gutters and downspouts.
   1. Provide concrete downspout splashblocks at each downspout.

B. Related Sections:
   1. Section 07 31 00 – Asphalt Shingle Roofing.
   2. Section 07 92 00 - Joint Protection.

1.2 REFERENCES

A. American Architectural Manufacturers Association:
   1. AAMA 2604 - Voluntary specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
   2. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

B. ASTM International:
   1. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
   2. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric).

C. Federal Specification Unit:
   1. FS TT-C-494 - Coating Compound, Bituminous, Solvent Type, Acid Resistant.

D. Sheet Metal and Air Conditioning Contractors:
   1. SMACNA - Architectural Sheet Metal Manual

1.3 DESIGN REQUIREMENTS

A. Conform to SMACNA Manual for sizing components for rainfall intensity determined by storm occurrence of 1 in 10 years.

B. Conform to applicable code for size and method of rainwater discharge.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Shop Drawings: Indicate locations, configurations, jointing methods, fastening methods, locations, and installation details.

C. Product Data: Submit data on manufactured components, materials, and finishes.

D. Samples: Submit two samples, 8 inch long illustrating component design, finish, color, and configuration.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with SMACNA Manual.

B. Perform Work in accordance with State code requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope to drain.

C. Prevent contact with materials during storage capable of causing discoloration, staining, or damage.

1.7 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

1.8 WARRANTY

A. Section 01 70 00 - Execution and Closeout Requirements: Product warranties and product bonds.

B. Furnish five-year manufacturer warranty for gutter and downspout finishes.

PART 2 PRODUCTS

2.1 GUTTERS AND DOWNSPOUTS

A. Manufacturers:
   1. K&M Sheet Metal
   2. Meta-Era, LLC.
   3. Garrety Manufacturing.
   4. Or equal, see Division 01 specifications.

B. Product Description:
   1. Training Building: Gutters: Sheet metal; SMACNA K-style profile.
   2. Training Building Downspouts: Sheet metal; SMACNA Rectangular profile.
   3. Concrete downspout splashblocks.

2.2 COMPONENTS

A. Downspout Pre-Finished Aluminum Sheet: ASTM B209, manufacturer’s standard alloy and temper for specified finish; 0.032 inch thick; plain finish shop pre-coated with Kynar coating; color as selected from manufacturer's standard.

B. Gutter Pre-Finished Aluminum Sheet: ASTM B209, manufacturer’s standard alloy and temper for specified finish; 0.040 inch thick; plain finish shop pre-coated with Kynar coating; color as selected from manufacturer's standard

2.3 ACCESSORIES

A. Anchors and Supports: Profiled to suit gutters and downspouts.
   1. Anchoring Devices: In accordance with SMACNA requirements.
   2. Gutter Supports: Bar hangers as recommended by manufacturer.
   3. Downspout Supports: Plain round downspout hook.

B. Fasteners: Same material and finish as gutters and downspouts.

C. Protective Backing Paint: Zinc molybdate alkyd.

2.4 FABRICATION

A. Form gutters and downspouts of profiles and sizes indicated.

B. Fabricate with required connection pieces.

C. Form sections to shape indicated on Drawings, square, and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.

D. Hem exposed edges of metal.

2.5 FACTORY FINISHING

A. PVDF (polyvinylidene fluoride) coating: Multiple coat, thermally cured, fluoropolymer system conforming to AAMA 2605.

B. Primer Coat: Finish concealed side of metal sheets with primer compatible with finish system, as recommended by finish system manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

B. Verify surfaces are ready to receive gutters and downspouts.

3.2 PREPARATION

A. Paint concealed metal surfaces and surfaces in contact with dissimilar metals with protective backing paint to minimum dry film thickness of 15 mil.

3.3 INSTALLATION

A. Sheet Metal: Join lengths with formed seams sealed watertight. Flash and seal gutters to downspouts and accessories.

B. Slope gutters 1/16 inch per foot minimum.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Elastomeric and rigid joint sealants, caulking compounds, and related accessories.

B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

D. Provide joint sealants as a minimum in the following locations. Project specific materials and building systems may require additional joint sealants to be provided beyond the locations listed below.

1. Interior joints in vertical surfaces and horizontal non-traffic surfaces:
   a. Interior surfaces of exterior walls full height of joint.
   b. Perimeter joints of exterior openings.
   c. Vertical control joints on exposed surfaces of unit masonry and concrete walls.
   d. Perimeter joints between interior wall surfaces and frames of interior doors, and windows.
   e. Perimeter joints of toilet fixtures (Covered under Division 22).
   f. Interior joints between slabs-on-grade and masonry walls
   g. Interior joints between dissimilar materials where the joining of the 2 surfaces leaves a gap between the meeting materials or components as may be dictated by the various methods of construction to form a barrier against the passage of liquids, solids, or gases.
2. Interior control and expansion joints in horizontal traffic surfaces:
   a. Interior joints between dissimilar materials where the joining of the 2 surfaces leaves a gap between the meeting materials or components as may be dictated by the various methods of construction to form a barrier against the passage of liquids, solids, or gases.

E. All caulking and sealing work indicated on drawings and/or specified herein and not specified in another section but required for the work shall be provided under this section whether or not specifically referred to herein.

F. Related Work in Other Sections:

1.	Unit Masonry	04 20 00
2.	Caulking of Plumbing Fixtures	Division 22

1.2 DEFINITIONS

A. Caulking: To install or apply a sealant across or into a joint, crack, or crevice.

B. Sealant: A material that has adhesive or cohesive properties to form a barrier against the passage of liquids, solids, or gases.

1.3 PERFORMANCE REQUIREMENTS

A. Provide joint sealants that establish and maintain watertight and airtight continuous joint seals at exterior and interior without staining or deteriorating joint substrates.

B. Compatibility and Adhesion Test Report: Sealant manufacturer shall select sealant systems for various surfaces based on the requirements of these Specifications and the actual characteristics of the materials used for construction. Manufacturer shall test samples of building materials as required to determine which sealant systems are appropriate for various applications. The result of this analysis shall be submitted to the Architect for review. All cost associated with this analysis and testing shall be done by sealant manufacturer without additional cost to the Owner. Recommended sealant systems shall be provided by the sealant contractor for locations indicated at no additional cost to the Owner. Where sealant work is the responsibility of more than one Contractor/ Subcontractor, each Contractor/Subcontractor shall perform this testing/analysis for his portion of the work. Analysis shall include interpretation of test results and written recommendations

indicating the following:
1. Recommended method of joint cleaning/preparation.
2. Recommended type of primer.
3. Recommended type of backing material. Materials forming joint substrates and joint-sealant backings must be tested for compatibility and adhesion with joint sealants.
4. Recommended sealant material and installation method.

C. Environmental Requirements: All interior sealants must meet the requirements of the South Coast Air Quality Management District (SCAQMD) Rule #1168 VOC limits.
1. Interior Sealants: 250 g/L (Architectural Sealants)
2. Sealant Primers for Non-Porous Surfaces: 250 g/L (Architectural, Non-porous Sealant Primers)
3. Sealant Primers for Porous Surfaces: 775 g/L (Architectural, Porous Sealant Primers)

1.4 SUBMITTALS
A. Submittal shall specifically include:
1. Product Data: Including colors available.
2. Compatibility and Adhesion Test Report from Sealant Manufacturer.

1.5 QUALITY ASSURANCE
A. Installer Qualifications: An experienced installer who specializes in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.

B. Elastomeric Sealant Standard: Comply with ASTM C 920 classifications for type, grade, class, and uses.

C. Environmental Limitations: Install sealants only when ambient temperature, humidity and moisture levels are within acceptable limits of the manufacturer.

1.6 DELIVERY & STORAGE
A. Material shall be delivered to site in legibly identifiable, undamaged, unopened containers clearly stating type product and manufacturer.
B. Store materials in upright position within a cool and dry area not subject to freezing temperatures. Prevent damage to containers and/or cartridges during storage.

1.7 WARRANTY
A. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to provide exterior elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: 20 years from date of Substantial Completion.
2. Sealant Manufacturer shall do all testing, analysis and product selection/recommendation required to achieve this warranty.

PART 2 PRODUCTS

2.1 MATERIALS, GENERAL
A. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.260 PRODUCTS AND MANUFACTURERS.

B. 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 sealant manufacturer based on testing and field experience.

C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range of standard and special colors for this characteristic. Multiple colors will be required to match various adjacent surfaces.

D. Products:
1. All sealant products comprising part of the weather-proof building envelope shall be provided by

one manufacturer.
2. Products must be capable of achieving specified warranty. Sealant manufacturer and contractor are required to verify the appropriateness of products for each application.

E. Acceptable Manufacturers:
1. BASF/Sonneborn
2. Dow Corning
3. Pecora
4. Substitutions, see Division 1.

2.2 ELASTOMERIC JOINT SEALANTS

A. Interior Joints
1. Interior control joints at acrylic plaster, masonry or concrete and interior perimeter of aluminum storefront/window framing.
   a. One-component elastomeric polyurethene sealant, paintable.
   b. Fully cured 24 hours (max.) after application.
   c. Color to match adjacent surface. Typically installed before painting, but installation after painting may be acceptable if color match is close enough to adjacent surface color. Coordinate with Architect.
   d. Product described represents a product with minimum performance characteristics. If sealant manufacturer (through testing and analysis) requires a superior product to achieve specified warranty, then such product upgrade should be considered part of the Work at no additional cost to the Owner.
2. Interior joints around hollow metal door frames, at gypsum board control joints, at wood trim and between all other dissimilar materials, unless other type of sealant is specifically indicated.
   a. Latex (siliconized), white, paintable.
   b. Sealant to be installed before painting.
3. Acoustic Sealant. For each location indicated, provide manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following: Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E90.
4. Clear Silicone Sealant
   a. One-part commercial grade clear silicone sealant. Use at locations indicated.

2.3 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant mfr. 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 cleansers 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 with joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

D. Joint Sealant Backing
1. Cylindrical Sealant Backings: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance. Type: Closed-cell material.
2. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.
3. 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 where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that substrate surfaces and joint openings are ready to receive work. Remove loose materials and foreign matter which might impair adhesion of sealant.

B. Verify that joint backing and release tapes are compatible with sealant.

C. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.

D. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

E. Perform preparation in accordance with ASTM C804 for solvent release; ASTM C790 for latex base sealants.

F. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions.

G. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on 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.

H. Masking Tape: Use masking tape where required to prevent contact of sealant 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.

3.2 INSTALLATION OF JOINT SEALANTS

A. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant in accordance with manufacturer's instructions. Materials shall be applied by skilled workmen with proper hand or air-powered guns using correct nozzle size and type to suit each need. Tool joints concave. Apply caulking and sealants under pressure to expel air and provide solid filling. Surfaces shall be uniformly smooth, free of wrinkles.

D. Measure joint dimensions and size materials to achieve required width/depth ratios. Install joint backing to achieve a neck dimension no greater than 1/3 the joint width.

E. Install bond breaker where joint backing is not used.

F. All control joints shall be caulked full height of wall.

G. After caulking is finished, clean off all spots from other work and leave all caulking in a satisfactory condition.

END OF SECTION

SECTION 08 11 13

HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section Includes:
   1. Doors and frames manufactured from carbon steel (hollow metal doors and frames).
   2. Steel frame (hollow metal) components such as sidelites, borrowed lites, transom frames and architectural stick assemblies as shown, and as conforming to ANSI A250.8-1998 (SDI-100).
   3. All hollow metal doors and framing and related work not specified under another Section but required for the work whether or not specifically referred to herein.

B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

C. Related Work in Other Sections:

1.	Glazing for Doors:	Section 08 80 00
2.	Door Hardware:	Section 08 71 00

1.2 SUBMITTALS

A. Shop Drawings shall include the following:
   1. Door and frame sections and elevations
   2. Materials, finishes and gauges
   3. Internal reinforcement of doors and frames
   4. Cut-outs for glazing, etc.

1.3 QUALITY ASSURANCE

A. Steel Door and Frame Standards:
   1. ANSI A250.8, unless more stringent requirements are indicated.
   2. SDI-100 and ANSI A151.1
   3. DHI - Door Hardware Institute - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
   4. Fire Rated Door and Frame Construction: ASTM E152.
   5. Handicapped: ADAAG
   6. Tolerance: Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

B. References
   1. ASTM E2074-00 – Method of Fire Tests of Door Assemblies.
   2. DHI A115.1G – Installation Guide for Doors and Hardware.
   3. NFPA 80 – Fire Doors and Hardware.
   4. NFPA 252 – Fire Tests for Door Assemblies.
   5. SDI-111 – Standard Details for Steel Doors and Frames.
   6. SDI-105 – Recommended Erection Instructions for Steel Frames.
   7. UL 10C – Positive Pressure Fire Tests of Door Assemblies.
   8. ANSI A151.1 – Endurance Test.
   9. ANSI 115 – Hardware Preparation in Standard Steel Doors and Frames.

C. Fire Rated Door and Frame Labeling: A physical label or approved marking shall be affixed to the fire door or fire door frame at an authorized facility as evidence of compliance with procedures of the labeling agency.

1.4 SEQUENCING, DELIVERY, STORAGE, AND HANDLING

A. Do not begin fabrication of doors or frames until hardware templates are received from hardware supplier. Schedule and deliver frames at proper time(s) to prevent delaying the progress of the work.

B. Deliver, store, and handle doors and frames in manner to prevent damage, rust or deterioration.

C. Provide packaging such as cardboard or other containers, separators, banding, spreaders, and paper wrappings to protect items in accordance with requirements of manufacturer. Follow special storage and handling requirements of manufacturer.

PART 2 PRODUCTS

2.1 MATERIALS (GENERAL)

A. Steel Sheet for Doors and Frames:
   1. Interior: Cold Rolled Steel Sheets: ASTM A1008, Commercial Steel, Type B; suitable for exposed applications.
   2. Exterior: Metallic Coated Steel Sheets: ASTM A653, Commercial Steel, Type B, with an A60 zinc-iron-alloy (galvannealed) coating; stretcher-leveled standard of flatness. Galvanized steel shall be treated to ensure proper paint adhesion. All component parts used in galvanized doors and/or frames shall meet the galvannealed specification.

B. Accessories:
   1. Rubber silencers: (Covered in Section 08 7100).
   2. Removable Stops: channel shape matching doors.
   3. Bituminous Coating: Fibered asphalt emulsion. Use on grouted frames (1/16” minimum thickness) when an anti-freeze agent is used in grout to grout frames solid.

2.2 STANDARD STEEL DOORS

A. Interior Steel Doors
   1. General: Provide doors complying with the following requirements by referencing ANSI 250.8 for level and model and ANSI A250.4 for physical endurance level: Level 3 and Physical Performance Level A (Extra Heavy Duty), Model 2 (Seamless).
   2. Standard Steel Doors:
      a. Face Skin: 18 ga.
      b. Thickness: 1 3/4”.
   3. Acoustical qualities: Doors shall have a minimum sound transmission classification of 32 as tested under ASTM E-90-61T.

B. Exterior Insulated Steel Doors
   1. Provide doors complying with the following requirements by referencing ANSI 250.8 for level and model and ANSI A250.4 for physical endurance level: Level 3 and Physical Performance Level A (Extra Heavy Duty), Model 2 (Seamless).
      a. Face Skin: 16 ga.
      b. Thickness: 1 3/4”
      c. Polyurethane core.

C. Steel Door Fabrication
   1. Fabricate doors with hardware reinforcement welded in place.
   2. Doors shall be reinforced, stiffened, sound deadened and insulated with impregnated kraft honeycomb core completely filling the inside of the doors and laminated to inside faces of both panels using contact adhesive applied to both panels and honeycomb core.

3. Removable astragals for Double Doors: Steel, specifically for double doors.
4. Attach fire rated label to each door unit.
5. All doors shall be closed at top and bottom with weeps at bottom. All exterior out-swing doors shall have tops closed to eliminate moisture penetration. Door tops shall have no holes or openings. Top caps are permitted.
6. Doors shall have continuous vertical mechanical interlocking joints at lock and hinge edges with visible edge seams or with edge seam filled and ground smooth. The internal portion of the seam shall be sealed with epoxy. An intermittent fastening along the seam on the exterior of the door is not permitted.
7. Glass trim for doors with cutouts shall be 24 gauge steel conforming to ASTM A 924 hot dipped galvanized steel with a zinc coating of 0.06 ounces per square foot 183g per square meter (A60). The trim shall be installed into the door as a four sided welded assembly. The trim shall fit into a formed area of the door face, shall not extend beyond the door face and shall interlock into the recessed area. The corners of the assembly shall be mitered, all be reinforced and welded. The trim shall be the same on both sides of the door. Exposed fasteners shall not be permitted. Label and non-label doors shall use the same trim. Any door manufacturer that makes a glass trim meeting this Specification is acceptable. In addition, the Ceco "Slim Trim" and the "Anemostat LoPro Kit" are also acceptable.
8. Provide 3/4” undercut on doors indicated to receive an undercut on the HVAC Drawings and/or the Door Schedule.

D. Acceptable Manufacturers:
1. Steelcraft
2. Ceco
3. Curries
4. Amweld
5. Substitutions, see Division 1.

2.3 STEEL FRAMES

A. Construction of Frames: All the metal frames shall be face and back arc-welded at the corners. Closer sleeve and other hardware reinforcement shall be factory installed on the frame.
1. Flush frames shall be formed from cold-rolled or galvanized steel (see below).
2. Frames shall have 2” faces (except where indicated otherwise). 14-gauge (and heavier) frames shall be set-up and arc-welded. Miter corners shall have reinforcements with four integral tabs for secure and easy interlocking jambs to head.
3. Frames for 1-3/4” doors shall have 7-gauge steel hinge reinforcements. Strike reinforcements shall be 16 gauge and prepared for an ANSI-A115.1-2 strike.
4. Metal plaster guards shall be provided for all mortised cutouts and electrical hardware.
5. All hinge and strike reinforcements shall be projection welded to the door frame.
6. Reinforcements for surface closer shall be 14-gauge steel. Adequate reinforcements shall be provided for other hardware when required.
7. Galvanized frames shall have galvanized hardware reinforcements. Frames shall be furnished with a minimum of 6 wall anchors and 2 adjustable base anchors of manufacturer’s standard design.
8. Configuration of frames shall be as shown on Drawings and as required to accommodate specified doors and hardware.
9. Borrowed lite frames shall have the glass trim installed on the non-corridor side of the frame and shall be attached with vandal-proof fasteners.

B. Frames for Interior Openings:
1. Steel Thickness: 16 ga.
2. Finish: Factory primed in accordance with ANSI A250.10 and field painted.

C. Frames for Exterior Openings
1. Steel Thickness: 16 ga.
2. Factory primed in accordance with ANSI A224.1 and field painted.
3. Weatherstripping: All exterior frames shall include a synthetic rubber pressure sensitive weatherstripping (if not provided under Section 08 71 00). Weatherstripping shall be mounted to the stop of the frame. Door and frame assembly shall have an air infiltration rate of .074 CFM/lineal

foot of crack when tested in accordance with ASTM E283 and SDI 116

D. Acceptable Manufacturers:
   1. Steelcraft
   2. Ceco
   3. Curries
   4. Amweld
   5. MPI Group
   6. Pioneer Industries
   7. Substitutions, see Division 1.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install doors and frames in accordance with ANSI/SDI-115.1G.

B. Coordinate installation of doors and frames with installation of hardware specified in Section 08 7100. Necessary holes shall be drilled and tapped from template to receive hinges and lock strikes. Templates for this purpose shall be furnished to the Frame Manufacturer by the Hardware Contractor.

C. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
   1. Place frames before construction of enclosing walls and ceilings.
   2. Masonry Contractor shall slush-in the steel frames with mortar as the masonry is being installed. If installation of frame must occur after masonry is installed, frame shall be drilled and grouted solid after installation. Holes in frames must be patched.
   3. In existing concrete or masonry construction, provide at least three completed opening anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.
   4. In metal-stud partitions, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Attach wall anchors to studs with screws.
   5. For openings 90 inches or more in height, install an additional anchor at hinge and strike jambs.
   6. All frames shall be securely anchored to the floor construction by means of concrete nails, screws, or expansion bolts through sill clips. Check periodically to insure that frames remain securely in level and plumb condition. No screws will be permitted through the face of steel frames for securing temporary anchors. Use clips which do not mar or deform the face of the steel frames. All damaged frames shall be replaced at no additional cost to the owner.
   7. Install roll formed steel reinforcement channels between two abutting frames. Anchor to structure and floor.

D. After-set Frames: Where frames have to be replaced (e.g. due to damage during construction) or where frames are left out for constructability purposes (only permitted to be done at limited locations with the prior approval of the Architect), frames shall be after-set as follows:
   1. Secure frames in place with post installed expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
   2. Pump frame full of grout through drilled hole in frame. Fill hole and make smooth, flush, and invisible on exposed faces.
   3. Remove any grout from exposed surfaces that occurs from this operation.

E. Door Installation:
   1. Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.
   2. Fire-Rated Doors: Install within clearances specified in NFPA 80.
   3. Coordinate installation of glass and glazing.

END OF SECTION

SECTION 08 14 33

STILE AND RAIL WOOD DOORS

PART 1 – GENERAL

1.01 SUMMARY

A. Related Documents –
Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to the work specified in this section.

B. Section Includes:
1. Stile and Rail Wood Doors
2. Factory Pre-fitting and Pre-machining
3. Factory Finishing of Stile and Rail Doors

C. Related Sections
4. Section 08 71 00– Door Hardware Schedule

1.02 REFERENCES

A. ASTM D-1037 –91 American Society for Testing and Materials: Standard Methods for Evaluating the Properties of Wood-Based Fiber and Particle Board Panel Materials.
B. ANSI A208.1 – Urea-formaldehyde Emissions
C. ASTM E 152-81a – Standard Methods of Fire Tests of Door Assemblies.
D. WDMA I.S.6-A-07 - Window and Door Manufacturers Association.
E. Architectural Woodwork Standards, latest edition, published jointly by the Architectural Woodwork Institute, the Architectural Woodwork Manufacturer Association of Canada, and the Woodwork Institute.
F. NFPA 80 – Fire Doors and Windows
G. NFPA 252 – Standard Methods of Fire Tests for fire Door Assemblies
H. Ohio Building Code
I. UL10-B/ UBC – 43-2 / UBC 7-2-94 (neutral pressure) and UL10-C / UBC – 7-2-97 (positive pressure) – Fire Tests of Door Assemblies as enforced by the local authority having jurisdiction (AHJ)
J. ITS – Certification Listings for Fire Doors
K. ANSI A117.1.

1.03 SUBMITTALS

A. Shop Drawings: Submit in accordance with Section 01 30 00. Indicate:
1. Door number
2. Door Type
3. Door Sizes
4. Handing
5. Fire rating
6. Door elevations
7. Hardware Set Numbers
8. Details of construction

B. Samples:
1. Submit 12” x 12” door corner samples as required by the architect showing door construction, panel and sticking details as specified
2. For factory prefinished doors – submit 6” x 6” samples to architect for approval of veneer or painted type material as specified.

C. Templates: Hardware templates for hardware mounted on doors will be submitted under Section 08 71 00 directly to door manufacturer immediately after acceptance of hardware schedule. Report failure to receive templates with reasonable promptness to General Contractor.

D. Product Data: Submit door manufacturer's product construction data including, core construction, stile and rail details, panel and sticking details and any trim or glazing details as appropriate for doors specified. Product data should indicate compliance with specifications.

E. Quality Assurance:
   1. Manufacturer: Shall be a company specializing in the manufacture of stile and rail doors specified in this section for a minimum of 10 years. All stile and rail doors specified in this section Wood and Fire doors shall be supplied and manufactured by one company. **All details including panels, sticking and profiles shall match. Plant-ons for fire doors will not be accepted.**
   2. Fire Ratings: Fire rated doors shall comply with local building codes as enforced by the AHJ. Doors shall be installed in accordance with NFPA 80. All doors shall bear the appropriate certification labels.
   3. Storage and Handling : Doors shall be stored and handled in accordance with the manufacturer's recommendations and the WDMA – Appendix Section – "Care and Installation at Job Site".
      i. Doors shall be stored on a flat and level surface in a well ventilated dry building. Doors shall not be stored on edge and shall be protected from dirt, water and abuse.
      ii. Protect doors from exposure to light for veneers which are light sensitive.
      iii. Doors shall not be subjected to extreme heat or humidity. HVAC systems should be set to provide a temperature range of 60 -90 degrees F and 25-55% relative humidity.
      iv. Handle doors with clean hands or gloves. Do not drag doors across floors or other surfaces.
      v. Each Door shall be marked with the opening number.

   4. Warranty: Submit in accordance with Section 01 70 00. For factory finished or prime doors, warranty shall be in effect of the Life of the Installation for interior and interior fire.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers, subject to compliance with specifications:
   1. TruStile Doors, LLC.
   2. VT Architectural Wood Doors.
   3. Substitutions, subject to compliance with the design and performance of this specification and as approved by owner and architect in accordance with Section 01 60 00.

2.02 TRAINING BUILDING DOOR CONSTRUCTION – WOOD STILE AND RAIL DOORS –

Type: TruStile Reserve TM Series Wood Doors, Model TM5100, Basis of Design.
   1. Size and Panel Types: Square Stick Profile
   2. Wood Species: Rift Sawn Red Oak.
   3. Stile Thickness: 1-3/4".
   4. Finish: Factory Stained. Selected by architect from standard or custom stain colors.
   5. Profiles and dimensions shall be Trustile standards unless otherwise noted in the drawings and elevations.
   6. Glazing where indicated in drawings Door Schedule.

B. Stile Construction

1. Core material to be constructed of engineered wood to resist moisture, warping, checking and improved screw pull.
2. Stiles are to be constructed for improved screw holding by use of solid wood edges. Hardwood stiles to match face veneers.

2.03 FIRE RATED STILE AND RAIL DOORS

A. Panel and Sticking types to match MDF/Wood Stile and Rail doors in every detail. **Plant-ons are not acceptable**.
B. Core for 20, 60 and 90 minute rated doors; the core material shall allow panel profiles to match non-rated doors.
C. Stile Construction
   a. Stiles are to be constructed for improved screw holding by use of hardwood "Firewedge", 1-5/8" x 7/8" (1-3/4" doors). "Firewedge" to extend the entire height of door.
D. Fire doors to be Category A with concealed intumescent strips where positive pressure is required by code.

2.04 FACTORY PREFITTING AND PREMACHINING

A. Doors: Prefit and premachine doors at factory.
   1. Obtain accurate field measurements of hardware mortised in metal frames to verify dimensions and alignment before proceeding with machining in factory.
   2. Machine doors for hardware requiring cutting of doors.
   3. Comply with accepted hardware schedules, door frame shop drawings and with hardware templates to ensure proper fit of doors and hardware.

B. Tolerances: Comply with WDMA tolerance requirements for prefitting.

2.05 DOOR FABRICATION

A. Machining for door hardware: All doors shall be machined for specified hardware that is not surface applied.
B. Prefit and Bevel Doors 1/8" in 2 at lock stile. Ensure proper gaps are maintained on fire doors to comply with NFPA 80 requirements.
C. Doors shall be factory glazed with glass as specified unless otherwise indicated.

2.06 FACTORY FINISHING
A. Wood doors to be factory stained according to architect's instruction for color and sheen using AWI Section 1500 standards.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Comply with Section 01 60 00:
   1 Before installation, verify that frames are proper size and type for door and are installed plumb and square as required for proper installation of doors.
   1. Inspect doors for any damage, manufacturing defects or prefinish inconsistency prior to installation.
   2. Notification: Notify General Contractor of unsatisfactory conditions in writing with copy to Architect.

B. Acceptance: Beginning of work will indicate acceptance of existing conditions by installer.

3.02 PREPARATION

A. Conditioning: Condition doors to average humidity in installation area prior to hanging.

B. Prefitting: Prefit doors to frames and machine for hardware to whatever extent not previously worked at factory as required for proper fit and uniform clearance at each edge.

C. Sealing: Before installation of hardware brush apply primer to all job site cut or planed surfaces.
   1. Primer: Type recommended by manufacturer.

3.03 INSTALLATION

A. General: Install doors in accordance with manufacturer's recommendations and to comply with WDMA IS 1A and NFPA 80.
   1. Installation: By skilled finish carpenters or factory authorized installers.
   2. Installer: Thoroughly familiar with the requirements of the manufacturer's door warranty as currently in effect and assure compliance with all provisions.

B. Hanging:
   1. After sizing doors, fit for hardware as scheduled.
   2. Hang doors to be free of binding with hardware functioning properly.

3.04 ADJUSTING AND PROTECTION

A. Adjustment: At completion of job, adjust doors and hardware as required and leave in proper operating condition.

B. Protection: Advise General Contractor of proper procedures required to protect installed wood doors from damages or deterioration until acceptance of entire project.

C. Replacement: Refinish or replace doors damaged during installation.
   1. Causes for Rejection: Include chips, scratches or gouges.

END OF SECTION

SECTION 08 40 00

ENTRANCES, STOREFRONTS, AND CURTAIN WALLS

PART 1 GENERAL

1.1 WORK INCLUDES

A. This Section Includes:
   1. Aluminum Doors
   2. Aluminum Storefront Framing
   3. All aluminum framing, doors, glazing and related components as shown on drawings and specified in this Section not specified under another Section but required for the work whether or not specifically referred to herein.

B. Related Work in Other Sections:
   1. Sealants: Section 07 92 00
   2. Glass for Doors: Section 08 80 00
      (All glass in Alum. Doors/Storefronts/Curtain Walls is provided by this Contractor, using products specified in 08 80 00)
   3. Hardware for Aluminum Doors: Section 08 71 00.
      (Manufacturer of Locksets and Panic Devices are required to be consistent throughout the project, regardless of the type of door.)

C. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

D. Single Manufacturer: Aluminum storefront framing and curtain wall framing shall all be supplied by the same manufacturer to ensure coordination of systems and matching of finishes.

1.2 TESTING AND PERFORMANCE REQUIREMENTS

A. Provisions for Thermal Movements: Storefront framing systems shall be designed to provide for thermal movement of all component materials resulting from surface temperature ranging from -20 degrees F to 120 degrees F without causing buckling, stresses on glass, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or other detrimental effects. Operating windows and doors shall function normally over this temperature range.

B. Test Procedures and Performance
   1. Air Infiltration: <= 0.06 cfm/sq. ft. per ASTM E283 at a static air-pressure difference of
      a. 1.57 lbf/sq. ft. for exterior storefront framing.
      b. 6.24 psf for curtain wall framing.
   2. Water Resistance (static): ASTM E 331, no water penetration at a minimum differential of:
      a. 6.34 psf for exterior storefront framing.
      b. 10 psf for curtain wall framing.
   3. Uniform Load Deflection Test
      a. Test in accordance with ASTM E 330.
      b. System shall withstand the following design wind pressure normal to plane of wall: 20 psf.
      c. Deflection under design load shall not exceed L/175 of the clear span.
   4. Uniform Load Test
      a. Test in accordance with ASTM E 330 at a pressure 1.5 times the design wind pressure.
      b. At conclusion of the test, there shall be no glass breakage, permanent damage to fasteners, entrance parts, or any other damage would cause the entrance to be defective.
   5. Condensation Resistance: Per AAMA 1503.1:
      a. CRF>= 45 for exterior storefront framing.
      b. CRF>= 55 for curtain wall framing.
   6. Average Thermal Conductance: Per AMA 1503.1, U-value:
      a. <0.63 Btu/sq. ft. for exterior storefront framing.

b. Not more than 0.66 Btu/sq. ft. for curtain wall framing.

1.3 QUALITY ASSURANCE

A. Provide test reports from AAMA accredited laboratories certifying the performance as specified in 1.02

B. Qualifications:
1. Installer Qualifications: Installer experienced to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product mfr.
2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.

C. Field Measurements: Verify actual opening sizes and supporting/adjoining construction by field measurements before fabrication; and indicate recorded measurements on final Shop Drawings. Coordinate construction to ensure that sun control assemblies fit properly to supporting and adjoining construction and coordinate schedule with construction progress to avoid delaying the Work.

D. Sound Transmission Class: Provide glazed units rated for not less than 35 STC when tested for laboratory sound transmission loss according to ASTM E 90 and determined by ASTM E 413.

1.4 SUBMITTALS

A. Framing and Doors Submittal shall specifically include:
1. Structural Calculations for Storefronts: Submit a comprehensive analysis of design loads, including dead loads, live loads, snow loads, snow drift loads, wind loads and thermal movement. Design calculations shall identify the moment and shear forces transferred to the structure or supports through the installation connections. Calculations shall indicate attachment methods for decorative items supported by Exterior Storefronts. Calculations shall include the design of structural glass panels at exterior openings as well as at interior All-Glass Entrance Systems. Structural Calculations shall be stamped and signed by an Ohio registered professional engineer (the Aluminum Framing Engineer).
2. Shop Drawings: Scale plans, elevations and sections. Drawings shall show construction of all parts of the work, including metal and glass thickness, methods of joining, details of all field connections and anchorage, fastening and sealing methods, metal finishes and all pertinent information. Relationship to other work should be clearly indicated. No work shall be fabricated until shop drawings for that work have been finally approved for fabrication.
   a. Note: Shop Drawings shall show details and connections as designed/indicated by the Aluminum Framing Engineer in the Structural Calculations.
   b. Where window units are located within storefront- or curtain wall-framed openings, shop drawings shall include accurate depictions of the windows, even if window units are provided by a different manufacturer. Coordination between the storefront/curtain wall systems and the window units is required.
3. Certified test reports showing compliance with specified performance characteristics.
4. Product Data.
   a. For every framing and door type showing compliance with Specifications.
5. Samples: Showing selected finish and proposed acceptable range of variance.

1.5 DELIVERY, STORAGE AND HANDLING

A. Materials shall be packed, loaded, shipped, unloaded, stored and protected in a manner which will avoid abuse, damage and defacement in accordance with the recommendations contained in the AAMA Aluminum Curtain Wall Manual #10 entitled "Care and Handling of Architectural Aluminum from Shop to Site".

B. Ordering: Comply with manufacturer’s ordering instructions and lead time requirements to avoid construction delays.

C. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact.

D. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.

1.6 WARRANTIES

A. Total Window System:
   1. The responsible contractor shall assume full responsibility and warrant for one year from date of Project Completion the satisfactory performance of the total window installation which includes that of the windows, hardware, glass (including insulated units), glazing, anchorage and setting system, sealing, flashing, etc., as it relates to air, water and structural adequacy as called for in the specifications and approved shop drawings.
   2. Any deficiencies due to such elements not meeting the specifications shall be corrected by the responsible contractor at his expense during the warranty period.

B. Provide ten year warranty under provisions of Division 01 including coverage for sealed glass units from seal failure, interpane dusting or misting, and replacement of same.

C. Warranty Period for Metal Finishes: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 ALUMINUM DOORS

A. Materials and Construction
   1. Sections shall be extruded from 6063-T5 aluminum alloy (ASTM B221 Alloy GS 10A T5).
   2. Major portions of the door stiles shall be .125" in thickness (unless indicated below to be thicker).
   3. Doors shall be the manufacturer's standard full glass aluminum with stile design as indicated below. Interior glazing stops shall be square snap-in type with neoprene bulb type glazing. Square stops on exterior side shall be lock-in tamperproof type. No exposed screws shall be required to secure stops.
   4. Door shall be weatherstripped on 3 sides with metal backed pile cloth installed in the door and/or frame. An adjustable weatherstrip astragal with stainless steel backing shall be provided at the meeting stiles of a pair of doors.
   5. Exterior stops shall be an integral part of the door construction with a minimum wall thickness of .132 inch and minimum height of 3/4 inch. Glazing tape shall be applied to stop prior to installation of glass or panel. Doors shall be interior glazed with 3/4 inch height extruded aluminum snap-in glass stops with a minimum wall thickness of .060 inch with a toll-in gasket.
   6. Door shall be modified in width as required for continuous gear hinge installation.

B. Visitation Building - Door Construction
   1. Exterior Doors: Standard Wide Stile aluminum door. Basis of Design: Apogee (Tubelite) Standard Wide Stile Entrances.
      a. Door Thickness: 1 3/4" or 2"
      b. Aluminum Wall Thickness: .125" min.
      c. Side Stiles: 5" (except doors that receive mortise locksets shall have 6" stiles)
      d. Top Rail: 5" min. (including glazing bead)
      e. Bottom Rail: 8" min. (including glazing bead)
      f. Glass: Refer to Section 08 80 00.
      g. Acceptable Products:
         i. Tubelite Standard Wide Stile Entrance Series. Finish: 70% PVDF Paint, Black color.
         ii. Substitutions see Division 1 specifications.

2.2 ALUMINUM STOREFRONT

A. General
   1. Aluminum Members: ASTM B 221, B 209, and B 211.
   2. Steel Reinforcement: ASTM A 36, ASTM A 611, and ASTM A 570.
   3. Dissimilar Metals: All dissimilar metals must be properly insulated to prevent galvanic action.
   4. Fasteners: All exposed fasteners shall be alum. or stainless steel painted to match finish of framing.
   5. Break Metal Flashing/Trim:
      a. Exterior: Sill flashing and other misc. break metal exterior flashing: 0.050 Aluminum, prefinished to match aluminum framing.
      b. Interior: Misc. interior trim break metal: 0.032 aluminum, prefinished to match aluminum

framing.

2.3 FRAMING MATERIALS AND CONSTRUCTION

A. Visitation Building - Exterior Storefront Framing – Basis of Design: Apogee (Tubelite) T14000. 70% PVDF Paint, Black color. Frame 2 by 4 1/2 inch thermal barrier. Framing members shall provide for center glazing of 1 inch insulating glass, by use of elastomeric gaskets on both sides of the glass, with no projecting stops. Framing members shall be composite assemblies of two separate extruded-aluminum components permanently bonded by an elastomeric material of low thermal conductance or have high-performance plastic connectors separating framing members exposed to the exterior from members exposed to the interior. Vertical and horizontal framing members shall have a nominal face dimension of 2 inches with an overall depth of 4 1/2 inches. At door jambs and head, 2 by 4 1/2 inch non-thermal entrance framing members shall be incorporated into the framing system and shall be compatible with glass framing in appearance.
   1. Configuration: Glazing to be centered in framing.
   2. Application: Exterior doors and storefront system.
   3. Provide sub-sill for all exterior locations.
   4. Provide operable vent panels and insect screens as indicated on drawings.

2.4 ENTRANCE/STOREFRONT FABRICATION

A. General:
   1. Fabricate components per manufacturer's installation instructions and with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
   2. Accurately fit and secure joints and corners. Make joints flush, hairline and weatherproof.
   3. Prepare components to receive anchor devices. Fabricate anchors.
   4. Arrange fasteners and attachments to conceal from view.

B. All aluminum framing vertical and horizontal extrusions shall have a minimum wall thickness of .080.

C. Major portions of the door sections shall have .125" wall thickness. Glazing stop sections shall have .050" wall thickness. Door glazing stops shall be snap-in type with elastomeric gaskets.

D. Entrance Doors
   1. Door wide stiles and rails shall have hairline joints at corner. Heavy concealed reinforcement brackets shall be secured with screws and shall be deep penetration and fillet welded. All doors shall have an adjusting mechanism in the top rail to provide for minor clearance adjustments.
   2. Weatherstripping shall be continuous metal backed pile cloth on three sides installed in the door and/or frame and adjustable neoprene bottom sweep.

2.5 ENTRANCE/STOREFRONT HARDWARE

A. Hardware for Aluminum Entrances shall be provided under this Section, but shall be as specified in Section 08 71 00 and installed in the doors by the door manufacturer/installer. Door manufacturer/installer shall verify suitability/compatibility of specified hardware. All panic hardware on the project shall be by the same manufacturer. GC to coordinate between subcontractors to achieve this.

2.6 FINISH

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. All exposed surfaces of framing shall be free of scratches and other serious blemishes.

B. See notes above regarding finish for each building's finish requirements.

PART 3 EXECUTION

3.1 INSPECTION

A. Inspect and field measure all openings prepared by others to verify that they are the proper size, plumb, level and in the proper location and alignment **before** ordering materials.

B. Aluminum framing shipped to site too large or too small for the opening will not be accepted. Framing shall be 1/4" smaller than masonry opening on all sides. Coordinate all openings with Masonry Contractor.

3.2 INSTALLATION

A. General: Install storefront systems plumb, level, and true to line, without warp or rack of frames with manufacturer's prescribed tolerances and installation instructions. Provide support and anchor in place.
   1. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
   2. Weathertight Construction: Install sill members and other members in a bed of sealant or with joint filler or gaskets, to provide weathertight construction. Coordinate installation with wall flashings and other components of construction.

B. The Entrance Framing shall be securely installed according to the manufacturer's recommendations and the approved shop drawings. All joints between framing and the building structure shall be sealed in order to secure a water tight installation. Install foam backer rod before caulking and sealing.

C. Hang doors plumb with manufacturer's recommended clearances, mount hardware to reinforced, factory prepared back-up plates.

D. All operating hardware shall be checked for proper functions and adjusted.

3.3 PROTECTION AND CLEANING

A. Contractor shall protect the aluminum material and finish against damage from construction activities and harmful substances. The aluminum entrance contractor shall clean the glass and aluminum surfaces and remove all scrap, packaging and excess materials from the site. Touch up scratches or replace extrusions with sever scratches as directed by the Architect.

END OF SECTION

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SECTION 08 58 13

ALUMINUM WINDOWS

PART 1 – GENERAL

1.1 RELATED SECTIONS

A. Glass and glazing – Section 08 80 00

B. Sealants and caulking – Section 07 90 00

1.2 SUMMARY

A. Section includes:

1. Operable Heavy Commercial Grade and Architectural Window Grade aluminum windows.
   a. Project-Out windows as part of aluminum storefront system.

1.3 REFERENCES

A. American Architectural Manufacturers Association (AAMA).

B. American Society for Testing Materials (ASTM).

C. American National Standards Institute (ANSI)

1.4 TEST AND PERFORMANCE REQUIREMENTS

A. Provide aluminum window system designed to accommodate expansion and contraction due to normal thermal movement and wind loading per manufacturer's window test reports. Establish basic dimensions of units, sight lines, and profiles of members according to the performance requirements.

B. Test Criteria: Testing shall be performed by an AAMA qualified independent testing agency and be based on the following criteria:

1. Current test reports must be submitted and be AAMA certified to be accepted.

C. Performance Requirements: Test reports must show compliance with AAMA/WDMA/CSA 101/I.S.2/A440-08 for AW-PG90.

1. Air-Infiltration: Shall not exceed 0.06 cfm/ft of sash crack per ASTM E283 at a differential static pressure of 6.2 psf.
2. Water Infiltration: No uncontrolled leakage per ASTM E331 at a test pressure of 15.00 psf.
3. Uniform Load deflection: No framing member shall deflect more than L/175 and maximum deformation of any member shall not exceed 0.2 percent, per ASTM E330.
4. Structural Requirements: Maximum permanent deformation of any component shall not exceed 0.4 percent at a test pressure of 120.00 psf (AP-AW90) as defined per ASTM E330.
5. Forced-Entry Resistance: Comply with Performance Level 10 requirements when tested according to ASTM F 588.

6. Thermal Performance: U-Value of maximum 0.38 BTU/H-Ft2-F.

1.5 SUBMITTALS

A. General: Submit in accordance with Division 1.

B. Product Data: Submit for windows

1. Include information for factory finishes, glass, glazing components, accessories, and other required components.
2. Include information on hardware and operators.
3. Submit certified test reports from AAMA accredited laboratories verifying all performance requirements specified herein.

C. Shop Drawings: Indicate elevations, detailed design, dimensions, member profiles, joint locations, arrangement of units, and member connections.

1. Anchorage system.
2. Interfacing with building constructions.
3. Full-size details of special and typical shapes.
4. Indicate glazing details and sealant requirements.
5. Show finishes indicating compliance with the specifications.
6. Indicate recorded field measurements on final drawings as available.

D. Samples: Indicate quality of finish on alloys used, 12 inches long for extrusions and 6 inches square for sheet materials.

1. Where normal texture or color variations are expected, include additional samples illustrating range of variation.

E. Samples of Verification: Submit samples of anchors, fasteners, hardware, assembled corner sections, and other materials and components if requested by the architect.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Certified in writing that installer has experience on at least five projects of similar nature in past five years. The installer shall warrant the satisfactory performance of the window installation which includes, but is not limited to, installation accessories (glazing, perimeter sealing), and anchorage as called for by the specifications and approved shop drawings.

B. Single Source Responsibility: Provide window units manufactured by one manufacturer
1. Glass and glazing for window units are required as work of this section for single source responsibility. Factory glaze units.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver units pre-glazed with manufacturer’s labels intact on interior side of glass.

B. Protect glass and glazing to prevent chipping, cracking, and other similar damages.

C. Store windows in upright position, off ground.

D. Protect finished surfaces to prevent damage.

E. Do not use adhesive papers or sprayed coatings which become firmly bonded when exposed to sun.

F. Do not leave coating residue on surfaces.

G. Protect the window units from lime, mortar, runoff from concrete and copper, careless handling of tools, weld platter, acids, roofing tar, solvents, abrasive cleaners, and other items that could damage the window units.

1.8 WARRANTY

A. Warranty: The window manufacturer shall provide a written warranty that window units are free from defective materials or workmanship within a specified period. Failures include the following:

1. Materials defect in manufacture.
2. Faulty operation of sash and hardware.

B. Warranty Period: 2-year after delivery of product.

1.9 MOCKUP

A. Provide a mockup of one window opening as directed by architect. Incorporate approved mockup into final work.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Apogee Co. (Tubelite), Reed City, MI 49677, 800-866-2227.

1. 1350 Series – Top Hinged Awning Project-Out Vents.

C. Subject to compliance with Section 1.4 manufacturers offering equal products may be incorporated in the work.

2.2 MATERIALS

A. Aluminum extrusions shall comply with ASTM B 221 and tolerances shall be in accordance with the Aluminum Association's "Drafting Standards for Aluminum Extruded and Tubular Products". Extrusions shall not be less than a nominal 0.125 inch thick for main frame and sash members, and a minimum of 0.050 inch at glazing stops. Sheet shall comply with ASTM B 209, alloy and temper recommended by manufacturer appropriate for specified finish.

B. Fasteners: Provide stainless steel fasteners, corrosion resistant and compatible with aluminum.

1. Reinforcement: When fasteners screw into aluminum less than a nominal .062 inch thick, utilize nuts or washers of design having means to reinforce interior aluminum surfaces and prevent disengagement.
2. Exposed Fasteners: Provide concealed fasteners wherever possible.

C. Shims: Non-staining and non-ferrous type.

D. Glazing tape: Blend of polyisobutylene and butylpolymer complying with AAMA 807.3-92.

E. Sealants: The color of the sealant exposed with the window in the closed position shall be chosen from the manufacturer's standards. If unspecified, the sealant color shall be compatible with the window framing materials.

1. Non-working joints: Sealant shall comply with AAMA 800.
2. Window Components: Sealant shall be suitable for application specified and approved by the window manufacturer.
3. Perimeter: Sealant shall comply with AAMA 800 and Section 07 92 00.

F. Insect Screen: Provide 18 by 16 mesh of 0.013 inch diameter, coated aluminum wire, complying with FS RR-W-365.

G. Compression Type Gaskets: Provide compressible TPE stripping for glazing and weather stripping complying with ASTM D 1921, ASTM D 792, ASTM D 2240, ASTM D 412, ASTM D 590, and ASTM D 3835 molded TPE gaskets.

2.3 ACCESSORIES

A. Insect Screens: Provide insect screens for each operable sash. Screens shall be tight-fighting, removable and have no exposed fasteners. No wicket screens permitted.

1. Screen Frames: Frames shall be of extruded tubular shaped aluminum, with a minimum wall thickness of .050 inch, have mitered joints, and corners secured by concealed corner keys. Finish frames to match windows.
2. Screen frames must rest into integral extruded channels on main frame, at both jambs and sill. Screens attached by means of exposed fasteners are not acceptable. No part of screen may protrude past the face of main frame.

   a. Provide removable extruded vinyl spline at edge of screening.

3. Wickets: No wicket screens permitted.

B. Trims: Provide extruded aluminum trim of the type and configuration required by the architect with a minimum nominal wall thickness of .050 inches. Provide extruded aluminum trim clips, with a minimum nominal wall thickness of .050 inch, to allow attachment of the trim to the window units and/or openings. Finish trim to match window units.

2.4 PROJECT-OUT WINDOWS

A. Window Grade and Class: Comply with requirements of AAMA Grade and Performance Class for both AW-PG90. Window units shall successfully pass operating force test performance requirements specified in AAMA 101.

1. Series 1350: Provide window units with a 2 5/8" minimum main frame depth.
2. Provide 1" maximum overall glazing thickness. See Section 08 80 00 glass and glazing.

B. Hardware: Provide one of the following operating hardware packages:

1. Hardware Package.
   a. Four-Bar Friction Hinges of stainless steel construction and nonabrasive friction shoe complying with AAMA 904.1.
   b. Roto-Operator with MPL Linear Locks.

C. Glazing Gaskets: Provide sliding-type gaskets.

1. Provide TPE gaskets placed into extruded grooves in glazing stop.
   a. Provide one row of TPE gasket at all glazing stops.

D. Weatherstripping Gaskets: Provide sliding-type gaskets.

1. Provide TPE gaskets placed into extruded grooves in sash members.
   a. Provide two rows of TPE gaskets at all sash members.

2.5 FABRICATION

A. Fabricate components in accordance with manufacturer's tested assemblies. Remove burrs and ease edges. Shop fabricate to greatest extent practicable to minimum field assembly. Disassemble only to the extent necessary for shipping and handling limitations.

B. Thermal Break: Manufacturer's polyamide thermal barrier, located between exterior and interior members to provide thermal separation. Provide thermal break that has been tested for thermal conductance and has been in use a minimum of 5 years.

C. Weep System: Provide drain system to evacuate water entering joints occurring within windows.

2.6 FINISHES

A. Fluorocarbon, High Performance Paint Coating: Color "Black" to match adjacent Training Building. Fluorocarbon spray coating shall be applied by a licensed applicator and shall meet AAMA 2605-98 specifications.
   1. Fluorocarbon 3-coat System: Inhibitive primer, fluoropolymer color coating, and clear fluoropolymer top coating complying with AAMA 2605-98 Fluoropolymer color and clear coats shall not have less than 70 percent polyvinylidene fluoride. Prepare and pre-treat metal surfaces to comply with paint manufacturer's instructions.

PART 3 – EXECUTION

3.1 INSPECTION

A. Remove and properly dispose of existing windows. Verify that openings are dimensionally within allowable tolerances, plumb, level, and clean. Provide solid anchoring surfaces that are in accordance with approved shop drawings.

B. Verify that the opening into which the windows will be installed is the correct size to permit installation of the new windows according to the manufacturer's installation instructions.

C. Do not install windows until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Install windows with skilled tradespersons in exact accordance with approved shop drawings.

B. Aluminum that is not organically coated shall be insulated from direct contact with steel, masonry concrete or noncompatible materials by bituminous paint, zinc chromate primer, or other suitable insulating material.

C. Install vapor retardant tape between window perimeter and adjoining collateral materials and existing wall barriers to ensure continuity.

D. Plumb and align window faces in a single plane for each wall plane. Erect square and true. Anchor to maintain position when subjected to normal thermal and building movement (seismic forces), and specified wind loads.

E. Install glass and glazing in accordance with approved shop drawings to provide satisfactory, leak-free installation.

F. Perimeter Sealing: Seal joints at the perimeters in accordance with approved shop drawings to provide watertight installation.

1. Joints and surfaces to receive sealants shall be clean, free from loose material, free of efflorescence or mortar leaking, and dry. Sealants shall not be applied when the temperature is below the sealant manufacturer's instructions.
2. Clean the joints and surfaces before sealing or priming. Then prime the joints in accordance with the sealant manufacturer's instructions.
3. Provide joint backing in all joints where a suitable backer to receive sealant is otherwise not available. Joint depth shall be equal to ½ of the width.
4. Caulk joint width shall not be less than ¼ inch not more than ½ inches unless otherwise recommended by the sealant manufacturer. Wipe off the excess material and leave the exposed surfaces and joints clean and smooth.

3.3 ADJUSTING

A. After installation, windows and glazing shall be inspected and adjusted to provide smooth operation and a weathertight window system.

3.4 CLEANING

A. After installation, leave windows clean and free of temporary labels and dirt. Protect finished installation against damage.

B. Final cleaning of the painted finish shall be in accordance with AAMA 610.1.

END OF SECTION

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 "General Requirements" sections for Allowances, Alternates, Owner Furnished Contractor Installed, Project Management and Coordination.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
   a. "Metal Doors and Frames"
   b. "Flush Wood Doors"
   c. "Stile and Rail Wood Doors"
   d. "Interior Aluminum Doors and Frames"
   e. "Aluminum-Framed Entrances and Storefronts"
   f. "Stainless Steel Doors and Frames"
   g. "Special Function Doors"
   h. "Entrances"
6. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
7. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.02 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
   a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
   b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
   a. Wiring Diagrams: For power, signal, and control wiring and including:
      1) Details of interface of electrified door hardware and building safety and security systems.
      2) Schematic diagram of systems that interface with electrified door hardware.
      3) Point-to-point wiring.
      4) Risers.

3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
   a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

4. Door Hardware Schedule:

a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
c. Indicate complete designations of each item required for each opening, include:
    1) Door Index: door number, heading number, and Architect's hardware set number.
    2) Quantity, type, style, function, size, and finish of each hardware item.
    3) Name and manufacturer of each item.
    4) Fastenings and other pertinent information.
    5) Location of each hardware set cross-referenced to indications on Drawings.
    6) Explanation of all abbreviations, symbols, and codes contained in schedule.
    7) Mounting locations for hardware.
    8) Door and frame sizes and materials.
    9) Degree of door swing and handing.
    10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.

5. Key Schedule:
    a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
    b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
    c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
    d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
    e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
    f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:
    a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
    b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
    a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
    b. Catalog pages for each product.
    c. Final approved hardware schedule edited to reflect conditions as installed.
    d. Final keying schedule
    e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
    f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
   a. Fire door assemblies, in compliance with NFPA 80.
   b. Required egress door assemblies, in compliance with NFPA 101.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
   a. For door hardware: DHI certified AHC or DHC.
   b. Can provide installation and technical data to Architect and other related subcontractors.
   c. Can inspect and verify components are in working order upon completion of installation.
   d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.

4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:
   a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
   b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

2. Smoke and Draft Control Door Assemblies:
   a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
   b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.

3. Electrified Door Hardware
   a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.

4. Accessibility Requirements:

a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

C. Pre-Installation Meetings

1. Keying Conference
   a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
      1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
      2) Preliminary key system schematic diagram.
      3) Requirements for key control system.
      4) Requirements for access control.
      5) Address for delivery of keys.

2. Pre-installation Conference
   a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   b. Inspect and discuss preparatory work performed by other trades.
   c. Inspect and discuss electrical roughing-in for electrified door hardware.
   d. Review sequence of operation for each type of electrified door hardware.
   e. Review required testing, inspecting, and certifying procedures.
   f. Review questions or concerns related to proper installation and adjustment of door hardware.

3. Electrified Hardware Coordination Conference:
   a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping

B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.

C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.

D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

A. 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.

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 10 years
        2) Exit Devices 10 years
        3) Closers 30 years

1.08 MAINTENANCE

A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The Owner requires use of certain products for their unique characteristics and project suitability to ensure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."

1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.

B. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance with section 01 25 00.

C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.

D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fabrication

1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer’s recognized installation standards for application intended.
2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with “Metal Doors and Frames”, “Flush Wood Doors”, “Stile and Rail Wood Doors” to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

C. 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

2. Acceptable Manufacturers and Products:
   a. McKinney TB series
   b. Best FBB series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:

a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high

4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
   a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high

5. 2 inches or thicker doors:
   a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high

6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
   a. Steel Hinges: Steel pins
   b. Non-Ferrous Hinges: Stainless steel pins
   c. Out-Swinging Exterior Doors: Non-removable pins
   d. Out-Swinging Interior Lockable Doors: Non-removable pins
   e. Interior Non-lockable Doors: Non-rising pins

9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.04 CONTINUOUS HINGES

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Select
   b. Best

B. Requirements:

1. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
2. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
3. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
4. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
5. On fire-rated doors, provide aluminum geared continuous hinges classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
6. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
7. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.05 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage L9000 series

2. Acceptable Manufacturers and Products:
   a. No Substitute

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to “KEYING” article, herein.
5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches. Provide motor based electrified and motor based latch retraction locksets that comply with the following requirements:
   a. Universal input voltage – single chassis accepts 12 or 24VDC to allow for changes in the field without changing lock chassis.
   b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and electrically unlocked (fail secure) is field selectable without opening the lock case
   c. Low maximum current draw – maximum 0.4 amps (Lever control) and maximum 2.0 amps (Latch retraction) to allow for multiple locks on a single power supply.
   d. Low holding current (Lever control or latch retraction) – maximum 0.01 amps to produce minimal heat, eliminate “hot levers” in electrically locked applications and motorized latch retraction applications, and to provide reliable operation in wood doors that provide minimal ventilation and air flow.
   e. Connections – provide quick-connect Molex system standard.

8. (OPTION Key Override) Provide locks with a key override feature built into the chassis that allows the outside key to retract the deadbolt and/or latchbolt, overriding the inside thumbturn when it is being held in the locked position - where the XL13-439 option is specified in the hardware sets.
9. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
   a. Lever Design: 06.

2.06 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage ND series

2. Acceptable Manufacturers and Products:
   a. No Substitute

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. Lever Design: RHO.

2.07 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Von Duprin 99/33A series
2. Acceptable Manufacturers and Products:
   a. Detex Advantex series
   b. Precision APEX 2000 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. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide a type that can be removed by use of a keyed cylinder, which is self-locking when reinstalled.
13. Provide factory-drilled weep holes for exit devices used in full exterior applications, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled.
15. 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.
16. 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.

17. 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

2. Acceptable Manufacturers and Products:
   a. Folger Adam
   b. HES

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 POWER SUPPLIES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage/Von Duprin PS900 Series

2. Acceptable Manufacturers and Products:

a. Dynalock 5000 series
b. Securitron BPS series

B. Requirements:

1. Provide power supplies approved by manufacturer of supplied electrified hardware.
2. Provide appropriate quantity of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.
3. Provide regulated and filtered 24 VDC power supply, and UL class 2 listed.
4. Provide power supplies with the following features:
   a. 12/24 VDC Output, field selectable.
   b. Class 2 Rated power limited output.
   c. Universal 120-240 VAC input.
   d. Low voltage DC, regulated and filtered.
   e. Polarized connector for distribution boards.
   f. Fused primary input.
   g. AC input and DC output monitoring circuit w/LED indicators.
   h. Cover mounted AC Input indication.
   i. Tested and certified to meet UL294.
   j. NEMA 1 enclosure.
   k. Hinged cover w/lock down screws.
   l. High voltage protective cover.

2.10 CYLINDERS

A. Manufacturers and Products:

1. Scheduled Manufacturer:
   a. Schlage

2. Acceptable Manufacturers and Products:
   a. No Substitute

B. Requirements:

1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset; manufacturer’s series as indicated. Refer to “KEYING” article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
   a. Open: cylinder with large format interchangeable core (LFIC) core with "C keyway

2.11 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).
   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.

2.12 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Telkee

2. Acceptable Manufacturers:
   a. HPC
   b. Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.

a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
b. Provide hinged-panel type cabinet for wall mounting.

2.13 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. LCN 4040XP series

2. Acceptable Manufacturers and Products:
   a. Corbin-Russwin DC8000 series
   b. Sargent 281 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.

2.14 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Trimco

B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.15 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Trimco

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.16 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:
   a. Glynn-Johnson

2. Acceptable Manufacturers:
   a. Rixson
   b. Sargent

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.

2.17 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Trimco

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.

2.18 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Trimco

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.

2.19 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Scheduled Manufacturer:

1. Zero International

B. Acceptable Manufacturers:

1. Reese
2. Pemko

C. 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.

D. 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.

E. 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.

F. Sound-Rated Gasketing: Provide acoustic gasketing to meet Sound Transmission Class (STC) rating required.

G. Meeting-Stile Gasketing: Provide meeting-stile gasketing that fastens to the meeting stiles forming a continuous seal when doors are closed.

H. 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.

I. 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.

J. 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

K. 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.

2.20 FINISHES as listed in hardware sets

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.

B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

C. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
4. Installation Guide for Doors and Hardware: DHI TDH-007-20

B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.

C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.

D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.

E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.

H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.

I. Lock Cylinders:

1. Install construction cores to secure building and areas during construction period.
2. Replace construction cores with permanent cores as indicated in keying section.
3. Furnish permanent cores to Owner for installation.

J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:

1. Conduit, junction boxes and wire pulls.
2. Connections to and from power supplies to electrified hardware.
3. Connections to fire/smoke alarm system and smoke evacuation system.
4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
5. Connections to panel interface modules, controllers, and gateways.
6. Testing and labeling wires with Architect's opening number.

K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

L. Continuous Hinges: Re-locate the door and frame fire rating labels where they will remain visible so that the hinge does not cover the label once installed.

M. Door Closers & Auto Operators: Mount closers/operators on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers/operators so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.

N. Overhead Stops/Holders: Mount overhead stops/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

O. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.

P. Thresholds:

1. Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
2. Aluminum thresholds to be cut-in, and scribed around mullions, frame members, and stops. Do not butt to thresholds. Provide a continuous surface across full width of opening from jamb to jamb.
3. Where aluminum panic-type (rabbeted) thresholds with neoprene inserts are specified, undercut doors as required to properly mate with seal in threshold.

Q. Stops: Provide 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.

R. Perimeter Gasketing:

1. Apply to head and jamb, forming seal between door and frame.
2. Install gasketing in a manner eliminating need to cut any seal to install surface mounted hardware. Install compatible mounting bracket for surface mounted hardware unless minimum 1/4 inch thick solid aluminum seals are provided for mounting of surface applied hardware.

S. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

T. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.03 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Spring Hinges: Adjust to achieve positive latching when door can close freely from an open position of 30 degrees.
2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.04 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items per manufacturer's instructions to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.05 DOOR HARDWARE SCHEDULE

A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.

C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.

D. Hardware Sets:

156344 OPT0496005 Version 2

HARDWARE GROUP NO. 01

FOR USE ON DOOR #(S):
106
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S RHO OS-OCC	619	SCH
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	619	IVE
1	EA	KICK PLATE	8400 8" X 2" LDW B-CS	619	IVE
1	EA	WALL STOP	WS406/407CVX	619	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 02

FOR USE ON DOOR #(S):
113
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S RHO OS-OCC	619	SCH
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	619	IVE
1	EA	KICK PLATE	8400 8" X 2" LDW B-CS	619	IVE
1	EA	WALL STOP	WS406/407CVX	619	IVE
3	EA	SILENCER	SR64	GRY	IVE
1			HDWE SUPPLIER/CONTRACTOR TO VERIFY EXISTING FOR NEW DOOR/HARDWARE		

HARDWARE GROUP NO. 03

FOR USE ON DOOR #(S):
114 115
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	ENTRANCE LOCK	ND53TD RHO	619	SCH
1	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	WALL STOP	WS406/407CCV	619	IVE
3	EA	SILENCER	SR64	GRY	IVE
1			HDWE SUPPLIER/CONTRACTOR TO VERIFY EXISTING FOR NEW DOOR/HARDWARE		

HARDWARE GROUP NO. 04

FOR USE ON DOOR #(S):
111
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	CLASSROOM LOCK	ND70TD RHO	619	SCH
1	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	4040XP ST-1630	689	LCN
1	EA	TOP JAMB MTG PLATE	4040XP-18TJ	689	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW B-CS	619	IVE
3	EA	SILENCER	SR64	GRY	IVE
1			HDWE SUPPLIER/CONTRACTOR TO VERIFY EXISTING FOR NEW DOOR/HARDWARE		

HARDWARE GROUP NO. 05

FOR USE ON DOOR #(S):
122
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	CLASSROOM LOCK	ND70TD RHO	619	SCH
1	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	WALL STOP	WS406/407CCV	619	IVE
3	EA	SILENCER	SR64	GRY	IVE
1			HDWE SUPPLIER/CONTRACTOR TO VERIFY EXISTING FOR NEW DOOR/HARDWARE		

HARDWARE GROUP NO. 06

FOR USE ON DOOR #(S):
119
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	CLASSROOM LOCK	ND70TD RHO	619	SCH
1	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW B-CS	619	IVE
3	EA	SILENCER	SR64	GRY	IVE
1			HDWE SUPPLIER/CONTRACTOR TO VERIFY EXISTING FOR NEW DOOR/HARDWARE		

HARDWARE GROUP NO. 07

FOR USE ON DOOR #(S):
109 110 117
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	CLASSROOM LOCK	ND70TD RHO	619	SCH
1	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	OH STOP	100S	630	GLY
3	EA	SILENCER	SR64	GRY	IVE
1			HDWE SUPPLIER/CONTRACTOR TO VERIFY EXISTING FOR NEW DOOR/HARDWARE		

HARDWARE GROUP NO. 08

FOR USE ON DOOR #(S):
107
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	STOREROOM LOCK	ND80TD RHO	619	SCH
1	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW B-CS	619	IVE
1	EA	WALL STOP	WS406/407CCV	619	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 09

FOR USE ON DOOR #(S):
120
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	STOREROOM LOCK	ND80TD RHO	619	SCH
1	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW B-CS	619	IVE
3	EA	SILENCER	SR64	GRY	IVE
1			HDWE SUPPLIER/CONTRACTOR TO VERIFY EXISTING FOR NEW DOOR/HARDWARE		

HARDWARE GROUP NO. 10

FOR USE ON DOOR #(S):
112 118
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	STOREROOM LOCK	ND80TD RHO	619	SCH
1	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW B-CS	619	IVE
1	EA	WALL STOP	WS406/407CCV	619	IVE
3	EA	SILENCER	SR64	GRY	IVE
1			HDWE SUPPLIER/CONTRACTOR TO VERIFY EXISTING FOR NEW DOOR/HARDWARE		

HARDWARE GROUP NO. 11

FOR USE ON DOOR #(S):
103
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY	628	IVE
1	EA	STOREROOM LOCK	L9080T 06A	619	SCH
1	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW B-CS	619	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	65A	A	ZER

HARDWARE GROUP NO. 12

FOR USE ON DOOR #(S):
102 104 105
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY	628	IVE
1	EA	PANIC HARDWARE	CD-99-NL-OP	626	VON
1	EA	FSIC MORTISE HOUSING	20-059 (BLOCKING RINGS & CAM AS REQ)	626	SCH
1	EA	FSIC RIM HOUSING	20-079	626	SCH
2	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	90 DEG OFFSET PULL	8190HD 12"	630	IVE
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	DOOR SWEEP	8198AA	AA	ZER
1	EA	THRESHOLD	65A	A	ZER

PERIMETER SEALS BY ALUMINUM DOOR SUPPLIER

HARDWARE GROUP NO. 13

FOR USE ON DOOR #(S):
108
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	CLASSROOM LOCK	ND70TD RHO	619	SCH
1	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	OH STOP	100S	630	GLY
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 14

FOR USE ON DOOR #(S):
116 121
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	646	IVE
1	EA	CLASSROOM LOCK	ND70TD RHO	619	SCH
1	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	OH STOP	100S	630	GLY
3	EA	SILENCER	SR64	GRY	IVE
1			HDWE SUPPLIER/CONTRACTOR TO VERIFY EXISTING FOR NEW DOOR/HARDWARE		

HARDWARE GROUP NO. 15

FOR USE ON DOOR #(S):
101
PROVIDE EACH OPENING WITH THE FOLLOWING:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY	628	IVE
1	EA	PANIC HARDWARE	CD-99-NL-OP	626	VON
1	EA	FSIC MORTISE HOUSING	20-059 (BLOCKING RINGS & CAM AS REQ)	626	SCH
1	EA	FSIC RIM HOUSING	20-079	626	SCH
2	EA	FSIC CORE	23-030 (C KEYWAY)	626	SCH
1	EA	ELECTRIC STRIKE	6300 FSE	630	VON
1	EA	90 DEG OFFSET PULL	8190HD 12"	630	IVE
1	EA	OH STOP	100S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ	689	LCN
1	EA	DOOR SWEEP	8198AA	AA	ZER
1	EA	THRESHOLD	65A	A	ZER
1	EA	CREDENTIAL READER	EXISTING CARD READER TO BE REUSED		
1	EA	POWER SUPPLY	PS902 120/240 VAC	LGR	SCE

PERIMETER SEALS BY ALUMINUM DOOR SUPPLIER.

OPERATION : DOOR NORMALLY CLOSED AND LOCKED. PRESENTING VALID CREDENTIAL TO READER MOMENTARILY RELEASES ELECTRIC STRIKE.
ELECTRIC STRIKE ALSO CAPABLE OF BEING ELECTRONICALLY DOGGED DOWN (I.E. PUSH/PULL MODE) AS DESIGNATED BY ACCESS CONTROL SYSTEM SCHEDULE. FREE EGRESS AT ALL TIMES.

END OF SECTION

Clark County Family Services - Visitation Building Reno

156344 OPT0496005

V2

Door#	HwSet#
101	15
102	12
103	11
104	12
105	12
106	01
107	08
108	13
109	07
110	07
111	04
112	10
113	02
114	03
115	03
116	14
117	07
118	10
119	06
120	09
121	14
122	05

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SECTION 08 80 00

GLAZING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section includes:
   1. Glazing for interior and exterior doors and sidelites.
   2. Glazing for exterior storefronts
   3. Glazing for exterior aluminum windows.

B. All transparent and translucent glass for general and special purpose applications and related materials required for the Work and not furnished under another section whether or not specifically referred to herein.

C. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

D. Related work in other Sections:

1. Doors into which glass is to be installed:	Hollow Metal:	Section 08 11 13
	Aluminum:	Section 08 40 00
2. Hollow metal storefront & borrowed lite framing into which glass is installed:		Section 08 11 13
3. Aluminum storefront and curtain wall framing into which glass is installed		Section 08 40 00

1.2 SUBMITTALS

A. Submittal shall specifically include:
   1. Certified test reports or Product Data showing compliance with specified performance characteristics.
   2. Sample units for each type of glazing.

1.3 MOCKUP

A. Construct mock-up of one exterior window opening for each building.
   1. Locate where directed by architect. Incorporate mockup as part of work.

1.4 WARRANTY

A. Provide 5-year warranty from date of delivery.

1.5 QUALITY ASSURANCE

A. Comply with applicable codes and regulations and with the Consumer Product Safety Commission CPSC 16 CFR 1201 and with applicable recommendations of Flat Glass Marketing Association (FGMA) “Glazing Manual”.

B. Provide labels showing glass manufacturer’s identity, type of glass, thickness, and quality.

C. Door Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing per NFPA 252.

D. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.

PART 2 PRODUCTS

2.1 EXTERIOR GLASS

A. Glass – General
   1. Heat Treated Glass Products: Kind FT Fully tempered glass, ASTM C 1048, Type I, Quality Q3. Tempered glass is typical for all glass on the project, unless specifically indicated otherwise.
   2. Sealed Insulating Glass Units: ASTM E 774
      a. Class A at storefront framing.

B. Glass for All Exterior Windows, Doors, Storefront Framing: Typical Glazing shall be 1” thick insulating glass

composed of two sheets of glass, with elastomer edge seal and interpane space purged dry hermetic air. Sealed units shall be tested per ASTM E733 and have a Class A rating per ASTM E774. Low-E coating on #2 surface. Refer to Frame Types and Exterior Glazing Schedule for exact composition of glass units.

1. Insulated Unit Performance: Insulating panels shall have a U-Value of 0.29.
2. Composition of insulated units shall be as follows:
   a. Windows: 1/4" clear tempered for exterior and interior panes.
   b. Exterior Doors, Sidelites and Storefronts: 1/4" safety glass for exterior pane; 1/4" tempered glass for interior panes.

2.2 INTERIOR GLASS

A. Interior glass shall be as follows:
   1. Glass for Interior Non-Fire Rated Doors, Storefront Framing and Borrowed Lites:
      a. For locations indicated to have insulating glass units, provide 1/4" clear laminated safety glass for corridor pane and 1/4" clear tempered glass for room pane.
      b. For other locations (1/4" glazing), provide 1/4" clear laminated safety glass.

2.3 ACCEPTABLE MANUFACTURERS

A. Other Glass:
   1. Vitro Architectural Glass
   2. Cardinal
   3. Oldcastle
   4. Pilkington

2.5 GLAZING ACCESSORIES

A. Glazing Sealants
   1. Provide materials as recommended by the manufacturer for the required application and condition of installation in each case. Provide only compounds which are proven to be fully compatible with surfaces contacted.
   2. Provide field-applied glazing sealants in compliance with the maximum VOC levels permissible by the South Coast Air Quality Management District Rule (SCAQMD) #1168: VOC limit of 100 g/L.

B. Other Glazing Materials
   1. Provide glazing gaskets, spacers, blocks and fillers as required and as appropriate to the various glazing applications.
   2. Provide cleaners, Primers, and Sealers as recommended by sealant or gasket manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Verify that openings for glazing are correctly sized, within tolerance, and glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

3.2 GLAZING

A. Glaze items in accordance with frame and glass manufacturer recommendations.

3.3 EXTERIOR GLAZING SCHEDULE

Both Buildings All Exterior Glass Except Window Units GW1 & GW2.				
1" Insulated Unit	Panes	1/4" panes.		
Visible %		70%		
SHG Coeff.		0.39		
U-Factor		0.29		
Integral Blinds		None		
Protective Pane		None		

END OF SECTION

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SECTION 09 21 16

GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section Includes
   1. Interior gypsum board and gypsum board assemblies for installation on solid substrates.
   2. Gypsum board systems accessories and trim.
   3. Joint taping and finishing materials.
   4. All gypsum board systems work and related materials not specified under another section but required for the work whether or not specifically referred to herein.

B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

C. Related work in other Sections:
   1. Thermal/Acoustic Insulation: Section 07 21 00.
   2. Metal Furring, Framing and Accessories for steel stud: Section 09 22 16 partitions and gypsum board ceilings.

1.2 QUALITY ASSURANCE

A. Installer Qualifications: Installer experienced to perform work of this section who specializes in the installation of work similar to that required for this project.

B. Materials or operations specified by reference to the published specifications of a manufacturer or other published standards shall comply with the requirements of the standards listed.
   1. Standards include ASTM C840
   2. GA-201 - Gypsum Board for Walls and Ceilings
   3. GA-216 – Application and Finishing of Gypsum Panel Products
   4. GA-600 - Fire Resistance Design Manual
   5. Refer to “Recommended Specification on Levels of Gypsum Board Finish” as published by the Gypsum Association (and AWCI/CISCA/PDCA) for finish levels required.

C. Tolerance: Maximum Variation from True Flatness: 1/8 inch in 10 feet in any direction.

1.4 SUBMITTALS

A. Submittal shall specifically include:
   1. Samples of each board type used on project.
   2. Product data of each product proposed for use under this section.

PART 2 PRODUCTS

2.1 GYPSUM BOARD

A. Interior Ceiling Gypsum Wallboard: 1/2 inch minimum thickness (except where thickness is specifically indicated otherwise as part of a rated assembly).
   1. Length: Longest possible length appropriate to application.
   2. Edges: Tapered
   3. Ends: Square cut

4. At fire rated assemblies, provide all required components to comply with the requirements of the assembly.

B. Standard Gypsum Wall Board
   1. Thickness per drawing details and notes.
   2. Regional Requirement: Material must be extracted/recovered and manufactured within 500 miles of the Project Site.
   3. Applications:
      a. All walls, ceilings and soffits except in restrooms, janitor and kitchen areas.
4. Acceptable Manufacturers
      a. United States Gypsum Company
      b. Georgia-Pacific
      c. National Gypsum
      d. LaFarge
      e. Substitutions, see Division 1.

C. Moisture/Mold Resistant Gypsum Wallboard:
   1. Minimum Physical Properties:
      a. Moisture-Resistive Ratings
         i: Water Absorption (ASTM C473): 5 max.
         ii: Mold Resistance (ASTM D3273): 10 min.
   2. Acceptable Products:
      a. USG Sheetrock Brand Mold Tough VHI.
      b. National Gypsum Hi-Impact XP Wallboard Interior Panels.
      c. Georgia-Pacific DensArmor Plus Impact Resistant Interior Panel

D. Cementitious Backer Units: ANSI A118.9, 1/2 inch minimum thickness.
   1. Application: Provide as tile backer at any steel stud framed walls to receive ceramic tile.

2.2 ACCESSORIES

A. Interior Trim:
   1. Comply with ASTM C 1047
      a. Material: Metal trim, steel sheet zinc coated by hot dip or electrolytic process, or steel sheet coated with aluminum or rolled zinc.
      b. Types: Cornerbead, edge trim, and control joints.
   2. Cornerbead: Provide one of the following at all outside corners:
      a. Standard galvanized metal cornerbead, 0.0125” min. thickness, screw-attached, bedded with setting-type joint compound.
         i. ClarkDietrich 103 Deluxe Corner Bead.
         ii. USG Sheetrock Dura-A-Bead Corner Bead.
      b. Pre-formed corner bead with polymer core and paper surfaces. Installed using joint compound (no mechanical fasteners) per manufacturer instructions.
         i. No-Coat Ultratrim.
   3. Casing (Edge) L-C Bead: L-Shaped for use at exposed panel edges.
      a. Use metal casing bead at straight edges.
      b. Use flexible vinyl arched-type bead at curved edges.
   4. Expansion (Control) Joint: Metal control joint accessory piece. Spacing: As indicated and maximum 30 ft./o.c. Caulking of control joints at exposed locations is required and is covered under Section 07 92 00.

B. Fasteners:
   1. Gypsum Board
      a. Steel Stud Framing: ASTM C1002 Type S12 hardened screws; GA 216.
      b. Laminated to Existing Plaster Ceilings: Adhesive with supplemental mechanical

fasteners as required. Adhesive to be appropriate to the application, acceptable to the panel manufacturer and with a VOC limit of 50 g/L (Drywall and Panel Adhesives).

2.3 GYPSUM BOARD JOINT TRETMENT MATERIALS

A. General: Comply with ASTM C 475.

B. Joint Tape for Interior Gypsum Wallboard: Paper.

C. Setting Type Joint Compound: Factory packaged, job mixed, chemical hardening powder products.
   1. Acceptable Products:
      a. USG Sheetrock Setting Type Joint Compound
      b. National Gypsum ProForm Quick Set Setting Compound
      c. LaFarge Rapid Joint Setting Compound
      d. Substitutions, see Division 1.

   2. Application:
      a. Repair of damaged gypsum board surfaces prior to finishing.
      b. Prefilling of open joints
      c. Embedding and First Coat at all taped joints, fasteners, and accessory flanges

D. All-Purpose Joint Compound: Factory mixed gypsum board joint compound
   1. Acceptable Manufacturers:
      a. USG Sheetrock
      b. National Gypsum ProForm
      c. LaFarge
      d. Substitutions, see Division 1.

   2. Application:
      a. Fill Coat (second coat)
      d. Finish Coat (third coat)
      e. Skim Coat (final coat) of Level 4 finish

PART 3 EXECUTION

3.1 GYPSUM BOARD INSTALLATION

A. General: Erection of framing and furring systems and application of drywall boards shall be per drawings and applicable portions of USG "Gypsum Drywall Construction Handbook", latest edition, or National Gypsum Co., Technical Bulletins No. 2171, 3687, 3726, 4096T, 4161 and 4171.

B. Fastening Board to Framing
   1. Fasten gypsum board to furring or framing with screws, with board applied vertically in full height unbroken length where possible. Space screws a maximum of 12 inches o.c. for vertical applications.

C. Control Joints: Provide control joints in gypsum board partitions, bulkheads, ceilings, and soffits. Place control joints consistent with lines of building spaces as shown or as directed. Minimum spacing of control joints shall be in accordance with GA216. In general, any gypsum board partition 30’-0” or longer shall have a full-height control joint. Coordinate exact locations with Architect in field. If a door is located in a partition requiring a control joint, the door may be used as a control joint provided that joints from both jambs are extended full height of the partition.

D. Trim Accessories: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer’s written instructions. Place corner beads at external corners and edge trim where drywall terminates at windows and doors. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.

E. Temperature & Humidity: Maintain temperature, humidity and ventilation levels per Manufacturer recommendations.

3.2 GYPSUM BOARD FINISHING

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration.
   1. Prefill open joints and damaged surface areas.
   2. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
   3. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   4. Feather coats onto adjoining surfaces so that camber is maximum 1/32 inch.

B. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:
   1. Level 1: Embed tape at joints only. Locations:
      a. In ceiling plenum areas
      b. In concealed areas
      c. Elsewhere specifically indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
   2. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges, and apply skim coat of joint compound. Locations:
      a. All surfaces exposed to view

END OF SECTION

SECTION 09 22 16

NON-STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section includes
   1. Non-load bearing cold formed metal interior framing including wall, ceiling, bulkhead, soffit, and other misc. framing and furring shown on Drawings.
   2. Bracing, fasteners, and related accessories for light gauge, non-load bearing metal elements.
   3. All labor, materials, tools equipment, anchors, fasteners, bridging and components not covered under another Section but required for a complete cold formed metal framing installation, whether or not specifically referred to herein.

B. Related Work in Other Section:
   1. Gypsum Board Systems: Section 09 21 16.

B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. Steel framing materials shall comply with ASTM C645 (Non-Structural).

B. Tolerances:
   1. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
      a. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
      b. Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch.
   2. Erection Tolerances: 1/16 inch.

C. Qualifications:
   1. Installer Qualifications: An experienced installer who has completed cold-formed metal framing similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Fire-Test-Response Characteristics: Where metal framing is part of a fire-resistance-rated assembly, provide framing identical to that of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
   1. Fire-Resistance Ratings: Indicated by GA File Numbers in GA-600, “Fire Resistance Design Manual”, or by design designations from UL’s “Fire Resistance Directory” or from the listings of another testing and inspecting agency.

1.3 SYSTEM DESCRIPTION

A. Performance Requirements: Engineer, fabricate, and erect cold-formed metal framing to withstand design loads within limits and under conditions required.
   1. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F.
   2. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:

a. Upward and downward movement of 1/2 inch.

3. Design system to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

1.4 SUBMITTALS

A. Submittal shall specifically include:

1. Product Data showing compliance with specified performance characteristics.

PART 2 PRODUCTS

2.1 LIGHT GAUGE STEEL FRAMING

A. General:

1. Galvanized Steel Sheet: ASTM A 1003, Structural Grade, Type H, metallic coated of grade and coating, and as follows: Provide G40 (Z120) for interior soffit, ceiling and non-bearing wall framing
2. Acceptable Manufacturers for items specified under this Section:
   a. MarinoWare
   b. Clark/Dietrich
   c. Scafco
   d. Substitutions, see Division 1.

B. Steel Stud/Rafter/Joist Framing:

1. Non-bearing Interior Partitions:
   a. Steel Studs and Runners at walls: ASTM C 645
      i. Width of studs shall be as indicated.
      ii. Spacing of framing members shall be 16” o.c. unless noted otherwise.
   b. Provide double 18 gauge minimum steel studs at head, jamb, and sill of all openings.
   c. Provide Track of same gauge as typical wall studs, unless noted otherwise.
   d. Acceptable Stud Products:
      i. MarinoWare ViperStud Viper20D
      ii. Dietrich UltraSteel 20DW or ProSTUD 20DW
      iii. Scafco XXX-S-162-30 (20 gauge drywall studs)
2. Interior Soffit and Misc. Framing:
   a. Steel Studs and Runners at walls: ASTM C 645
      i. Width of studs shall be as indicated.
      ii. Spacing of framing members shall be 16” o.c. unless noted otherwise.
   b. Provide Track of same gauge as typical wall studs, unless noted otherwise.
   c. Provide steel stud kicker braces as indicated and as required.
3. Steel Framing for Suspended, Furred and Framed Ceilings: ASTM C 955
   a. Light gauge metal framing consisting of:
      i. Perimeter track (20 ga. min.) attached to walls
      ii. Un-punched light gauge ceiling joists (20 ga. min.) sized to carry dead load of system plus mechanical loads (no less than 6" in depth)
      iii. Solid bridging members so that un-braced length of no joist exceeds 6'.

C. Z-Furring Channels

1. General:
   a. Depth: 2” or as indicated.
   b. Where installed on steel studs, gauge and spacing to match steel stud gauge and spacing, unless noted otherwise.

c. Where installed on other substrate, provide 20 gauge furring channels at 24" o.c. unless noted otherwise.

D. Framing Accessories
1. General:
a. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123.
b. Anchor Bolts: ASTM F 1554, Grade 36 or 55, threaded carbon-steel hex-headed bolts and carbon- steel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C.
c. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
d. Mechanical Fasteners: Corrosion-resistant-coated, self-drilling, self-threading steel drill screws.
i. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.
2. Fabricate steel-framing accessories of the same material and finish used for framing members, with minimum yield strength of 33,000 psi.
3. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows: Supplementary framing; bracing; bridging and solid blocking; web stiffeners; end clips; foundation clips; gusset plates; stud kickers, knee braces, and girts; joist hangers and end closures; hole reinforcing plates; backer plates.
4. Deflection Track: Deep leg slotted top track configured to allow for vertical sliding due to structural deflection. Acceptable products:
a. MarinoWare Slotted Track
b. Clark/Deitrich SLP-TRK
c. Scafco SLT
5. Horizontal Bridging: Cold-Rolled Channel, 1 1/2" width x 16 gauge (0.054") minimum (or as otherwise indicated), Cee shaped, 50 ksi cold-formed structural steel per ASTM C955-00 and G-60 hot dip galvanized protective coating per ASTM A653.
6. Clip Angles: 3 3/8" width x 16 gauge (0.054") minimum x 1 1/2" flange (or as otherwise indicated) with pre-drilled pilot holes, 50 ksi cold-formed structural steel per ASTM C955-00 and G-60 hot dip galvanized protective coating per ASTM A653. Installed at each stud location for horizontal bridging attachment.
8. TEK screws, self-drilling, self-tapping, #12 minimum size, hot dip galvanized complying with ASTM A90. Type, size and spacing of fasteners shall be per manufacturer's recommendations and as indicated.
9. Kickers: Where required to brace stud walls above ceilings. 3 5/8" studs minimum.

PART 3 EXECUTION

3.1 PREPARATION.

A. Verify that substrate surfaces and building framing components are ready to receive work. Prepare attachment surfaces so that they are plumb, level, and in proper alignment for accepting the cold-formed structural framing.

3.2 LIGHT GAUGE FRAMING INSTALLATION

A. General
1. Cold-formed metal framing to be shop or field fabricated for installation, and field installed.
2. Install cold-formed metal framing according to ASTM C 754 and/or C 1007 (as appropriate), unless more stringent requirements are indicated.
3. Do not bridge building expansion and control joints with cold-formed metal framing. Independently frame both sides of joints.
4. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's standard punched openings.
5. Align bottom and ceiling tracks; locate to wall layout. Secure in place with fasteners at 16" o.c. max.

6. Erect framing and panels plumb, level and square in strict accordance with the approved shop drawings. Use one-piece full length studs spaced at 16” o.c. (unless noted otherwise), spliced studs are not acceptable. Attach studs to track using two screws per each side of stud so that each connection location has at least four screws.
7. All track butt joints, abutting pieces of track shall be securely anchored to a common structural element, or they shall be butt-welded or spliced together.
8. The framing shall have ends squarely cut by shearing or sawing, be installed plumb, square, true to line and securely fastened per the contract documents or approved connection details. Torch cutting is not permitted.
9. Construct corners using minimum three studs.
10. Provide slide clips as specified above at connection of studs to the top track where track is mounted to beam, truss, joist, precast plank or other structure subject to deflection. Install in accordance with manufacturer's recommendations so as to achieve required vertical deflection capability.
11. Members and bracing shall be attached with screws wherever possible. Welding will only be permitted with expressed permission of Architect/Engineer.

B. Non-Bearing Framing Installation
1. General: Comply with ASTM C754, and ASTM C 840 requirements that apply to framing installation.
2. Extended partition framing full height to structural supports or substrates above suspended ceilings unless noted or detailed otherwise.
3. Frame door openings to comply with GA-600 and with gypsum board manufacturer’s applicable written recommendations, unless otherwise indicated. Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs. Install two studs at each jamb, unless otherwise indicated.
4. Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
5. Frame bulkheads and soffits as required to achieve shape and dimensions indicated. Brace as required to structure to achieve stable, secure installation.

C. Suspended Ceiling System:
1. Space and position framing members in accordance with manufacturer’s recommendation. Wire tie steel studs or furring channels to structural framing as shown in manufacturer’s installation guide.
2. Provide additional framing required to support lighting or mechanical diffusers. Do not use gypsum wall board to support said fixtures. Coordinate framing requirements and locations with Electrical and HVAC Contractor.
3. Install additional framing required for ceiling control joints as described in manufacturer’s installation guidelines.

END OF SECTION

SECTION 09 30 00

TILING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This section includes the following:
   1. Hard Tile
      a. Floor Tile
      b. Wall tile
   2. Setting and Grouting Materials
   3. All hard tile and related components, labor and materials not specified under another section but required for the work whether or not specifically referred to herein.

B. Related Work in Other Sections
   1. Resilient Flooring: Section 09 65 00

C. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.2 REFERENCES

A. American National Standards Associations (ANSI) Installation Specifications.
   1. A 108.5-92 Ceramic tile installed with dry set Portland cement mortar or latex Portland cement mortar
   2. A108.10 - Installation of Grout in Tile work.

B. American National Standards Associations (ANSI) Material Specifications
   1. A 118.4 - 1992 Latex Portland cement mortar
   2. A118.6 - Ceramic Tile Grouts
   3. A137.1 – “Specifications for Ceramic Tile”

C. American Society for Testing of Material (ASTM) Specifications
   1. C-627-93 Evaluating ceramic floor tile installation systems
   2. D-583 Water vapor transmission test
   3. D-146 Tensile MD and Tensile CD
   4. D-36 Penetration
   5. C-482 Shear/Bond
   6. 920-98 Specifications for Elastomeric Joint Sealants

D. Tile Council of North America (TCA):
   1. “Handbook for Ceramic Tile Installation”

E. South Coast Air Quality Management District (SCAQMD):
   1. SCAQMD Rule #1168 Adhesive and Sealant Applications.

F. ADAAG: Recommended Static Coefficients of Friction.

1.3 SUBMITTALS

A. Submittal shall specifically include:
   1. Product Data showing that materials meet or exceed specified properties.
   2. Manufacturer’s technical information and installation instructions for specified materials.
   3. Maintenance information including recommended cleaning and stain removal methods, methods for maintaining installed products, recommended polishes and waxes, and precautions against cleaning materials and methods detrimental to finishes and performance.
   5. Full size samples of each different pattern, color, and type of flooring required including appropriate trim shapes.
   6. Grout and sealant color samples.

7. Shop drawings that include expansion/control joint layouts.

1.4 QUALITY ASSURANCE

A. Follow recommendations of the latest edition of the Tile Council of North America (TCA) "Handbook for Ceramic Tile Installation" for standardizing installation specifications.

B. Follow recommendations of appropriate installation specifications of American National Standards Institute (ANSI) for the setting methods and materials specified.

C. Qualifications:
1. Installer Qualifications: Engage an experienced installer who has completed ceramic tile installations similar in material and extent to that required for this project and who is acceptable to product manufacturer.

D. Provide a manufacturer's representative for training and demonstration of proper installation of epoxy grout prior to commencement of installation procedures.

1.5 DELIVERY, STORAGE AND HANDLING

A. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

B. Delivery and Storage: Deliver and store materials in manufacturer's original, unopened, undamaged containers with identification labels intact until time of use and in accordance with ANSI A137.1.

C. Environmental Requirements/Conditions: Maintain environmental conditions and protect work during and after installation in accordance with referenced standards and manufacturer's printed instructions.
1. Areas to receive flooring shall be clean, and weather tight.
2. Tile Contractor shall arrange to have Heating Contractor maintain a minimum temperature of 55 degrees F during tile work and for 7 days after completion. The Tile Contractor shall verify that the Heating Contractor vents temporary heaters to the outside to avoid carbon dioxide damage to new tile work.

1.6 SEQUENCING AND SCHEDULING

A. Do not install tile flooring over concrete substrates until substrates have cured and are dry to bond with adhesive as determined by flooring manufacturer's recommended bond and moisture test.

PART 2 PRODUCTS

2.1 PRODUCTS, GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile", for types, compositions, and other characteristics indicated.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI Standards referenced in "Setting and Grouting Materials" Article.

C. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals, 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. Factory-mounted tile: Provide back or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.
1. Where tile is indicated for installation on exteriors or 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. Tile Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing of adjoining flat tile where applicable. Provide shapes, selected from manufacturer's standard shapes.

F. Static Coefficient of Friction: Paragraph and subparagraphs below are based on appendix to the Americans with Disabilities Act (ADA). For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:
   1. Level Surfaces: Floor Tile - Minimum 0.42.

G. Provide materials obtained from one source for each type and color of grout and setting materials.

H. Adhesives, Sealants and Coatings shall comply with the following VOC limits:
   1. Hard Tile Adhesives: 65 g/L (Ceramic Tile Adhesives)
   2. Hard Tile Control Joint Sealants: 250 g/L (Architectural Sealants)
   3. Grout Sealer: 100 g/L (Primers, Sealers, Undercoaters)

I. Mortar Installation: Latex Portland-cement mortar: ANSI A118.4.

2.2 PORCELAIN FLOOR TILE – Visitation Building

A. Type: Interior type body, flat tile. Visitation Building Unisex Restroom #104.
   1. Face: “Abstract” size, 12”X12” sheet abstract mosaic. Plain face with square edges.
   2. Finish: Matte finish.
   3. Cove Base Tile: 6”x12” cove base tile.
   4. Standard grade porcelain floor tiles conforming to ANSI 137.1.

B. Acceptable Products:
   Contractor shall provide color selections listed below. Mixing colors from different manufacturers is prohibited.
   1. Daltile, “Dignitary” Porcelain Stone Attache Collection, Color “Luminary White”, provide samples.

2.3 PORCELAIN WALL TILE – Visitation Building

A. Type: Interior type body, flat tile. Visitation Building Unisex Restroom #104.
   1. Face: “Rectangular” size, 12”X24”. Plain face with square edges.
   2. Finish: Matte finish.
   3. Pattern: 1/3 Running bond.
   4. Standard grade porcelain floor tiles conforming to ANSI 137.1.

B. Acceptable Products:
   Contractor shall provide color selections listed below. Mixing colors from different manufacturers is prohibited.
   1. Daltile, “Dignitary” Porcelain Stone Attache Collection, Color “Luminary White”, provide samples.

2.4 SETTING AND GROUTING MATERIALS

A. Epoxy Mortar (Thin-Set): ANSI A 118.4.

B. Epoxy Grout: ANSI A 108.10. 3 mm wide joints. Color: gray to be selected by architect.

C. Accessories/Auxiliary Materials
   1. Elastomeric Sealant: For expansion and control joints. One-Part, Mildew-Resistant Silicone Sealant. Colors of exposed sealants to match colors of grout in tile adjoining sealed joints. For chemical-resistant floors, provide chemical-resistant elastomeric sealant of type recommended and produced by chemical-resistant mortar and grout manufacturer for type of application indicated, with proven service record and compatibility with tile and other setting materials, and with chemical resistance equivalent to mortar/grout. Include primer and backer rod recommended by manufacturer.
   2. Trowelable Underlayments and Patching Compounds: Latex-modified, Portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS/RECOMMENDATIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog

installation instructions, and product carton instructions.

3.2 EXAMINATION/ACCEPTABILITY OF SURFACES

A. Verify surfaces are ready to receive work and comply with TCA Handbook, Installation Methods. Report all unacceptable surfaces to the Architect. Leveling coat is included in this section.

B. Surfaces must be free of hydrostatic conditions or other moisture related problems.

C. Substrates to be tiled shall be free of curing membranes, oil, grease, wax, dust and other materials whose presence could interfere with bonding of adhesive.

D. Field Measurements: Verify tile layout and pattern/border dimensions.

3.3 PREPARATION OF SURFACES

A. In areas receiving tile work, maintain 55° F minimum temperature during tile work and for 7 days after completion. The Tile Contractor shall verify that the Heating Contractor vents temporary heaters to the outside to avoid carbon dioxide damage to new tile work.

B. Proportion all mixes in accordance with latest ANSI Standard Specifications.

3.4 LAYOUT

A. Determine location of all movement joints before starting tile work.

B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter. Locate tile cuts in floors so as to be least conspicuous.

3.5 INSTALLATION – GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A 108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

B. Comply with manufacturer's written instructions for product installation procedures and as specified in this section. Provide necessary prep and ancillary work as required for final installation.

C. Proportion all mixes in accordance with latest ANSI Standard Specifications.

E. Installation Techniques: Supply first-class workmanship in all tile work.
1. Joints shall be aligned and of the same size when adjoining tiles on floor, base, walls and trim to give straight uniform grout lines.
2. Terminate tile neatly at edges, corners and obstructions without disrupting the tile pattern or joint alignment.
3. Caulk along shower receptors, toilet bowls, floor drains, etc. with clear sealant.
4. Protect from traffic until adhesive is sufficiently cured.

F. Joint Widths: Install tile with the following joint widths:
1. Ceramic Floor Tile: 3 mm.

3.6 SETTING METHODS

A. Method and typical detailing for tile work shall be in accordance with the following TCA alphanumeric method, listing from the “Handbook for Ceramic Tile Installation,” latest edition, by the Tile Council of North America.

B. Floors
1. Porcelain Floor Tile: TCA F115-17 On-Ground Concrete Ceramic Tile Epoxy Grout, bonded with Tile Installation Specification ANSI A108.5 and ANSI A138.1.

C. Grouting
1. Grouting shall be installed in accordance with ANSI A108.6 for epoxy and the

manufacturer's recommended procedures and precautions during application and cleaning.
a. Tile shall be grouted using epoxy grout, unless noted otherwise.

3.7 ATTIC STOCK

A. Provide minimum additional 8 SF of each tile type for Owner's attic stock. Deliver to location as directed by Owner.

3.8 CLEANING

A. Repair or replace damaged installed products.

B. Remove temporary coverings and protection of adjacent work areas.

C. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance.
1. Use cleaning methods recommended by tile manufacturer.
2. Rinse tile work thoroughly with clean water before and after using chemical cleaners. Upon completion, be sure all tile work is clean of grout film.
3. Do not clean or wash floor until after time period recommended by manufacturer.
4. Sweep and damp-mop tile flooring to remove marks and soil.

D. Remove construction debris from project site and legally dispose of debris.

3.9 PROTECTION

A. Protect flooring from construction dirt and traffic and against marks and other damage.
1. Cover all tile floors with heavy-duty, non-staining construction paper, masked in place.
2. Prohibit all foot and wheel traffic from using newly tiled floors for at least 7 days.
3. Where use of newly tiled floors is unavoidable, place large, flat boards in walkways and wheelways for 7 days.

B. Remove and legally dispose of protective covering at time of Substantial Completion.

END OF SECTION

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SECTION 09 65 00

RESILIENT FLOORING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section Includes:
   1. Resilient Tile Flooring
      a. Luxury Vinyl Tile
   2. Other resilient materials
      a. Resilient Wall Base
      b. Marble threshold / transition for ceramic tile.
      c. Auxiliary Materials and Accessories to Resilient Flooring and Base
   3. All resilient flooring work and related materials and labor not specified under another section but required for the work whether or not specifically referred to herein.

B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM E 648-88 Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source.
   2. ASTM E 662-83 Test Method for Specific Density of Smoke Generated by Solid Materials.
   3. ASTM F 510-81(1987) Standard Test Method for Resistance to Abrasion of Resilient Floor Coverings Using an abrader with Grit Feed Method.
   4. ASTM F 710-86 Practice for Preparing Concrete Floors and Other Monolithic Floors to Receive Resilient Flooring.
   5. ASTM F 970-87 Test Method for Static Load Limit.

B. Federal Specification (Fed Spec):
   1. Fed Spec L-F-475A Floor Covering, Vinyl, Surface (Tile and Roll), with Backing, February 1971.

C. National Fire Protection Association (NFPA):
   1. NFPA 253-1984 Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source.
   2. NFPA 258-1989 Test Method for Specific Density of Smoke Generated by Solid Materials.

D. South Coast Air Quality Management District (SCAQMD):
   1. SCAQMD Rule #1168 Adhesive and Sealant Applications.

E. ADAAG: Recommended Static Coefficients of Friction.

1.3 SUBMITTALS

A. Submittal shall specifically include:
   1. Product Data showing that flooring materials meet or exceed specified properties.
   2. Manufacturer's technical information and installation instructions for specified materials.
   3. Product Data for sealants and adhesives showing compliance with VOC limits.
   4. Full size samples of each different pattern, color, and type of flooring required.

1.4 QUALITY ASSURANCE

A. Fire Test Performance: Unless otherwise indicated, provide flooring material to meet the following fire test performance criteria as tested by a recognized independent testing laboratory.
   1. ASTM E 648 (Critical Radiant Flux) of 0.45 watts per sq. cm. or greater, Class 1.
   2. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less.

B. Provide adequate testing of concrete slabs, including relative humidity testing.

C. Qualifications:
   1. Installer Qualifications: Installer experienced to perform work of this section who specializes in the installation of work similar to that required for this project and who is acceptable to product manufacturer.

D. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions and manufacturer's installation instructions.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

B. Storage and Protection: Store materials in fully enclosed areas, protected from exposure to harmful weather conditions and at uniform temperature conditions recommended by manufacturer.
   1. Temperature Conditions: 68° F (20° C) for 72 hours prior to, during and after installation.

C. Environmental Requirements/Conditions: In accordance with manufacturer's recommendations, areas to receive flooring shall be clean, fully enclosed, weather-tight and maintained at a uniform temperature of at least 68° F for 72 hours prior to, during and after installation. Condition flooring materials for the same uniform temperatures.

1.6 SEQUENCING AND SCHEDULING

A. Do not install resilient flooring over concrete substrates until substrates have cured and are dry to bond with adhesive as determined by resilient flooring manufacturer's recommended bond and moisture test.

PART 2 PRODUCTS

2.1 LUXURY VINYL TILE

A. General: ASTM F 1066, Class III, Type B, high-end commercial grade luxury vinyl tile. Printed high definition on tear resistant film protected by a 20 mil transparent wear layer and supported by a very high-density compact interlayer. Factory-applied finish shall provide excellent cleaning properties.
   1. LVT-1: Mannington Amtico Signature Collection, #AROW8650 "Clowes Oak", Size 6" X 48".
   2. Thickness: 0.1" inch minimum.
   3. Wearing Surface: 20 mil. wear layer surface.
   4. Finish: Manufacturer's factory applied finish not requiring removal after installation, including but not limited to the following:
      a. UV/ceramic technology
      b. Polyurethane
      c. Acrylic.

B. Physical Properties: Product must pass one of the following:
   1. Gauge Total Thickness (ASTM F386): 0.1"
   2. Wear layer Thickness (ASTM F410): 20 mil.
   3. Static Load Resistance (ASTM F 970): At a static load of 250 pounds, tile shall have a residual indentation of less than 0.005 inch.
   4. Maximum Static Load (ASTM F970): 850 lbs/Sq.in.
   5. Indentation (ASTM F 1914): At the end of one minute the indentation must be less than -8%.
   6. Coefficient of Friction (ASTM D2047): 0.65 dry.
   7. Dimensional Stability (ASTM F2199): <0.02"
   8. Flexibility (ASTM F137): >1.0".
   9. Chemical & Stain Resistance (ASTM F925): Excellent.
   10. Fire Rating (ASTM E648): Class I

11. Smoke Density (ASTM E662): Meets Requirements.
12. Indoor Air Quality: FloorScore Certified.

C. Acceptable Products – Over Concrete Substrate:
1. Gerflor: Creation Wellpoint, fully adhered: Basis of Design.
2. Mannington.
3. Armstrong

2.2 RESILIENT WALL BASE

A. Resilient Base: Rubber wall base complying with ASTM F 1861.
1. Type (Material Requirement): TS 1/8" SBR Rubber.
2. Group (Manufacturing Method): I (solid, homogeneous).
3. Style: Coved
4. Minimum Thickness: 0.125 inch.
5. Height: 4 inches.
6. Cut lengths coiled in manufacturer's standard length.
7. Surface: Smooth.
8. Colors: Multiple colors required. Architect to select from manufacturer's full range of colors.

B. Acceptable Manufacturers:
1. Roppe, Pinnacle Rubber Base.
2. Johnsonite.
3. Substitutions, see Division 1.

2.3 AUXILIARY MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based or blended hydraulic cement based formulation provided or approved by floor covering manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit floor covering and substrate conditions indicated.
1. Adhesives to comply with VOC limits: 50 g/L (Cove Base Adhesive; VCT or SV Adhesive)
2. Provide adhesives that are recommended / required by flooring manufacturers to maintain all warranties.

C. Resilient Molding Accessories:
1. Joiner for tile-to-carpet transitions:
a. Material: Rubber
b. Profile: As indicated and as appropriate for thickness of floor coverings.
c. Color: As selected by Architect from full color range.
d. Manufacturer: Same as Rubber Base.
2. Joiner for hard tile to sheet vinyl transitions: Metal Transition Stip.
3. Rubber corner blocks for profiled rubber base.

D. Floor Polish: As recommended by manufacturer if required.

PART 3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS/RECOMMENDATIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, and product carton instructions.

3.2 EXAMINATION AND PREPARATION

A. Examination: Verify that subfloors and concrete slabs comply with ASTM F710 and the following:
1. Concrete floor substrate shall have a minimum compressive strength of 3500 psi.
2. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials whose presence would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture test recommended by flooring manufacturer.
3. Verify that subfloors are free of cracks, ridges, depressions, scale, and foreign deposits of any kind.

B. Preparation:
1. Prepare floor substrate in accordance with manufacturer's instructions for warranty requirements and to

ensure adhesion of floor covering.

2. Comply with ASTM F 710 Practice for Preparing Concrete Floors and Other Monolithic Floors to Receive Resilient Flooring.
3. Fill minor or local low spots and other defects with subfloor filler recommended by flooring material manufacturer. **Do not use or install flooring over gypsum-based leveling or patching materials.**
4. Prepare floor substrate to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as dust, paint, grease, oils, solvent, curing and hardening compounds, sealers and according to ASTM F 710. Vacuum clean substrate.
5. Maintain 70° F. minimum temperature in rooms for 24 hours before and during time of laying flooring, and for 48 hours after laying.

3.3 INSTALLATION - BASE MATERIAL

A. Install per manufacturer recommendations.

B. Adhere base tight to wall and floor surfaces.

C. Fit joints tight and vertical.

D. Install base at all built-in casework, shelving units and similar components.

E. Finish Drawings that illustrate locations for rubber base shall be provided by the Architect prior to installation.

3.4 FIELD QUALITY CONTROL

A. Flooring Manufacturer's Field Services: Upon Owner's request and with at least 72 hours' notice, provide manufacturer's field service consisting of two site visits; one for review of installation procedures prior to installation and one for inspection of product installation to verify that installation was in accordance with manufacturer's instructions.

3.5 CLEANING

A. Repair or replace damaged installed products.

B. Remove temporary coverings and protection of adjacent work areas.

C. Clean installed products in accordance with manufacturer's instructions prior to acceptance.
   1. Remove visible adhesive and other surface blemishes using cleaning method recommended by resilient flooring manufacturer.
   2. Sweep and vacuum floor after installation.
   3. Do not wash floor until after time period recommended by resilient flooring manufacturer.
   4. Damp-mop resilient flooring to remove black marks and soil.

D. Remove construction debris from project site and legally dispose of debris.

3.6 PROTECTION

A. Protect flooring against marks, indentations, and other damage.

B. Remove and legally dispose of protective covering at Project Completion.

END OF SECTION

SECTION 09 91 00

PAINTING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Exterior and interior painting with opaque and transparent finishes including painted mechanical and electrical items, primers, sealers and finish paints. Painted exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.
   1. Includes surface preparation and field application of paints, transparent finishes and coatings.
   2. Includes all painting work and related materials not specified under another section but required for the work whether or not specifically referred to herein.
   3. All paintable surfaces to remain exposed in the finished work whether specifically indicated or not shall be finished under this section, except shop- and factory-finished items and those specially indicated not to be painted. No new surface shall have less than one prime coat and two finish coats except where noted otherwise. Painting Contractor shall study the plans for a full understanding of the scope of work (including studying the finish schedule and drawing details to determine where structural elements and paintable ductwork are exposed to view). Once materials are applied to an unfinished substrate, it is therefore implied that the surfaces have been accepted to receive finishes.

B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.2 SUBMITTALS

A. Submittal shall specifically include:
   1. Product Data: Including material make-up and application instructions for each type of paint.
   2. Painting Schedule: Complete schedule listing manufacturer, proprietary names/number, surfaces to be painted, primers, finish coats and tinting.
   3. Samples:
      a. Complete paint deck from which to choose colors.
      b. Provide paint match samples for custom matches as required the Architect.

1.3 QUALITY ASSURANCE

A. Environmental Requirements: Painting manufacturer and Contractor shall conform to State and local V.O.C. (Volatile Organic Compound) Regulations in area where Project is located. In addition, all field-applied interior paint shall comply with the maximum VOC content as follows:
   1. Paint Prime Coats: 100 g/L (Primers, Sealers, Undercoaters)
   2. Paint Finish Coats (unless otherwise listed below) : 50 g/L (Flats or Nonflat Coatings)
   3. Anti-Corrosive/Anti-Rust Paint Coats: 250 g/L (Anti-Corrosive/Anti-Rust Paints)
   4. Dry-fall Paint Coats: 150 g/L (Dry-fog Coatings)
   5. Transparent Wood Finishes:
      a. Stains: 100 g/L (Stains, Interior)
      b. Varnish/Lacquer: 275 g/L (Clear Wood Finishes, Varnish or Sealers, Lacquer)

B. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

C. Paint Coordination

1. Verify compatibility of finish coat with manufacturer's and fabricator's shop applied prime coats.
2. Provide barrier coats over incompatible primers, or remove and re-prime as required.
3. Notify architect in writing of any anticipated problems using finish paints specified with following:
   a. Primed surfaces
   b. Previously painted surfaces
   c. Proper coverage

D. Colors and Sample Rooms
1. Multiple paint colors shall be as selected by the Architect. Before any work is done, the Architect will furnish the contractor with a schedule showing where various paint colors shall be applied. The contractor shall then prepare samples at the job as required until the colors and textures are satisfactory.
2. Upon commencement of the work, sample rooms shall be prepared with base and finish coats as specified. Sample rooms and finishes when approved, shall be a standard for comparison for the remainder of the work. Work subsequently executed, which in the Architect's opinion, does not equal the sample finishes shall be corrected as may be necessary by the Contractor without additional charge.

1.4 ENVIRONMENTAL REQUIREMENTS

A. Store and apply materials in environmental conditions required by manufacturer's instructions.

B. Do not apply paints when temperature outside or in any interior area is less than recommended by manufacturer. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.

C. Do not apply finish material in areas where humidity is above acceptable limit recommended by manufacturer.

D. Do not apply paint to wet or damp surfaces, surfaces exposed to hot sun, or during cold or frosty weather when temperature is below freezing or predicted to fall below freezing.

1.5 SYSTEM DESCRIPTION

A. To establish a level of quality, the painting schedule below references the Master Painters Institutes (MPI) categories. The MPI categories listed are to assist in providing general guidelines for paint type selection.

PART 2 PRODUCTS

2.1 MATERIALS

A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

C. All paint shall be delivered to the site in manufacturer's sealed containers. Each container shall be labeled by the manufacturer. Label shall include type of paint, color of paint, and instructions for reducing. Thinning shall be done only in accordance with directions of manufacturer.

D. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials required to achieve the finishes specified and as recommended by manufacturer whose products are used.

E. Approved Manufacturers:
1. Pittsburg Paints (PPG).
2. Sherwin-Williams
3. ICI
4. Substitutions, see Division 1.

2.2 EXTERIOR PAINTING SCHEDULE

A. Previously Stained Wood - Transparent Stain & Clear Coating
   1. Stain Coat: PPG Transparent Stain – Cetol Door & Window Wood Finish, color from standard colors. Two coats.
   2. Finish Coat: PPG Transparent Stain – Cetol Door & Window Wood Finish, colorless. One coat.
   3. Surfaces: Exterior previously stained wood.

B. Metal – Ferrous (Semi-Gloss): (Alkyd) Similar to MPI EXT 5.1D.
   1. Primer: DTM Acrylic Primer/Finish. One coat.
   2. Finish Coats: DTM Acrylic Coating 100 percent Acrylic, Waterborne, Semi-Gloss, 3.0 mils DFT/coat.
   3. Surfaces: Miscellaneous ferrous metal.

C. Metal – Galvanized (Semi-Gloss): (Acrylic Latex System), similar to MPI EXT 5.3A.
   1. Clean galvanized surfaces with non-petroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
   2. Primer: DTM, 2.0-3.0 mils DFT/coat.
   3. Finish Coats: DTM Acrylic Coating 100 percent Acrylic, Waterborne, Semi-Gloss, 3.0 mils DFT/coat.
   4. Surfaces: Exterior lintels, hollow metal doors and frames.

2.3 INTERIOR PAINTING SCHEDULE

A. Concrete Surfaces (Semi-Gloss): (Latex), similar to MPI INT 3.1M.
   1. Primer: P-P 17-921 Sealgrip Interior Latex Wall Primer, 1.0 – 1.2 mils DFT/coat.
   2. Finish Coats: P-P 6-500 Speedhide Latex Semi-Gloss Enamel (34-45 units at 60 deg. F.), 2.0 – 2.4 mils DFT/coat.

B. Concrete Masonry Surfaces (Semi-Gloss): (Vinyl Acrylic Latex System), similar to MPI INT 4.2A.
   1. Primer: Vinyl Acrylic Block Filler, min. of 1 coat but provide additional coat(s) as required to fill all block pores.
   2. Finish Coats: Vinyl Acrylic Semi-Gloss Enamel, 1.5 DFT/coat.
   3. Surfaces: New masonry walls (do not use in high humidity areas).

C. Concrete Masonry Surfaces (Gloss): (Water Based Epoxy – High Humidity), similar to MPI INT 4.2F.
   1. Primer: Two-three coats Acrylic Heavy Duty Block Filler Pigmented High Solids/High Build Epoxy Polyamide Filler/Sealer, 30 mils DFT/coat.
   2. Finish Coats: High Solids, Epoxy Polyamine Coating, Gloss 4.0-8.0 mils DFT/coat.
   3. Surfaces: Showers and high humidity areas including toilet rooms.

D. Primed Metal – Ferrous (Gloss): (Acrylic-Latex System), similar to MPI INT 5.1R.
   1. Primer: Touch up with DTM Primer.
   2. Finish Coats: 100 percent Acrylic, Waterborne, Gloss, 3.0 mils DFT/coat.
   3. Surfaces: Hollow metal doors, frames, door mullions, railings, ferrous metal surfaces.

E. Unprimed Metal – Ferrous (Gloss): (Acrylic-Latex System), similar to MPI INT 5.1R.
   1. Primer: 100 percent Acrylic, Waterborne, Corrosion Resistant Primer, 3 mils DFT/coat.
   2. Finish Coats: 100 percent Acrylic, Waterborne, Gloss, 3.0 mils DFT/coat.
   3. Surfaces: Unprimed ferrous metal surfaces.

F. Metal – Galvanized (Gloss): (Acrylic Latex System), similar to MPI INT 5.3A
   1. Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
   2. Primer: DTM, 2.0-3.0 mils DFT/coat.
   3. Finish Coats: 100 percent Acrylic, Waterborne, Gloss (30-40 units at 60 degrees F.), 3.0 mils DFT/coat.
   4. Surfaces: Galvanized metal surfaces.

G. Wood – Stained.

1. Pre-Stain Coat: Minwax Pre-Stain Wood Conditioner. One coat.
2. Stain Coat: Minwax Gel Stain, similar to MPI INT 6.3EE.
3. Finish Coats: Minwax Polyurethane Satin Finish, 3 coats.
4. Surfaces: Wood trim indicated to be stained.

H. Wood – Painted (Semi-Gloss): (Latex System), similar to MPI INT 6.3U.
1. Primer: Pigmented Interior Primer, 2 mils DFT/coat.
2. Finish Coats: Semi-Gloss Acrylic Latex, 2.5 – 2.8 mils DFT/coat.
3. Surfaces: Wood trim indicated to be painted.

I. Gypsum Board (Satin): (Acrylic Latex System), similar to MPI INT 9.2M.
1. Primer: Interior Latex Primer/Sealer
2. Finish Coats: Interior Satin Acrylic Latex
3. Surfaces: Gypsum walls, graphics (do not use in high humidity areas).

J. Gypsum Board (Flat): (Acrylic Latex System), similar to MPI INT 9.2M.
1. Primer: Interior Latex Primer/Sealer
2. Finish Coats: Interior Flat Acrylic Latex
3. Surfaces: Gypsum ceilings, bulkheads, (do not use in high humidity areas).

K. Gypsum Board (Semi-Gloss): (Acrylic Epoxy System), similar to MPI INT 9.2F.
1. Primer: Interior Latex Primer/Sealer
2. Finish Coats: Water Borne Acrylic Epoxy
3. Surfaces: High humidity areas including toilet rooms.

L. Exposed Structure – Ferrous (Flat): (Waterborne), similar to MPI INT 5.1C.
1. Primer: Touch up with DTM Acrylic Primer/Finish
2. Finish Coats: Interior Dryfall Flat Acrylic Waterborne (white) flat, 2.0-2.5 DFT/coat.
3. Surfaces: Exposed metal decking, trusses, structural steel, metal joists.

M. Exposed Structure – Galvanized (Eg-Shel): (Waterborne), similar to MPI INT 5.3H.
1. Clean galvanized surfaces with non-petroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
2. Finish Coats: Interior Dryfall Flat Acrylic Waterborne (white) flat, 2.0-2.5 mil DFT/coat.
3. Surfaces: Exposed metal decking, trusses, structural steel.

PART 3 EXECUTION

3.1 SEQUENCING AND SCHEDULING

A. Coordinate the sequencing and scheduling of the painting to ensure the optimal application of paint without damaging adjacent surfaces.
1. Apply paint prior to installation of acoustical ceiling suspension systems and resilient base.
2. Paint doors and frames prior to installation of door hardware.
3. Do not paint overhead surfaces of items which will be exposed to view when project is finished such as ductwork piping etc., until overhead work is completed.

3.2 EXAMINATION AND PREPARATION

A. Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Examine substrates, areas and conditions, with the applicator present, under which painting will be performed for compliance with paint application requirements. Document any unsatisfactory conditions encountered (specifically damages caused by others and latent damage as defined by PDCA P1-92. Make

arrangements to have unsatisfactory conditions corrected prior to painting. Do not begin painting until unsatisfactory conditions have been corrected. Starting painting will be construed as Applicator's acceptance of surfaces and conditions within that specific area.

1. Schedule examination of conditions in time to allow corrective work to be undertaken without affecting the overall project schedule.
2. Correct minor defects and clean surfaces which affect work of this Section.

C. Measure moisture content of porous surfaces using an electronic moisture meter. Do not apply finishes unless moisture content is less than 12 percent.

D. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers or remove and re-prime.
2. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.
4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations. Shop Primed Steel Surfaces and Existing Steel to be painted: Sand and scrape to remove loose primer and rust, hand clean, clean surfaces with solvent. Prime bare steel surfaces.
5. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods. Apply coat of etching primer.
6. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove foreign matter. Remove oil and grease with a solution of tri-sodium phosphate, rinse well and allow to dry. The Masonry Contractor is responsible for pointing, rubbing and patching of concrete block including after first coat of block filler/primer. Do not paint over block that has not been inspected by Architect.
7. Gypsum Board Surfaces: Carefully inspect finished gypsum board using acute angle temporary lighting to locate imperfections. Patch defects in finished gypsum board prior to application of paint of other finishes. Fill minor defects with latex compounds. Spot prime defects after repair. Do not finish coat surfaces until drywall touch-up has been completed.
8. Stained surfaces: Remove all previous coatings down to bare wood. Prep bare wood as recommended by manufacturer.

E. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

F. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

G. Masking: All color changes shall be cleanly masked to achieve sharp transition of color. Verify exact location of color changes with Architect.

3.3 APPLICATION

A. General Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions. Apply materials under adequate illumination, evenly spread and smoothly flowed on without runs or sags. Apply materials at manufacturer's recommended wet film thicknesses to achieve manufacturer's recommended dry film thickness (DFT) or as otherwise specified. DFT's and number of coats indicated are minimums; provide additional thickness and/or additional coats where recommended by manufacturer. Thoroughly dry coats before applying succeeding coats; follow manufacturer's recommended drying times between coats as minimum.

B. Prime Coat Application:
   1. General: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing. Tint primers and under coats to approximate shade of final coat. Back prime new interior wood work scheduled to receive paint finish with primer paint.
   2. Block Filler: Apply masonry filler in heavy coat by brush or roller and then work into surface of masonry/concrete surface and mortar joints to completely fill and seal all pores. Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled. Pin holes of voids that appear after filler has cured shall require second coat of filler to obtain completely sealed surface.

C. Pigmented (Opaque) Finish Application: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable. Generally, a minimum of two finish coats are required (unless indicated otherwise). If additional coats are required to achieve indicated DFT, then such additional coats shall be provided.

D. Field Painting Required: In addition to the painting scope described in Paragraph 1.01.A, the following is specifically included in the field-painting scope of This Section:
   1. Doors: Paint tops, bottoms and both faces of all hollow metal doors and other doors unfinished doors.
   2. Mechanical and Electrical Work and Misc. Equipment: Painting of mechanical and electrical work and misc. equipment is limited to items exposed in equipment rooms and occupied spaces where structure/ceiling is indicated to be painted. Mechanical/Electrical/Equipment items to be painted include, but are not limited to, the following:
      a. Uninsulated metal piping.
      b. Uninsulated plastic piping.
      c. Pipe hangers and supports.
      d. Tanks that do not have factory-applied final finishes.
      e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
      f. Duct, equipment, and pipe insulation having “all-service jacket” or other paintable jacket material.
      g. Mechanical/Electrical equipment that is indicated to have a factory-primed finish for field painting.
      h. Conduit and electrical boxes.
      i. Supports for electrical equipment.

E. Field Painting NOT required: In general, do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts and labels. Unless specifically indicated otherwise, the following items should NOT be field painted:
   1. Prefinished items include the following factory-finished components.
      a. Acoustical wall panels.
      b. Metal toilet enclosures.
      c. Elevator entrance doors and frames (except where indicated to be provided primed only).
      d. Elevator equipment.
      e. Finished mechanical and electrical equipment.
      f. Light fixtures.
      g. Fabric ductwork
   2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
      a. Foundation spaces.
      b. Furred areas.
      c. Ceiling plenums.
      d. Pipe spaces.
      e. Duct shafts.
      f. Elevator shafts (see Elevator spec section).
   3. Finished metal surfaces include the following:
      a. Anodized aluminum.
      b. Stainless steel.

c. Chromium plate.
d. Copper and copper alloys.
e. Bronze and brass.

4. Operating parts include moving parts of operating equipment and the following:
   a. Valve and damper operators.
   b. Linkages.
   c. Sensing devices.
   d. Motor and fan shafts.
5. Labels: Do not paint over UL, FM, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

3.4 CLEANING

A. As work proceeds, promptly remove finishes where spilled, splashed, or spattered.

B. Upon completion, paint spots shall be removed from glass, hardware and other surfaces.

C. Solvents or cleansing solutions, and method used to clean finish surfaces shall not cause damage thereto. When in doubt, verify proper method of removing paint spots from finish surfaces before attempting to remove them.

D. Rubbish and accumulated materials shall be removed from premises.

END OF SECTION

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SECTION 10 00 00

SPECIALTIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section Includes:
   1. Insulated attic access panel and other accessories.
   2. All related materials and components for the above named specialty items not specified under another section but required for the work whether or not specifically referred to herein.

B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.2 SUBMITTALS

A. Submittal shall specifically include:
   1. Product Data: Provide data on products, specified accessories.
   2. Samples: Provide curtain material and color samples.
   3. Manufacturer's installation instructions.

1.3 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing.

B. Deliver inserts & anchoring devices set into concrete or masonry as required to prevent delaying the Work.

C. Field Measurements: Where equipment is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

PART 2 PRODUCTS

2.1 Insulated Attic Access Panel:

A. Manufacturer: Best Access Doors.
   1. Series: Model / SKU: BA-PFI. Galvanneal steel construction. 20-gauge steel door and 16-gauge steel frame. 1-hour fire rating.
   2. Options: Exposed drywall flange, screwdriver operated cam lock, holding cable. Continuous piano hinge
   3. Finish: Powder coat white.
   4. Size.: 22“X30“. Field verify existing rough opening size.

PART 3 EXECUTION

3.1 EXAMINATION, PREPARATION & INSTALLATION

A. General:
   1. Verify that surfaces and internal wall blocking are ready to receive work and opening dimensions are as instructed by the manufacturer.
   2. Provide blocking as required for installation.
   3. Touchup surrounding finishes as necessary.

END OF SECTION

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SECTION 10 14 00

SIGNAGE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section Includes:
   1. Signage designed and configured for interior installation.
      a. Panel Room Signs.
      b. Vinyl Lettering.
   2. Providing all signage (materials, accessories, etc.) shown on drawings and required for a complete signage installation, whether or not specifically mentioned herein, except as specifically designated to be provided by another Contractor.

B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.2 SUBMITTALS

A. Submittal shall specifically include:
   1. Samples
      a. Full size sample of each interior plaque sign type with approved colors, lettering & Braille.
      b. Full size sample of vinyl storefront lettering with installation instructions.
   2. Product Data
      b. Interior panel sign system.
   3. Shop Drawings
      a. All interior signage and letters including complete signage schedule.

1.3 QUALITY ASSURANCE

A. Comply with signage requirements indicated in the Americans with Disabilities Act. Comply with all applicable provisions of the 2010 Standards for Accessible Design (the updated ADA Accessibility Guidelines, ADAAG - http://www.ada.gov/regs2010/2010ADAStandards/2010ADAstandards.htm), effective in March 2011 and ANSI A117.1-2017. Requirements include, but are not limited to the following:
   1. Tactile copy must be all upper case and raised at least 1/32". Tactile characters must be sans serif, not italic, not oblique, script or highly decorative.
   2. The stroke width of the upper case "I" has to be 15% of the letter height or less. The character width of the uppercase "O" must be between 55% and 100% of the height of the corresponding uppercase "I".
   3. The copy height for tactile information must be between 5/8" and 2". If separate visual characters are provided, raised characters can be ½" and need not contrast with the background.
   4. The distance between characters on tactile copy must be a minimum of 1/8" and a maximum of 4 times the character stroke width. These distances are measured between the closest points of adjacent characters.
   5. Spacing between lines of tactile copy needs to be a minimum of 135% and a maximum of 170% of the corresponding upper case "I" height (measured from baseline to baseline).
   6. Braille must be Grade II and positioned directly below the corresponding raised characters. If text is multi-lined, Braille is placed below the entire body of text and separated 3/8" from any other tactile characters and 3/8" minimum from raised borders and decorative elements.
   7. Visual characters and symbols, and their background, are to have a non-glare finish. The color of raised characters must contrast as much as possible with their background to make sure signs are more legible for persons with low vision.
   8. Pictograms, selected from International Standards, are to be located within a 6" vertical void and accompanying text descriptions are to be located directly below the pictogram.

A. Qualifications:

1. Installer Qualifications: Installer experienced to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.
2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within range of approved Samples and are assembled or installed to minimize contrast. Signs shall be installed level and plumb. Letters shall be correctly spaced per mfr. template.

C. Environmental Requirements: All interior sealants must meet the requirements of the South Coast Air Quality Management District (SCAQMD) Rule #1168 VOC limits.
1. Sealants: 250 g/L
2. Sealant Primers for Non-Porous Surfaces: 250 g/L
3. Sealant Primers for Porous Surfaces: 775 g/L

PART 2 PRODUCTS

2.1 INTERIOR PANEL SIGNS

A. Room Signs
1. Type: Custom designed sign, see Drawings.
2. Manufacturer: Signs Now Dayton, 937-427-3431, jim@signsnowdayton.com, Basis of Design.
3. Material: Thermoformed plastic.
4. Copy: Raised text, Braille and pictograms meeting ANSI A117.1 minimum requirements.
5. Materials
   a. Braille Rostors: Braille rostors to be applied to sign face by manufacturer's standard processes. Braille to be raised 1/32 inch min. from rostor's first surface. Precisely formed, uniformly opaque graphics to comply with relevant ADA regulations and the requirements indicated for size, style, spacing, content, position and colors. Computerized translation of sign copy to be the responsibility of the manufacturer.
   b. Fastener: .030 inch thick double-face tape, perimeter sealed with clear silicone.
   c. Colors: Painted finish. Antique bronze background with satin antique brass lettering, as selected by architect from the manufacturer's custom color palette.
6. Sign Design: See Drawings for typical sign configurations.
7. Required Signs at Exterior Entry Doors: See “Vinyl Storefront Lettering” this spec section. Locate per ADAAG and verify exact location with architect before installation.
8. See Required Signs Schedule on the Drawings for signs.
9. Approved interior plaque signage manufacturers:
   a. Signs Now Dayton
   b. Substitutions, see Division 1.

2.2 VINYL LETTERING AND PICTOGRAMS ON GLASS SURFACES

A. Custom lettering and pictograms for interior window surface installation.

B. Types:
1. Custom Vinyl Signage:
   a. Size, design, font and graphics as selected by architect. Provide at doors as indicated.
   b. Location: Field coordinate with architect.

PART 3 EXECUTION

3.1 INSTALLATION OF INTERIOR SIGNS

A. Plaque Signs: Sign locations shall conform to ANSI A117.1-2017. Adhere to wall with double-stick tape and seal edges with clear silicone. Coordinate exact locations of signage with Architect prior to Installation. Where signs are shown (or are required to be) installed on glass sidelights, adhere signs to glass and provide black vinyl (same size as signs) adhered to opposite side of glass to conceal back side of signs.

B. Mock-up: Provide mock-up of each sign type and hand lettering for approval by architect.

END OF SECTION

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SECTION 10 28 13

TOILET ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section Includes:

1. Toilet room accessories including grab bars, towel dispensers, soap dispensers, toilet paper dispensers, wood framed mirrors, mop holder with shelf, towel/robe hooks, coat hooks, napkin disposals and vendors, and other accessories.
2. All related materials and components for toilet accessory items not specified under another section but required for the work whether or not specifically referred to herein.

B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

C. Related Work in Other Sections

1. Dispenser support blocks	Section 06 00 00
2. Plumbing Fixtures	Division 22

1.2 SUBMITTALS

A. Submittal shall specifically include:

1. Product Data: Provide data on products, specified accessories.

1.3 QUALITY ASSURANCE

A. Grab bars and toilet room accessories shall meet requirements of all applicable codes and ordinances including the Americans with Disabilities Act (ADAAG).

1.4 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing.

B. Deliver inserts & anchoring devices set into concrete or masonry as required to prevent delaying the Work.

PART 2 PRODUCTS

2.1 TOILET ROOM ACCESSORIES

A. Materials (General)

1. Stainless Steel: AISI Type 302/304, with polished No. 4 finish.
2. Sheet Steel: Cold rolled, commercial quality ASTM A336.
3. Keys: Provide universal keys for internal access to accessories for servicing and re-supplying. Provide minimum of six keys to Owner's representative.
4. Fasteners: Exposed fasteners shall be vandal resistant.

B. Grab Bars: Stainless Steel

1. Mounting: Concealed, manufacturer's standard flanges and anchorages.
2. Clearance: 1-1/2 inch clearance between wall surface and inside face of bar.
3. Gripping Surfaces: Manufacturer's standard nonslip texture.
4. Heavy Duty Size: Outside diameter of 1-1/4 inches minimum.
5. Lengths/configurations as indicated. Typ. at all handicap fixtures.

6. Acceptable Products:
   a. Bobrick B-6806 Series with peened gripping surface

C. Paper Towel Dispensers / Disposal:
1. Scotts Pro Automatic Hard Roll Towel Dispenser #29739; Green core type. Surface mounted Roll Paper Towel Dispenser. Hard wired with AC adaptor. Stainless steel color. No Substitutions.
2. As needed, provide towel dispenser support blocking at each dispenser location as Specified in Section 06 00 00.

D. Soap Dispenser:
1. Scotts Model #32504, Automatic Surface Mounted Soap Dispenser. No Substitutions.
2. As needed, provide one soap dispenser support block at each dispenser location as Specified in Section 06 00 00.

E. Toilet Paper Dispenser:
1. Scotts Pro Jumbo Roll Coreless Toilet Tissue Dispenser. Model # 39709. No Substitutions.
2. Provide one toilet paper dispenser at each toilet stall and at each individual toilet room.

F. Mirror: Mirror shall have a stained solid hardwood frame. 1/4" tempered glass mirror.
1. Provide one 24" x 34" mirror above each unisex lavatory per drawings.
2. Acceptable Products:
   a. 24" Wide Ronbow Model 603124-F13 Café Walnut.

G. Mop and Broom Holders
1. Surface mounted mop and broom holders with shelf shall be Type 304 stainless steel with satin finish. Unit shall be 36 inches long with 4 spring loaded, rubber cam holders.
2. Provide one mop & broom holder at new mop sinks, typical.
3. Acceptable Products:
   a. Bobrick B-224

H. Towel/Robe Hooks: Cast brass, surface mounted towel/robe pin, satin chrome finish. Stainless steel fasteners. Hook shall not protrude more than 3 1/2" from face of wall.
1. Provide at the following locations:
   a. At single use toilet rooms, provide one hook on back side of door, unless additional locations are indicated.
   b. At other locations indicated.
2. Acceptable Products:
   a. Bobrick B-211

I. Sanitary Napkin Disposals: Surface Mounted sanitary napkin disposal shall be Type 304 stainless steel. Exposed surfaces shall have satin finish. Door shall have 90 degree return and be equipped with a concealed, full length stainless steel piano hinge. Unit shall have international graphic symbol identifying napkin disposal. Unit shall be furnished with a removable, leakproof, molded polyethylene or stainless steel receptacle. Receptacle shall have a capacity of 1.2 gallon min.
1. Provide one at each female stall and at each unisex toilet room.
2. Acceptable Products:
   a. Bobrick B-270

J. Diaper Changing Stations: Horizontal, Surface-Mounted Unit: Diaper changing stations with, mildew resistant, molded polyethylene body that folds horizontally against wall when not in use; projects not more than 4 inches from wall when closed; and is engineered to support a minimum of 250 pounds static weight when opened. Provide unit with shock absorbing mechanism and built-in dispenser for sanitary liners.
1. Provide one in Unisex Restroom #104.
2. Acceptable Manufacturers: Bobrick (Koala) Model KB200-SS Stainless Steel.

K. Pipe Wrap: Under Lavatory Guard: Insulating pipe covering for supply and drain piping assemblies, that prevent direct contact with and burns from piping, and allow service access without removing coverings. Antimicrobial, molded-plastic, white, paintable.
1. Provide at all exposed restroom lavatory drain traps.

2. Basis of Design product: TrueBro Lav Guard 2.

PART 3 EXECUTION

3.1 EXAMINATION, PREPARATION & INSTALLATION

A. General:
   1. Installation shall be by the Finish Carpentry Contractor as specified in Section 06 00 00.
   2. Verify that surfaces and internal wall blocking are ready to receive work and opening dimensions are as instructed by the manufacturer.

B. Toilet Room Accessories:

   1. Install accessories according to manufacturer's 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 and in coordination with other trades. Install accessories with vandal resistant fasteners.

END OF SECTION

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SECTION 11 68 13

PLAYGROUND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Playground Structures and Equipment:
   1. Freestanding elements.
   2. Inclusive elements.
   3. Surfacing.
   4. Swings.

1.2 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete.

B. Section 06 10 00 - Rough Carpentry.

1.3 SUBMITTALS

A. Submit under provisions of Section 01 30 00.

B. Product Data:
   1. Manufacturer's data sheets on each product to be used.
   2. Preparation instructions and recommendations.
   3. Storage and handling requirements and recommendations.
   4. Typical installation methods.

C. Verification Samples: Two representative units of each type, size, pattern, and color.

D. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of five years documented experience.

B. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.

C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

1.5 PRE-INSTALLATION CONFERENCE

A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store and handle in strict compliance with manufacturer's written instructions and recommendations.

B. Protect from damage due to weather, excessive temperature, and construction operations.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 WARRANTY

A. Manufacturer's standard limited warranty unless indicated otherwise.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Landscape Structures, which is located at 601 7th Street South, Delano, MN 55328. 1-888-438-6574.

B. Acceptable Manufacturer: Ramp to be by same manufacturer of existing mulch border system. It is believed to be by Playworld, Inc., field verify. Located at 1000 Buffalo Rd., Lewisburg, PA 17837. 1-570-522-9800.

C. No Substitutions permitted.

D. Elements:
1. Landscape Structures Bongo and Xylofun Panel attached to “Weevos Arches”: Model: 173583. Colors by architect.
   a. Ages: 2-5.
2. Playworld Accessible Swing Seat: Model: ZZXX0892. Field verify height of swing top rail and order appropriate chain length. Manufacturer’s standard color.
   a. Ages: 2-12.
   b. Weight Capacity: 52 lbs.
3. GameTime PlayCurb borders: Model Number: #4858.
   a. ADA Full Ramp System with PlayCurb Adaptors for GameTime PlayCurb border System.
   b. Minimum 42” wide.
   c. Includes: Spikes, end caps and other accessories for a complete installation.
4. GameTime Borders Accessibility PlayCurb Ramp: Model Number: #4862.
   a. GameTime 12” high PlayCurb border System.
   b. Includes: Spikes, end caps and other accessories for a complete installation.

E. Surfacing:
1. Loose Fill Rubber: GameTime “Loose Fill Rubber” or equal. Rubber mulch material specifically made for playground surfacing. Non-toxic and does not contain paint, chemicals, or additives. Made from recycled tires in the USA. See depths as indicated on drawings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until the substrates have been properly constructed and prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.

3.4 FIELD QUALITY CONTROL

A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

B. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.

3.5 CLEANING AND PROTECTION

A. Clean products in accordance with the manufacturers recommendations.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

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SECTION 12 13 00

SOLAR SCREEN SHADES

PART 1 GENERAL

1.01 SECTION INCLUDED

Solar Screen Shades to be custom manufactured to conform with site requirements. Provide all accessories, attachment hardware, labor, and equipment necessary to complete installation of this section.

1.02 REFERENCES

A. Flame retardant materials used shall meet the requirements of the National Fire Protection Association (NFPA) 701 Flame Test and California U.S. Title 19.

1.03 SUBMITTALS

A. Submit manufacturers descriptive literature indicating materials, finishes, construction and installation instructions and data verifying that the product meets requirements specified.
B. Shop drawings to indicate all fasteners, installation methods and clearances at head, jamb and sill for each mounting condition.
C. Samples to be submitted in sizes no less than 12” in length for colored materials. Submit a sample of all exposed surfaces and accessories needed to complete the installation. Color samples to be submitted to the architect for selection.
D. Submit all quality assurance documents relative to the installation, including design data, test reports, certificates issued by Underwriters Laboratory, manufacturer’s instructions, manufacturer’s installation instructions and close-out submittal documents if available.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver to project site in manufacturer’s original packaging.
B. Handle and store to prevent damage to materials, finishes and operating mechanisms.
C. All materials delivered to the site shall remain the property of the manufacturer until installation is complete and final payment is received.

1.05 PROJECT CONDITIONS

A. Prior to any materials being installed, the building shall be enclosed.
B. All interior finishes are to be completed and dry prior to any material installation.

1.06 SEQUENCING

A. Installation of all materials included in this section to be coordinated and complete prior to furniture placement on floor surface.

1.07 WARRANTY

A. Provide manufacturer’s standard one (1) year warranty against defects in materials and workmanship, beginning at date of substantial completion.

PART 2 PRODUCTS

2.01

A. Manufacturers: Hunter Douglas Window Shading Systems.

2.02 MANUAL OPERATING SYSTEM

A. Hunter Douglas Designer Screen bottom-up roller shade with UltraGlide and wand. Inside window opening mounted.
B. Adjustment-free system shall be provided that is controlled by a nylon chord and wand. The clutch system shall be comprised of multi-banded steel springs that create the pressure necessary to keep the shade in the desired position. Provide appropriate clutch for operational flexibility. Clutches are asymmetrical for right or left hand installation.
C. Roller tube shall be roll formed steel or extruded aluminum. Roller tube to be sized appropriately to minimize deflection.
D. Fabric to be attached to roller tube using two sided adhesive tape that allows for easy adjustment of fabric for leveling and removal of fabric panel without removing brackets.
E. Bottom hem of shade to be RF heat sealed pocket with enclosed hem bar.

2.04 SHADE ACCESSORIES

A. Extruded aluminum 3”and 4” fascia snaps onto the mounting brackets. Fascia color by architect.
B. Extruded aluminum 4” top/back cover to match fascia.
C. Provide wood blocking as necessary to support fascias and blind assemblies.
D. Wand color “Aspen White”. Bottom of wand to be minimum 5’-0” AFF.

2.05 SOLAR SCREEN FABRICS

A. Hunter Douglas – Empire 5%. Color: Dutchess Grey/Silver Pearl.
B. Local Sales: Enhancing Windows 937-266-4121.
C. See Schedule at end of section.

PART 3 EXECUTION

A. Install one window opening sample for approval by Owner and Architect.
B. Site inspection and preparation shall be the responsibility of the shade installer. The approval of all mounting surfaces, installation positioning within and around all openings and measurements shall be approved by architect and the blind installer.
C. Install all blinds in windows level and plumb and in accordance with manufacturer’s product data and approved shop drawings.
D. Any adjustments needed to units after the installation are the responsibility of the installer and will be performed free of charge for a period of one year.

3.01 SCHEDULE

A. All windows: Shade fabric to be Hunter Douglas Empire with 5% open area.
B. All shades receive prefinished metal fascia to conceal rollers and hardware. Provide wood blocking as necessary to support fascia and blind assemblies.

END OF SECTION

SECTION 12 30 00

CASEWORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section includes the following:
   1. Custom wood shelving units and standards with painted finish**.**
   2. All attachments, anchorage, ledgers and installation associated with the above.
   3. All misc. components associated with shelving including hardware, support brackets, etc.
   4. All manufactured work including all installation and related components not specified in another Section but required for the work whether or not specifically referred to herein.

B. Related Documents: The provisions of the General Conditions and the Sections included under Division 00 & 01 are included as a part of this Section as though bound herein.

1.2 QUALITY ASSURANCE

A. Qualifications:
   1. Installer Qualifications: Installer experienced to perform work of this section who specializes in the installation of work similar to that required for this project and who is acceptable to product manufacturer.
   2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.

B. Casework shall meet or exceed the minimum requirements established by ANSI/Architectural Woodwork Institute (AWI) Quality Standards - 0641-2019 Architectural Wood Casework Standard. Specific requirements set forth within this specification shall take precedence over the AWI Standard.

C. Product Designations: Drawings indicate sizes and configurations of casework using generic casework configuration number designations.

1.3 SUBMITTALS

A. Submittal shall specifically include:
   1. Shop Drawings showing:
      a. Plan and elevation views of every casework location.
      b. Dimensioned location for plumbing and electric rough-ins/cut-outs.
      c. Typical sections and details including complete description of casework construction and hardware.
      d. Installation details and instructions showing method of attachment of shelving to walls, etc.

1.4 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install casework until building is enclosed, wet-work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 2 PRODUCT

2.1 CUSTOM CASEWORK MATERIALS

A. Environmental Requirements for Composite Wood Products in Casework/Counters:
   1. Low-Emitting Materials: Adhesives and composite wood products shall not contain urea formaldehyde.
   2. Certified/Recycled Wood: All composite wood products shall either be 100% recycled or certified wood.
   3. Low VOC paint finishes, See Section 09 91 00 Painting.

B. Shelving Units:
   1. AWI Shelving Duty Level 1, 275lbs/Ft.

2. Plywood: ¾" birch hardwood plywood with laminated hardwood edge banding on front edge.
3. Shelving to have painted finish. Color: White. See Section 09 91 00 Painting.

C. Hardware and Accessories
1. Adjustable Shelf Supports: To be twin pin design with anti tip-up shelf restraints for both 3/4 inch shelves. Design to include keel to retard shelf slide-off, and slot for ability to mechanically attach shelf to clip. Load rating to be minimum 300 lbs. each support without failure.
   a. Knape and Vogt Heavy-Duty Shelf Standard, White. 16-gauge steel. Adjustable on 1" centers.
   b. Knape and Vogt Double Slot Shelf Brackets, White. Depth to match depth of shelves in each closet.
   c. At locations shown on the Drawings.

D. Sealants and Adhesives: All field-applied sealants shall comply with the following VOC limits:
1. Sealant primers: 250 g/L (Sealant Primers, Architectural Nonporous).
2. Sealants: 250 g/L (Architectural Sealant)

PART 3 EXECUTION

3.1 INSTALLATION

A. Field verify all measurements prior to fabrication of casework. Components not fitting existing conditions shall be replaced without additional cost to Owner. Verify that surfaces and internal wall blocking are ready to receive work.

B. Coordination:
1. Coordinate plumbing, power and communication wiring requirements and wiring locations with respective contractors for items requiring those connections.

C. Adjust for proper operation. Install plumb and level in accordance with manufacturer's instructions and in coordination with other trades.

D. Casework is to be installed plumb and true and is to be securely anchored in place. Scribe casework fillers as necessary for tight fit.

E. Cleanup: Wipe off surfaces to remove dirt and dust. Remove pencil or other marks, excess adhesive, etc. from casework. Remove all packaging, scraps, and debris resulting from installation activities. Remove surplus materials, rubbish and debris resulting from installation as work progresses and upon completion of work.

END OF SECTION

SECTION 22 07 19
PLUMBING PIPING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cellular glass insulation.

B. Expanded polystyrene insulation.

C. Flexible elastomeric cellular insulation.

D. Glass fiber insulation.

E. Polyethylene insulation.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

A. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2020a.

B. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation; 2021.

C. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2019.

D. ASTM D1056 - Standard Specification for Flexible Cellular Materials-Sponge or Expanded Rubber; 2020.

E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026a.

F. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2016.

G. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

1.05 QUALITY ASSURANCE

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.02 GLASS FIBER INSULATION

A. Manufacturers:
   1. Johns Manville Corporation: www.jm.com/#sle.
   2. Knauf Insulation; Earthwool 1000 Degree Pipe Insulation: www.knaufinsulation.com/#sle.
   3. Owens Corning Corporation; Fiberglas Pipe Insulation ASJ: www.ocbuildingspec.com/#sle.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Insulation: ASTM C547 and ASTM C795; rigid molded, noncombustible, with wicking material to transport condensed water to the outside of the system for evaporation to the atmosphere.
   1. Maximum Service Temperature: 220 degrees F (104 degrees C).

C. Vapor Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm (0.029 ng/(Pa s m)).

2.03 CELLULAR GLASS INSULATION

A. Insulation: ASTM C552, Type II, Grade 6.
   1. K (Ksi) Value: 0.35 (0.050) at 100 degrees F (38 degrees C).

2. Service Temperature Range: From 250 degrees F (121 degrees C) to 800 degrees F (427 degrees C).
3. Water Vapor Permeability: 0.005 perm inch (0.007 ng/(Pa s m)) maximum per inch.
4. Water Absorption: 0.5 percent by volume, maximum.

2.04 EXPANDED POLYSTYRENE INSULATION

A. Insulation: ASTM C578; rigid closed cell.
1. K (Ksi) Value: 0.23 at 75 degrees F (0.033 at 24 degrees C).
2. Maximum Service Temperature: 165 degrees F (74 degrees C).
3. Maximum Water Vapor Permeance: 5.0 perm inch (287 ng/(Pa s m)).

2.05 POLYETHYLENE INSULATION

A. Insulation: Flexible closed-cell polyethylene tubing, slit lengthwise for installation, complying with applicable requirements of ASTM D1056.
1. K (Ksi) Value: ASTM C177; 0.25 at 75 degrees F (0.036 at 24 degrees C).
2. Maximum Service Temperature: 200 degrees F (93 degrees C).
3. Density: 2 pcf (32 kg/cu m).
4. Maximum Moisture Absorption: 1.0 percent by volume.
5. Moisture Vapor Permeability: 0.05 perm inch (0.073 ng/(Pa s m)), when tested in accordance with ASTM E96/E96M.
6. Connection: Contact adhesive.

2.06 FLEXIBLE ELASTOMERIC CELLULAR INSULATION

A. Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1; use molded tubular material wherever possible.
1. Minimum Service Temperature: Minus 40 degrees F (Minus 40 degrees C).
2. Maximum Service Temperature: 220 degrees F (104 degrees C).
3. Connection: Waterproof vapor barrier adhesive.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that piping has been tested before applying insulation materials.

B. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Glass fiber insulated pipes conveying fluids below ambient temperature:
1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure-sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.
2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.

C. Glass fiber insulated pipes conveying fluids above ambient temperature:
1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure-sensitive adhesive. Secure with outward clinch expanding staples.
2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.

END OF SECTION

SECTION 22 10 05
PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sanitary waste piping, buried within 5 feet (1500 mm) of building.

B. Sanitary waste piping, above grade.

C. Domestic water piping, buried within 5 feet (1500 mm) of building.

D. Domestic water piping, above grade.

E. Storm drainage piping, buried within 5 feet (1500 mm) of building.

1. Storm drainage piping, above grade.
2. Natural gas piping, buried within 5 feet (1500 mm) of building.
3. Pipe flanges, unions, and couplings.
4. Pipe hangers and supports.
5. Pipe sleeve-seal systems.
6. Ball valves.
7. Balancing valves.
8. Pressure relief valves.
9. Control and service valves.
10. Strainers.

1.02 RELATED REQUIREMENTS

A. Section 08 31 00 - Access Doors and Panels.

B. Section 22 05 16 - Expansion Fittings and Loops for Plumbing Piping.

C. Section 22 05 53 - Identification for Plumbing Piping and Equipment.

1.03 REFERENCE STANDARDS

A. ANSI Z21.22 - American National Standard for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems; 2015.

B. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2018.

C. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2018.

D. ASME BPVC-IV - Boiler and Pressure Vessel Code, Section IV - Rules for Construction of Heating Boilers; 2019.

E. ASTM B32 - Standard Specification for Solder Metal; 2020.

F. ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes; 2020.

G. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2020.

H. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2020.

I. ASTM B813 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2016.

J. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2016.

K. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2015, with Editorial Revision (2018).

L. ASTM D2241 - Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series); 2020.

M. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40; 2017.

N. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2020.

O. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings; 2020.

P. ASTM D2855 - Standard Practice for the Two-Step (Primer & Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets; 2020.

Q. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2016.

R. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026a.

S. ASTM F876 - Standard Specification for Crosslinked Polyethylene (PEX) Tubing; 2020b.

T. ASTM F877 - Standard Specification for Crosslinked Polyethylene (PEX) Hot- and Cold-Water Distribution Systems; 2020.

U. ASTM F1960 - Standard Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing; 2020.

V. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; 2017.

W. AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast; 2017, with Errata (2018).

X. AWWA C550 - Protective Interior Coatings for Valves and Hydrants; 2017.

Y. CISPI 301 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications; 2017 (Revised 2018).

Z. CISPI 310 - Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications; 2012 (Revised 2018).

AA. ICC-ES AC01 - Acceptance Criteria for Expansion Anchors in Masonry Elements; 2015.

BB. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry Elements; 2015.

CC. ICC-ES AC193 - Acceptance Criteria for Mechanical Anchors in Concrete Elements; 2015.

DD. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2018.

EE. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010.

FF. NSF 61 - Drinking Water System Components - Health Effects; 2020.

GG. NSF 372 - Drinking Water System Components - Lead Content; 2020.

HH. PPI TR-4 - PPI Listing of Hydrostatic Design Basis (HDB), Hydrostatic Design Stress (HDS), Strength Design Basis (SDB), Pressure Design Basis (PDB), and Minimum Required Strength (MRS) Ratings For Thermoplastic Piping Materials or Pipe; 2017.

II. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with applicable codes.

B. Valves: Manufacturer's name and pressure rating marked on valve body.

C. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

B. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

B. Plenum-Installed Acid Waste Piping: Flame-spread index equal or below 25 and smoke-spread index equal or below 50 according to ASTM E84 or UL 723 tests.

2.02 SANITARY WASTE PIPING, BURIED WITHIN 5 FEET (1500 MM) OF BUILDING

A. PVC Pipe: ASTM D2665 or ASTM D3034.
   1. Fittings: PVC.
   2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.03 SANITARY WASTE PIPING, ABOVE GRADE

A. Cast Iron Pipe: CISPI 301, hubless, service weight.
   1. Fittings: Cast iron.
   2. Joints: CISPI 310, neoprene gaskets and stainless steel clamp-and-shield assemblies.

B. PVC Pipe: ASTM D1785 Schedule 40, or ASTM D2241 SDR 26 with not less than 150 psi (1 034 kPa) pressure rating.
   1. Fittings: ASTM D2466, PVC.
   2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.04 DOMESTIC WATER PIPING, BURIED WITHIN 5 FEET (1500 MM) OF BUILDING

A. Copper Pipe: ASTM B42, hard drawn.
   1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22 wrought copper and bronze.

B. Ductile Iron Pipe: AWWA C151/A21.51.
   1. Fittings: Ductile or gray iron, standard thickness.
   2. Joints: AWWA C111/A21.11, styrene butadiene rubber (SBR) or vulcanized SBR gasket with 3/4 inch (19 mm) diameter rods.

C. Cross-Linked Polyethylene (PEX) Pipe: ASTM F876 or ASTM F877.
   1. PPI TR-4 Pressure Design Basis:
      a. 160 psig (1102 kPa) at maximum 73 degrees F (23 degrees C).
      b. 100 psig (689 kPa) at maximum 180 degrees F (82 degrees C).
   2. Fittings: Brass and copper.
   3. Fittings: Brass and engineered polymer (EP) ASTM F1960.
   4. Joints: ASTM F1960 cold-expansion fittings.

2.05 DOMESTIC WATER PIPING, ABOVE GRADE

A. Copper Pipe: ASTM B88 (ASTM B88M), Type K (A), Drawn (H).
   1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
   2. Joints: ASTM B32, alloy Sn95 solder.

B. Cross-Linked Polyethylene (PEX) Pipe: ASTM F876 or ASTM F877.
   1. PPI TR-4 Pressure Design Basis:
      a. 160 psig (1102 kPa) at maximum 73 degrees F (23 degrees C).
      b. 100 psig (689 kPa) at maximum 180 degrees F (82 degrees C).

2. Fittings: Brass and copper.
3. Fittings: Brass and engineered polymer (EP) ASTM F1960.
4. Joints: Mechanical compression fittings.
5. Joints: ASTM F1960 cold-expansion fittings.

2.06 PIPE FLANGES, UNIONS, AND COUPLINGS

A. Unions for Pipe Sizes 3 inch (80 mm, DN) and Under:
1. Copper Tube and Pipe: Class 150 bronze unions with soldered joints.

2.07 PIPE HANGERS AND SUPPORTS

A. Provide hangers and supports that comply with MSS SP-58.
1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
3. Trapeze Hangers: Welded steel channel frames attached to structure.
4. Vertical Pipe Support: Steel riser clamp.
5. Floor Supports: Concrete pier or steel pedestal with floor flange; fixture attachment.

B. Plumbing Piping - Drain, Waste, and Vent:
1. Hangers for Pipe Sizes 1/2 to 1-1/2 inch (15 to 40 mm, DN): Carbon steel, adjustable swivel, split ring.
2. Hangers for Pipe Sizes {CH#351975}: {CH#351976}, adjustable swivel, split ring.
3. Hangers for Pipe Sizes 2 inch (50 mm, DN) and Over: Carbon steel, adjustable, clevis.
4. Wall Support for Pipe Sizes to 3 inch (80 mm, DN): Cast iron hook.
5. Wall Support for Pipe Sizes 4 inch (100 mm, DN) and Over: Welded steel bracket and wrought steel clamp.

C. Plumbing Piping - Water:
1. Hangers for Pipe Sizes 1/2 to 1-1/2 inch (15 to 40 mm, DN): Malleable iron, adjustable swivel, split ring.
2. Hangers for Cold Pipe Sizes 2 inch (50 mm, DN) and Over: Carbon steel, adjustable, clevis.
3. Wall Support for Pipe Sizes Up to 3 inch (80 mm, DN): Cast iron hook.
4. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
5. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

D. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
1. Concrete Wedge Expansion Anchors: Comply with ICC-ES AC193.
2. Masonry Wedge Expansion Anchors: Comply with ICC-ES AC01.
3. Concrete Screw Type Anchors: Comply with ICC-ES AC193.
4. Masonry Screw Type Anchors: Comply with ICC-ES AC106.
5. Other Types: As required.

2.08 PIPE SLEEVE-SEAL SYSTEMS

A. Modular Mechanical Seals:
1. Elastomer-based interlocking links continuously fill annular space between pipe and wall-sleeve, wall or casing opening.
2. Watertight seal between pipe and wall-sleeve, wall or casing opening.
3. Size and select seal component materials in accordance to service requirements.
4. Glass reinforced plastic pressure end plates.

2.09 BALL VALVES

A. Construction, 4 inch (100 mm, DN) and Smaller: MSS SP-110, Class 150, 400 psi (2760 kPa) CWP, bronze or ductile iron body, 304 stainless steel or chrome plated brass ball, regular port,

teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, threaded or grooved ends with union.

2.10 BALANCING VALVES

A. Construction: Class 125, brass or bronze body with union on inlet and outlet, temperature and pressure test plug on inlet and outlet, blowdown/backflush drain.

B. Manual Operated Y-Pattern Globe, Size 1/2 to 2 inch (15 to 50 mm, DN):
   1. Class 125, brass or bronze body, multi-turn handwheel, memory stop, variable orifice, soldered connections, dual PT (hot and cold pressure-temperature) test ports for 300 psi (2,068 kPa), minus 4 to 250 deg F (minus 20 to 121.1 deg C) WOG service.

C. Automatic Flow Limiting Cartridge, Size 3/4 inch (20 mm, DN):
   1. Class 125, brass or bronze body, stainless steel cartridge, threaded connections with built-in union, dual PT (hot and cold pressure-temperature) test ports for 400 psi (2,758 kPa), 0.5 gpm (1.9 Lpm) WOG service.

D. Calibration: Control flow within five percent of selected rating, over operating pressure range of 10 times minimum pressure required for control, maximum minimum pressure 3.5 psi (24 kPa).

2.11 PRESSURE RELIEF VALVES

A. ANSI Z21.22, AGA certified, bronze body, teflon seat, steel stem and springs, automatic, direct pressure actuated.

B. Pressure:

C. Pressure:
   1. ANSI Z21.22, AGA certified, bronze body, teflon seat, steel stem and springs, automatic, direct pressure actuated.
   2. ANSI Z21.22, AGA certified, bronze body, teflon seat, steel stem and springs, automatic, direct pressure actuated.
   3. AWWA C550 compliant cast iron, bronze or brass body, elastomeric diaphragm, seat disc and epoxy coated both internally and externally.
   4. AWWA C550 compliant cast iron, bronze or brass body, elastomeric diaphragm, seat disc and epoxy coated both internally and externally.
      a. Size: 1/2 to 40 inch (15 to 1,000 mm, DN), {CH#354981} ends.
      b. Size: {CH#354980}, Class 150 flange ends.
      c. Pressure Reducing Pilot-Operator Set
      d. Pressure Reducing Pilot-Operator Set
         1) Operating Range: 5 to 50 psi (0.35 to 35 Bar).
         2) Operating Range: {CH#352102}.
         3) Connected into brass, bronze, or stainless steel pilot piping and fittings.
         4) Connected into {CH#352103} pilot piping and fittings.
         5) Precision fixed-flow restrictor, pressure gauges, and isolation valves.
         6) Precision fixed-flow restrictor, pressure gauges, and isolation valves.
         7) Include pilot-side strainer on valve sizes above 4 inch (100 mm, DN).
         8) Include pilot-side strainer on valve sizes above {CH#352104}.

D. Temperature and Pressure:

E. Temperature and Pressure:
   1. ANSI Z21.22, AGA certified, bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, temperature relief maximum {CH#83453}, capacity ASME BPVC-IV certified and labelled.
   2. ANSI Z21.22, AGA certified, bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, temperature relief maximum 210 degrees F (98.9 degrees C), capacity ASME BPVC-IV certified and labelled.

2.12 CONTROL AND SERVICE VALVES

A. Flow Control Valves:

1. Size: 1/2 to 40 inch (15 to 1,000 mm, DN), Class 150 flange ends.
2. AWWA C550 compliant cast iron globe valve, elastomeric diaphragm, seat disc and epoxy coated both internally and externally.
3. Differential Pressure Based Rate-of-Flow Pilot-Operator:
   a. Operating Range: 25 to 50 psi (1.72 to 3.4 Bar).
   b. Connected into brass, bronze, or copper pilot piping and fittings.
   c. Precision fixed-flow restrictor, strainer, pressure gauges, and isolation valves.

2.13 STRAINERS

A. Size 1/2 inch (15 mm, DN) to 3 inch (80 mm, DN):
   1. Class 150, threaded forged bronze Y-pattern body, stainless steel perforated mesh screen with cap, and rated for 150 psi (1,034 kPa), 250 deg F (121.1 deg C) WOG service.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that excavations are to required grade, dry, and not over-excavated.

3.02 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

D. Install piping to maintain headroom, conserve space, and not interfere with use of space.

E. Group piping whenever practical at common elevations.

F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. See Section 22 05 16.

G. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

H. Provide access where valves and fittings are not exposed.
   1. Coordinate size and location of access doors with Section 08 31 00.

I. Establish elevations of buried piping outside the building to ensure not less than 3 ft (_____ m) of cover.

J. Establish elevations of buried piping outside the building to ensure not less than {CH#83171} of cover.

K. Install vent piping penetrating roofed areas to maintain integrity of roof assembly; see Section _____.

L. Provide support for utility meters in accordance with requirements of utility companies.

M. Prepare exposed, unfinished pipe, fittings, supports, and accessories for finish painting.

N. Install bell and spigot pipe with bell end upstream.

O. Install valves with stems upright or horizontal, not inverted. See Section 22 05 23.

P. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.

Q. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.

R. Sleeve pipes passing through partitions, walls, and floors.

S. Inserts:
   1. Provide inserts for placement in concrete formwork.
   2. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut above slab.

T. Pipe Hangers and Supports:
   1. Install hangers to provide minimum 1/2 inch (15 mm) space between finished covering and adjacent work.
   2. Place hangers within 12 inches (300 mm) of each horizontal elbow.
   3. Use hangers with 1-1/2 inch (40 mm) minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
   4. Support vertical piping at every other floor. Support riser piping independently of connected horizontal piping.
   5. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
   6. Provide copper plated hangers and supports for copper piping.
   7. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

U. Pipe Sleeve-Seal Systems:
   1. Install manufactured sleeve-seal systems in sleeves located in grade slabs and exterior concrete walls at piping entrances into building.
   2. Provide sealing elements of the size, quantity, and type required for the piping and sleeve inner diameter or penetration diameter.
   3. Locate piping in center of sleeve or penetration.
   4. Install field assembled sleeve-seal system components in annular space between sleeve and piping.
   5. Tighten bolting for a watertight seal.
   6. Install in accordance with manufacturer's recommendations.

V. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

3.04 APPLICATION

A. Use grooved mechanical couplings and fasteners only in accessible locations.

B. Install unions downstream of valves and at equipment or apparatus connections.

C. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.

D. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.

E. Install {CH#83194} valves for shut-off and to isolate equipment, part of systems, or vertical risers.

F. Install ball valves for throttling, bypass, or manual flow control services.

G. Install {CH#83196} valves for throttling, bypass, or manual flow control services.

H. Provide flow controls in water recirculating systems where indicated.

3.05 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Prior to starting work, verify system is complete, flushed, and clean.

B. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.

C. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.

3.06 SERVICE CONNECTIONS

A. Provide new water service complete with approved reduced pressure backflow preventer and water meter with by-pass valves{CH#83212}.

B. Provide new water service complete with approved{CH#83211} water meter with by-pass valves{CH#83213}.

END OF SECTION

SECTION 22 10 06
PLUMBING PIPING SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Drains.

B. Cleanouts.

C. Refrigerator valve and recessed box.

D. Water hammer arrestors.

E. Sumps.

F. Mixing valves.

1.02 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ASSE 1013 - Performance Requirements for Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers; 2011.

C. ASSE 1015 - Performance Requirements for Double Check Backflow Prevention Assemblies and Double Check Fire Protection Backflow Prevention Assemblies; 2011.

D. NSF 61 - Drinking Water System Components - Health Effects; 2020.

E. NSF 372 - Drinking Water System Components - Lead Content; 2020.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.

C. Shop Drawings: Indicate dimensions, weights, and placement of openings and holes.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Accept specialties on site in original factory packaging. Inspect for damage.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Specialties in Potable Water Supply Systems: Provide products that comply with NSF 61 and NSF 372 for maximum lead content.

2.02 DRAINS

A. Manufacturers:
   1. Jay R. Smith Manufacturing Company; _____: www.jrsmith.com/#sle.
   2. Zurn Industries, LLC; _____: www.zurn.com/#sle.
   3. Watts.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 CLEANOUTS

A. Manufacturers:
   1. Jay R. Smith Manufacturing Company; _____: www.jrsmith.com/#sle.
   2. Zurn Industries, LLC; _____: www.zurn.com/#sle.
   3. Watts.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Cleanouts at Exterior Unsurfaced Areas:

1. Line type with lacquered cast iron body and round epoxy coated gasketed cover.

C. Cleanouts at Interior Finished Floor Areas:
1. Lacquered cast iron body with anchor flange, reversible clamping collar, threaded top assembly, and round gasketed scored cover in service areas and round gasketed depressed cover to accept floor finish in finished floor areas.

2.04 HOSE BIBBS

A. Manufacturers:
1. Jay R. Smith Manufacturing Company; _____: www.jrsmith.com/#sle.
2. Watts Regulator Company; _____: www.wattsregulator.com/#sle.
3. Zurn Industries, LLC; _____: www.zurn.com/#sle.
4. Substitutions: See Section 01 60 00 - Product Requirements.

2.05 HYDRANTS

A. Manufacturers:
1. Jay R. Smith Manufacturing Company; _____: www.jrsmith.com/#sle.
2. Zurn Industries, LLC; _____: www.zurn.com/#sle.
3. Watts.
4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Wall Hydrants:
1. ASSE 1019; freeze resistant, self-draining type with chrome-plated wall plate hose thread spout, handwheel, and integral vacuum breaker.

2.06 WATER HAMMER ARRESTORS

A. Manufacturers:
1. Cash Acme, a brand of Reliance Worldwide Corporation: www.cashacme.com/#sle.
2. Jay R. Smith Manufacturing Company: www.jrsmith.com/#sle.
3. Watts Regulator Company, a part of Watts Water Technologies: www.wattsregulator.com/#sle.
4. Zurn Industries, LLC: www.zurn.com/#sle.
5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Water Hammer Arrestors:
1. Stainless steel construction, bellows type sized in accordance with PDI-WH 201, precharged suitable for operation in temperature range minus 100 to 300 degrees F (minus 73 to 149 degrees C) and maximum 250 psi (1700 kPa) working pressure.

2.07 MIXING VALVES

A. Thermostatic Mixing Valves:
1. Valve: Chrome-plated cast brass body, stainless steel or copper alloy bellows, integral temperature adjustment.

B. Pressure Balanced Mixing Valves:
1. Valve: Chrome-plated cast brass body, stainless steel cylinder, integral temperature adjustment.

2.08 RELIEF VALVES

A. Bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, capacities ASME certified and labelled.

2.09 FLOOR DRAIN TRAP SEALS

A. Description: Push-fit EPDM or silicone fitting with a one-way membrane.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.

C. Install floor cleanouts at elevation to accommodate finished floor.

D. Install approved potable water protection devices on plumbing lines where contamination of domestic water may occur; on boiler feed water lines, janitor rooms, fire sprinkler systems, premise isolation, irrigation systems, flush valves, interior and exterior hose bibbs.

E. Pipe relief from backflow preventer to nearest drain.

F. Install water hammer arrestors complete with accessible isolation valve on hot and cold water supply piping to lavatory sinks or flush valves.

G. Install water hammer arrestors complete with accessible isolation valve on hot and cold water supply piping to {CH#83839}.

END OF SECTION

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SECTION 22 30 00
PLUMBING EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water Heaters:

B. In-line circulator pumps.

1.02 REFERENCE STANDARDS

A. UL 174 - Standard for Household Electric Storage Tank Water Heaters; Current Edition, Including All Revisions.

B. UL 778 - Standard for Motor-Operated Water Pumps; Current Edition, Including All Revisions.

C. UL 1453 - Standard for Electric Booster and Commercial Storage Tank Water Heaters; Current Edition, Including All Revisions.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

PART 2 PRODUCTS

2.01 OWNER-FURNISHED PRODUCTS

A. Existing Products: Water Heater.

2.02 IN-LINE CIRCULATOR PUMPS

A. Manufacturers:
   1. Armstrong Fluid Technology; _____: www.armstrongfluidtechnology.com/#sle.
   2. Bell & Gossett, a brand of Xylem, Inc; _____: www.bellgossett.com/#sle.
   3. Substitutions: See Section 01 60 00 - Product Requirements.

B. Casing: Bronze, rated for 125 psig (860 kPa) working pressure, with stainless steel rotor assembly.

C. Impeller: Bronze.

D. Shaft: Alloy steel with integral thrust collar and two oil lubricated bronze sleeve bearings.

E. Seal: Carbon rotating against a stationary ceramic seat.

F. Drive: Flexible coupling.

2.03 ELECTRICAL WORK

A. Provide electrical motor driven equipment specified complete with motors, motor starters, controls, and wiring.

B. Electrical characteristics to be as specified or indicated.

C. Furnish motor starters complete with thermal overload protection and other appurtenances necessary for the motor control specified.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions required for applicable certifications.

B. Coordinate system, equipment, and piping work with applicable electrical, fuel, gas, vent, drain, and waste support interconnections as included or provided by other trades.

C. Pumps:

1. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.

END OF SECTION

SECTION 22 40 00
PLUMBING FIXTURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush valve water closets.

B. Lavatories.

C. Sinks.

D. Under-lavatory pipe supply covers.

E. Bathtubs and showers.

F. Electric water coolers.

G. Mop sinks.

1.02 RELATED REQUIREMENTS

A. Section 22 10 05 - Plumbing Piping.

B. Section 22 10 06 - Plumbing Piping Specialties.

C. Section 22 30 00 - Plumbing Equipment.

1.03 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ASHRAE Std 18 - Methods of Testing for Rating Drinking-Water Coolers with Self-Contained Mechanical Refrigeration.; 2013.

C. ASME A112.6.1M - Supports for Off-the-Floor Plumbing Fixtures for Public Use; 1997 (Reaffirmed 2017).

D. ASME A112.18.1 - Plumbing Supply Fittings; 2018, with Errata.

E. ASME A112.18.9 - Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures; 2011 (Reaffirmed 2017).

F. ASME A112.19.2 - Ceramic Plumbing Fixtures; 2018.

G. ASME A112.19.3 - Stainless Steel Plumbing Fixtures; 2017.

H. ASME A112.19.5 - Flush Valves and Spuds for Water Closets, Urinals, and Tanks; 2017.

I. ASSE 1070 - Performance Requirements for Water Temperature Limiting Devices; 2015.

J. ASTM C1822 - Standard Specification for Insulating Covers on Accessible Lavatory Piping; 2015.

K. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026a.

L. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

M. NSF 61 - Drinking Water System Components - Health Effects; 2020.

N. NSF 372 - Drinking Water System Components - Lead Content; 2020.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.

C. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept fixtures on-site in factory packaging. Inspect for damage.

B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Provide five year manufacturer warranty for electric water cooler.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.02 REGULATORY REQUIREMENTS

A. Comply with applicable codes for installation of plumbing systems.

B. Perform work in accordance with local health department regulations.

2.03 FLUSH VALVE WATER CLOSETS

A. Water Closets:
   1. Vitreous china, ASME A112.19.2, floor mounted, siphon jet flush action, china bolt caps.
   2. Flush Valve: Exposed (top spud).
   3. Flush Operation: Manual, oscillating handle.
   4. Handle Height: 44 inches (1117 mm) or less.
   5. Color: White.
   6. Manufacturers:
      a. American Standard, Inc: www.americanstandard-us.com/#sle.
      b. Kohler Company: www.kohler.com/#sle.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

B. Flush Valves:
   1. Valve Supply Size: 1 inch (25 mm, DN).
   2. Valve Outlet Size: 1-1/2 inches (40 mm, DN).
   3. Manufacturers:
      a. American Standard, Inc: www.americanstandard-us.com/#sle.
      b. Sloan Valve Company: www.sloanvalve.com/#sle.
      c. Zurn Industries, LLC; ZEMS Series: www.zurn.com/#sle.
      d. Substitutions: See Section 01 60 00 - Product Requirements.
   4. Manual Operated:
      a. Type: ASME A112.18.1 or ASME A112.19.5; diaphragm type complete with vacuum breaker stops, and accessories.
      b. Supplied Volume Capacity: 1.5 gal (5.7 L) per flush.

C. Toilet Seats:
   1. Manufacturers:
      a. American Standard, Inc: www.americanstandard-us.com/#sle.
      b. Bemis Manufacturing Company: www.bemismfg.com/#sle.
      c. Church Seat Company; _____: www.churchseats.com/#sle.
   2. Plastic: Black finish, open front, extended back, self-sustaining hinge, brass bolts, with cover.

2.04 LAVATORIES

A. Manufacturers:
   1. American Standard, Inc: www.americanstandard-us.com/#sle.
   2. Kohler Company: www.kohler.com/#sle.
   3. Substitutions: See Section 01 60 00 - Product Requirements.

B. Wall-Hung Basin:
   1. Vitreous China: ASME A112.19.2; white, rectangular basin with splash lip, front overflow, soap depression, and hanger. Size as indicated on drawings with 4-inch (100 mm) centerset spacing.
   2. Carrier:
      a. ASME A112.6.1M; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded studs for fixture hanger, bearing plate and studs.
      b. Manufacturers:
         1) Jay R. Smith MFG. Co; _____: www.jrsmith.com/#sle.
         2) Zurn Industries, LLC; Z1231: www.zurn.com/#sle.
         3) Watts.
         4) Substitutions: See Section 01 60 00 - Product Requirements.

2.05 UNDER-LAVATORY PIPE SUPPLY COVERS

A. General:
   1. Insulate exposed drainage piping including hot, cold and tempered water supplies under lavatories or sinks per ADA Standards.
   2. Construction: 1/8 inch (3.2 mm) PVC with antimicrobial, antifungal and UV resistant properties.
      a. Comply with ASME A112.18.9 for covers on accessible lavatory piping.
      b. Comply with ICC A117.1.

2.06 BATHTUBS AND SHOWERS

A. Manufacturers:
   1. American Bath Group: www.americanbathgroup.com/#sle.
   2. American Standard, Inc: www.americanstandard-us.com/#sle.
   3. Kohler Company: www.kohler.com/#sle.
   4. Substitutions: See Section 01 60 00 - Product Requirements.

B. Bathtub: ASME A112.19.1 enamelled cast iron bathtub with slip resistant surface, contoured front apron, 60 inches (1500 mm) long, color as selected.

C. Bath and Shower Trim: ASME A112.18.1; concealed shower and over rim supply with diverter spout, indexed handles, bent shower arm with adjustable spray ball joint showerhead with maximum 1.5 gpm, low-flow (5.6 L/min, low-flow) flow and escutcheon, lever operated pop-up waste and overflow.

2.07 ELECTRIC WATER COOLERS

A. Manufacturers:
   1. Elkay Manufacturing Company; _____: www.elkay.com/#sle.
   2. Oasis International; _____: www.oasiscoolers.com/#sle.
   3. Substitutions: See Section 01 60 00 - Product Requirements.

B. Water Cooler: Electric, mechanically refrigerated; surface mounted, ADA compliant; stainless steel top, vinyl on steel body, elevated anti-squirt bubbler with stream guard, automatic stream regulator, push button, mounting bracket; integral air cooled condenser and stainless steel grille.
   1. Capacity: 8 gph (30.3 Lph) of 50 degrees F (10 degrees C) water with inlet at 80 degrees F (27 degrees C) and room temperature of 90 degrees F (32 degrees C), when tested in accordance with ASHRAE Std 18.

2. Electrical: 115 VAC, 60 Hertz compressor, 6 foot (2 m) cord and plug for connection to electric wiring system including grounding connector.

C. Bottle Filler: Materials to match fountain.

2.08 MOP SINKS

A. Manufacturers:
1. Acorn Engineering Company: www.acorneng.com/#sle.
2. American Bath Group: www.americanbathgroup.com/#sle.
3. Just Manufacturing Company: www.justmfg.com/#sle.
4. Fiat.
5. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.

3.02 PREPARATION

A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.03 INSTALLATION

A. Install each fixture with trap, easily removable for servicing and cleaning.

B. Install components level and plumb.

C. Install and secure fixtures in place with wall supports and bolts.

D. Solidly attach water closets to floor with lag screws. Lead flashing is not intended to hold fixture in place.

3.04 INTERFACE WITH WORK OF OTHER SECTIONS

A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

3.05 ADJUSTING

A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.06 CLEANING

A. Clean plumbing fixtures and equipment.

B. See Section 01 74 19 - Construction Waste Management and Disposal for additional requirements.

3.07 PROTECTION

A. Protect installed products from damage due to subsequent construction operations.

B. Repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 23 05 17
SLEEVES AND SLEEVE SEALS FOR HVAC PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

1.02 RELATED REQUIREMENTS

A. Section 07 84 00 - Firestopping.

B. Section 22 07 19 - Plumbing Piping Insulation.

1.03 REFERENCE STANDARDS

A. ASTM C592 - Standard Specification for Mineral Fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type); 2016.

B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a (Reapproved 2017).

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate pipe materials used, jointing methods, supports, floor and wall penetration seals. Indicate installation, layout, weights, mounting and support details, and piping connections.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

B. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store sleeve and sleeve seals in shipping containers, with labeling in place.

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 INSTALLATION

A. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.

B. Install piping to conserve building space, to not interfere with use of space and other work.

C. Install piping and pipe sleeves to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

D. Provide sleeves when penetrating footings, floors, walls, and partitions. Seal pipe including sleeve penetrations to achieve fire resistance equivalent to fire separation required.
   1. Underground Piping: Caulk pipe sleeve watertight with lead and oakum or mechanically expandable chloroprene inserts with bitumen sealed metal components.
   2. Aboveground Piping:
      a. Pack solid using mineral fiber in compliance with ASTM C592.
      b. Fill space with an elastomer caulk to a depth of 0.50 inch (15 mm) where penetrations occur between conditioned and unconditioned spaces.
   3. All Rated Openings: Caulk tight with fire stopping material in compliance with ASTM E814 in accordance with Section 07 84 00 to prevent the spread of fire, smoke, and gases.
   4. Caulk exterior wall sleeves watertight with lead and oakum or mechanically expandable chloroprene inserts with mastic-sealed components.

E. Manufactured Sleeve-Seal Systems:
   1. Install manufactured sleeve-seal systems in sleeves located in grade slabs and exterior concrete walls at piping entrances into building.

2. Provide sealing elements of the size, quantity, and type required for the piping and sleeve inner diameter or penetration diameter.
3. Locate piping in center of sleeve or penetration.
4. Install field assembled sleeve-seal system components in annular space between sleeve and piping.
5. Tighten bolting for a water-tight seal.
6. Install in accordance with manufacturer's recommendations.

F. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

3.02 CLEANING

A. Upon completion of work, clean all parts of the installation.

B. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.

END OF SECTION

SECTION 23 05 29
HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Support and attachment components.

1.02 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

B. ASTM A47/A47M - Standard Specification for Ferritic Malleable Iron Castings; 1999, with Editorial Revision (2018).

C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024.

D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

E. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2023.

F. MFMA-4 - Metal Framing Standards Publication; 2004.

G. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2018.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for channel (strut) framing systems, nonpenetrating rooftop supports, post-installed concrete and masonry anchors, and thermal insulated pipe supports.

1.04 QUALITY ASSURANCE

A. Comply with applicable building code.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:
   1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of plumbing work.
   2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
   3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported with a minimum safety factor of 2. Include consideration for vibration, equipment operation, and shock loads where applicable.
   4. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
      a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
      b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

B. Prefabricated Trapeze-Framed Metal Strut Systems:
   1. Comply with MFMA-4.
   2. Comply with MFMA-4.

3. Strut Channel or Bracket Material:
4. Accessories: Provide bracket covers, cable basket clips, cable tray clips, clamps, conduit clamps, fire-retarding brackets, j-hooks, protectors, and vibration dampeners.

C. Hanger Rods:
1. Threaded zinc-plated steel unless otherwise indicated.

D. Pipe Hangers:
1. Split Ring Hangers:
a. Provide hinged split ring and yoke roller hanger with epoxy copper or plain finish.
b. Material: ASTM A47/A47M malleable iron or ASTM A36/A36M carbon steel.
c. Provide hanger rod and nuts of the same type and material for a given pipe run.
d. Provide coated or plated hangers to isolate steel hangers from dissimilar metal tube or pipe.
2. Material: Malleable iron, ASTM A47/A47M; or carbon steel, ASTM A36/A36M.
3. Material: Malleable iron, ASTM A47/A47M; or carbon steel, ASTM A36/A36M.
4. Provide coated or plated hangers to isolate steel hangers from dissimilar metal tube or pipe.
5. Provide coated or plated hangers to isolate steel hangers from dissimilar metal tube or pipe.

E. Dielectric Barriers: Provide between metallic supports and metallic piping and associated items of dissimilar type; acceptable dielectric barriers include rubber or plastic sheets or coatings attached securely to pipe or item.

F. Anchors and Fasteners:
1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
2. Concrete: Use expansion anchors or screw anchors.
3. Wood: Use wood screws.
4. Plastic and lead anchors are not permitted.
5. Post-Installed Concrete and Masonry Anchors: Evaluated and recognized by ICC Evaluation Service, LLC (ICC-ES) for compliance with applicable building code.

G. Pipe Installation Accessories:
1. Copper Pipe Supports:
2. Thermal Insulated, Surface-Mounted Pipe Supports:
a. Material: Carbon steel with epoxy copper or zinc finish.
b. Weather and UV light resistant foam, plastic, or rubber material with built-in strut. Maximum Load: 50 lb (22.7 kg) for single pipe or multiple landed on top strut.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive support and attachment components.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install anchors and fasteners in accordance with ICC Evaluation Services, LLC (ICC-ES) evaluation report conditions of use where applicable.

C. Provide independent support from building structure. Do not provide support from piping, ductwork, conduit, or other systems.

D. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.

E. Unless specifically indicated or approved by Architect, do not provide support from roof deck.

F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.

G. Provide thermal insulated pipe supports complete with hangers and accessories. Install thermal insulated pipe supports during the installation of the piping system.

H. Equipment Support and Attachment:
   1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
   2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
   3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
   4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

I. Secure fasteners according to manufacturer's recommended torque settings.

J. Remove temporary supports.

3.03 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements for additional requirements.

B. Inspect support and attachment components for damage and defects.

C. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

D. Correct deficiencies and replace damaged or defective support and attachment components.

END OF SECTION

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SECTION 23 05 53
IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nameplates.

B. Tags.

C. Pipe markers.

D. Ceiling tacks.

1.02 REFERENCE STANDARDS

A. ASTM D709 - Standard Specification for Laminated Thermosetting Materials; 2017.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.

C. Product Data: Provide manufacturers catalog literature for each product required.

PART 2 PRODUCTS

2.01 IDENTIFICATION APPLICATIONS

A. Air Handling Units: Nameplates.

B. Control Panels: Nameplates.

C. Dampers: Ceiling tacks, where located above lay-in ceiling.

D. Major Control Components: Nameplates.

E. Piping: Tags.

F. Pumps: Nameplates.

G. Valves: Tags and ceiling tacks where located above lay-in ceiling.

2.02 NAMEPLATES

A. Letter Color: White.

B. Letter Height: 1/4 inch (6 mm).

C. Plastic: Comply with ASTM D709.

2.03 TAGS

A. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch (40 mm) diameter.

B. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch (40 mm) diameter with smooth edges.

2.04 PIPE MARKERS

A. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure-sensitive adhesive backing and printed markings.

2.05 CEILING TACKS

A. Description: Steel with 3/4 inch (20 mm) diameter color coded head.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION

A. Install nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.

B. Install tags with corrosion resistant chain.

C. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.

END OF SECTION

SECTION 23 05 93
TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Testing, adjustment, and balancing of air systems.

B. Measurement of final operating condition of HVAC systems.

1.02 REFERENCE STANDARDS

A. AABC (NSTSB) - AABC National Standards for Total System Balance, 7th Edition; 2016.

B. ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems; 2008 (Reaffirmed 2017).

C. NEBB (TAB) - Procedural Standards for Testing Adjusting and Balancing of Environmental Systems; 2015, with Errata (2017).

D. SMACNA (TAB) - HVAC Systems Testing, Adjusting and Balancing; 2002.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Installer Qualifications: Submit name of adjusting and balancing agency and TAB supervisor for approval within 30 days after award of Contract.

C. TAB Plan: Submit a written plan indicating the testing, adjusting, and balancing standard to be followed and the specific approach for each system and component.
   1. Include at least the following in the plan:
      a. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.
      b. Copy of field checkout sheets and logs to be used, listing each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.
      c. Discussion of what notations and markings will be made on the duct and piping drawings during the process.
      d. Final test report forms to be used.
      e. Procedures for formal deficiency reports, including scope, frequency and distribution.

D. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
   1. Revise TAB plan to reflect actual procedures and submit as part of final report.
   2. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect and for inclusion in operating and maintenance manuals.
   3. Include actual instrument list, with manufacturer name, serial number, and date of calibration.
   4. Form of Test Reports: Where the TAB standard being followed recommends a report format use that; otherwise, follow ASHRAE Std 111.
   5. Units of Measure: Report data in both I-P (inch-pound) and SI (metric) units.
   6. Include the following on the title page of each report:
      a. Name of Testing, Adjusting, and Balancing Agency.
      b. Telephone number of Testing, Adjusting, and Balancing Agency.
      c. Project name.
      d. Project location.
      e. Report date.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. Perform total system balance in accordance with one of the following:
   1. AABC (NSTSB), AABC National Standards for Total System Balance.
   2. ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.

B. Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Completion of the project.

C. TAB Agency Qualifications:
   1. Company specializing in the testing, adjusting, and balancing of systems specified in this section.

3.02 EXAMINATION

A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:
   1. Systems are started and operating in a safe and normal condition.
   2. Temperature control systems are installed complete and operable.
   3. Proper thermal overload protection is in place for electrical equipment.
   4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
   5. Duct systems are clean of debris.
   6. Fans are rotating correctly.
   7. Fire and volume dampers are in place and open.
   8. Access doors are closed and duct end caps are in place.
   9. Air outlets are installed and connected.
   10. Duct system leakage is minimized.

B. Submit field reports. Report defects and deficiencies that will or could prevent proper system balance.

C. Beginning of work means acceptance of existing conditions.

3.03 PREPARATION

A. Hold a pre-balancing meeting at least one week prior to starting TAB work.
   1. Require attendance by all installers whose work will be tested, adjusted, or balanced.

B. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Architect to facilitate spot checks during testing.

3.04 ADJUSTMENT TOLERANCES

A. Air Handling Systems: Adjust to within plus or minus 5 percent of design for supply systems and plus or minus 10 percent of design for return and exhaust systems.

B. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.

C. Hydronic Systems: Adjust to within plus or minus 10 percent of design.

3.05 RECORDING AND ADJUSTING

A. Ensure recorded data represents actual measured or observed conditions.

B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.

C. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.

D. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.06 AIR SYSTEM PROCEDURE

A. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities at site altitude.

B. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.

C. Measure air quantities at air inlets and outlets.

D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.

E. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.

F. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.

G. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.

H. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.

I. Measure temperature conditions across outside air, return air, and exhaust dampers to check leakage.

J. Measure building static pressure and adjust supply, return, and exhaust air systems to provide required relationship between each to maintain approximately 0.05 inches (12.5 Pa) positive static pressure near the building entries.

3.07 SCOPE

A. Test, adjust, and balance the following:
   1. Air Handling Units.
   2. Fans.
   3. Air Terminal Units.

3.08 MINIMUM DATA TO BE REPORTED

A. Electric Motors:
   1. Manufacturer.
   2. Model/Frame.
   3. HP/BHP.
   4. Phase, voltage, amperage; nameplate, actual, no load.

B. Air Cooled Condensers:
   1. Identification/number.
   2. Location.
   3. Manufacturer.
   4. Model number.
   5. Serial number.
   6. Entering DB air temperature, design and actual.
   7. Leaving DB air temperature, design and actual.
   8. Number of compressors.

C. Air Moving Equipment:
   1. Location.
   2. Manufacturer.
   3. Model number.
   4. Arrangement/Class/Discharge.

5. Air flow, specified and actual.
6. Return air flow, specified and actual.
7. Total static pressure (total external), specified and actual.

D. Exhaust Fans:
1. Location.
2. Manufacturer.
3. Model number.
4. Air flow, specified and actual.
5. Total static pressure (total external), specified and actual.

END OF SECTION

SECTION 23 07 13
DUCT INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Duct insulation.

B. Duct liner.

C. Jacketing and accessories.

1.02 RELATED REQUIREMENTS

A. Section 22 05 53 - Identification for Plumbing Piping and Equipment.

1.03 REFERENCE STANDARDS

A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2017.

B. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2020a.

C. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).

D. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014 (Reapproved 2019).

E. ASTM C916 - Standard Specification for Adhesives for Duct Thermal Insulation; 2020.

F. ASTM C1071 - Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material); 2019.

G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026a.

H. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2016.

I. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015.

J. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).

K. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section with not less than three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labelled with manufacturer's identification, including product density and thickness.

B. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

1.07 FIELD CONDITIONS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.

B. Maintain temperature during and after installation for minimum period of 24 hours.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.02 GLASS FIBER, FLEXIBLE

A. Insulation: ASTM C553; flexible, noncombustible blanket.
   1. K (Ksi) value: 0.36 at 75 degrees F (0.052 at 24 degrees C), when tested in accordance with ASTM C518.
   2. Maximum Service Temperature: 1,200 degrees F (649 degrees C).

B. Vapor Barrier Jacket:
   1. Kraft paper with glass fiber yarn and bonded to aluminized film.
   2. Moisture Vapor Permeability: 0.02 perm inch (0.029 ng/(Pa s m)), when tested in accordance with ASTM E96/E96M.

2.03 GLASS FIBER, RIGID

A. Insulation: ASTM C612; rigid, noncombustible blanket.
   1. K (Ksi) Value: 0.24 at 75 degrees F (0.036 at 24 degrees C), when tested in accordance with ASTM C518.
   2. Maximum Water Vapor Absorption: 5.0 percent.

B. Vapor Barrier Jacket:
   1. Kraft paper with glass fiber yarn and bonded to aluminized film.

2.04 FLEXIBLE ELASTOMERIC CELLULAR INSULATION

A. Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1, in sheet form.
   1. Minimum Service Temperature: Minus 40 degrees F (Minus 40 degrees C).
   2. Maximum Service Temperature: 180 degrees F (82 degrees C).
   3. Connection: Waterproof vapor barrier adhesive.

2.05 JACKETING AND ACCESSORIES

A. Canvas Jacket: UL listed 6 oz/sq yd (220 g/sq m) plain weave cotton fabric treated with dilute fire-retardant lagging adhesive.

2.06 DUCT LINER

A. Elastomeric Foam Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1, in sheet form.
   1. Minimum Service Temperature: Minus 40 degrees F (Minus 40 degrees C).
   2. Maximum Service Temperature: 180 degrees F (82 degrees C).
   3. Fungal Resistance: No growth when tested according to ASTM G21.
   4. Apparent Thermal Conductivity: Maximum of 0.28 at 75 degrees F (0.045 at 24 degrees C).
   5. Connection: Waterproof vapor barrier adhesive.

B. Elastomeric Foam Adhesive: Air dried, contact adhesive, compatible with insulation. Comply with ASTM C916.

C. Glass Fiber Insulation: Non-corrosive, incombustible glass fiber complying with ASTM C1071; flexible blanket, rigid board, and preformed round liner board; impregnated surface and edges coated with poly vinyl acetate polymer, acrylic polymer, or black composite.
   1. Fungal Resistance: No growth when tested according to ASTM G21.
   2. Apparent Thermal Conductivity: Maximum of 0.31 at 75 degrees F (0.045 at 24 degrees C).

PART 3 EXECUTION

3.01 EXAMINATION

A. Test ductwork for design pressure prior to applying insulation materials.

B. Verify that surfaces are clean, foreign material removed, and dry.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install in accordance with NAIMA National Insulation Standards.

C. Insulated Ducts Conveying Air Below Ambient Temperature:
   1. Provide insulation with vapor barrier jackets.
   2. Finish with tape and vapor barrier jacket.
   3. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
   4. Insulate entire system, including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.

D. Insulated Ducts Conveying Air Above Ambient Temperature:

END OF SECTION

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SECTION 23 23 00
REFRIGERANT PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Piping.

B. Refrigerant.

C. Moisture and liquid indicators.

D. Valves.

E. Strainers.

F. Filter-driers.

1.02 RELATED REQUIREMENTS

A. Section 08 31 00 - Access Doors and Panels.

1.03 REFERENCE STANDARDS

A. ASHRAE Std 15 - Safety Standard for Refrigeration Systems and Designation and Classification of Refrigerants; 2019, with Errata (2020).

B. ASME B31.5 - Refrigeration Piping and Heat Transfer Components; 2020.

C. ASME B31.9 - Building Services Piping; 2020.

D. ASME BPVC-IX - Qualification Standard for Welding, Brazing, and Fuzing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators - Welding Brazing and Fusing Qualifications; 2019.

1.04 SYSTEM DESCRIPTION

1.05 SYSTEM DESCRIPTION

A. Where more than one piping system material is specified ensure system components are compatible and joined to ensure the integrity of the system is not jeopardized. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

B. Where more than one piping system material is specified ensure system components are compatible and joined to ensure the integrity of the system is not jeopardized. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

C. Provide pipe hangers and supports in accordance with 2024 O.M.C Section 305 unless indicated otherwise.

1.06 QUALITY ASSURANCE

A. Designer Qualifications: Design piping system under direct supervision of a Professional Engineer experienced in design of this type of work.

B. Installer Qualifications: Company specializing in performing the type of work specified in this section, with minimum 3 years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store piping and specialties in shipping containers with labeling in place.

B. Protect piping and specialties from entry of contaminating material by leaving end caps and plugs in place until installation.

C. Dehydrate and charge components such as piping and receivers, seal prior to shipment, until connected into system.

PART 2 PRODUCTS

2.01 SYSTEM DESCRIPTION

A. Filter-Driers:
   1. Use a filter-drier immediately ahead of liquid-line controls, such as thermostatic expansion valves, solenoid valves, and moisture indicators.

2.02 REGULATORY REQUIREMENTS

A. Comply with ASME B31.9 for installation of piping system.

B. Welding Materials and Procedures: Comply with ASME BPVC-IX and applicable state labor regulations.

C. Products Requiring Electrical Connection: Listed and classified by UL, as suitable for the purpose indicated.

PART 3 EXECUTION

3.01 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain-end ferrous pipe.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.02 INSTALLATION

A. Install refrigeration specialties in accordance with manufacturer's instructions.

B. Route piping in orderly manner, with plumbing parallel to building structure, and maintain gradient.

C. Install piping to conserve building space and avoid interference with use of space.

D. Group piping whenever practical at common elevations and locations. Slope piping one percent in direction of oil return.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Pipe Hangers and Supports:
   1. Install in accordance with ASME B31.5.
   2. Support horizontal piping as indicated.
   3. Install hangers to provide minimum 1/2 inch (13 mm) space between finished covering and adjacent work.
   4. Place hangers within 12 inches (300 mm) of each horizontal elbow.
   5. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

G. Provide clearance for installation of insulation and access to valves and fittings.

H. Provide access to concealed valves and fittings. Coordinate size and location of access doors with Section 08 31 00.

I. Follow ASHRAE Std 15 procedures for charging and purging of systems and for disposal of refrigerant.

J. Fully charge completed system with refrigerant after testing.

3.03 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Test refrigeration system in accordance with ASME B31.5.

C. Pressure test system with dry nitrogen to 200 psi (1380 kPa). Perform final tests at 27 inches (92 kPa) vacuum and 200 psi (1380 kPa) using halide torch. Test and repair piping until no leakage.

END OF SECTION

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SECTION 23 31 00
HVAC DUCTS AND CASINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal ducts.

B. Metal ductwork.

C. Metal ductwork.

D. Nonmetal ductwork.

E. Nonmetal ductwork.

1.02 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2020.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2026a.

D. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry Elements; 2015.

E. ICC-ES AC193 - Acceptance Criteria for Mechanical Anchors in Concrete Elements; 2015.

F. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2018.

G. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Provide UL Class 1 ductwork, fittings, hangers, supports, and appurtenances in accordance with NFPA 90A and SMACNA (DCS) guidelines unless stated otherwise.

B. Provide metal duct unless otherwise indicated. Fibrous glass duct can be substituted at the Contractor's option.

C. Acoustical Treatment: Provide sound-absorbing liners and sectional silencers for metal-based ducts in compliance with Section 23 33 19.

D. Duct Shape and Material in accordance with Allowed Static Pressure Range:

E. Duct Sealing and Leakage in accordance with Static Pressure Class:

F. Duct Fabrication Requirements:

1. Duct and Fitting Fabrication and Support: SMACNA (DCS) including specifics for continuously welded round and oval duct fittings.
2. Use reinforced and sealed sheet-metal materials at recommended gauges for indicated operating pressures or pressure class.
3. Construct tees, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide airfoil turning vanes of perforated metal with glass fiber insulation.
4. Provide turning vanes of perforated metal with glass fiber insulation when acoustical lining is indicated.
5. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
6. Provide turning vanes of perforated metal with glass fiber insulation when an acoustical lining is required.

7. Where ducts are connected to exterior wall louvers and duct outlet is smaller than louver frame, provide blank-out panels sealing louver area around duct. Use same material as duct, painted black on exterior side; seal to louver frame and duct.

G. Ducts: Galvanized steel, unless otherwise indicated.

H. Ducts: Galvanized steel, unless otherwise indicated.

I. Low Pressure Supply (Heating Systems): 2 inch wg (500 Pa) pressure class, galvanized steel.

J. Low Pressure Supply (System with Cooling Coils): 2 inch wg (500 Pa) pressure class, galvanized steel.

K. Return and Relief: 1 inch wg (250 Pa) pressure class{CH#336379}.

L. General Exhaust: 1 inch wg (250 Pa) pressure class, galvanized steel.

M. Kitchen Cooking Hood Exhaust: 1 inch wg (250 Pa) pressure class, galvanized steel.

2.02 MATERIALS

2.03 MATERIALS

A. Galvanized Steel for Ducts: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G60/Z180 coating.

B. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.

C. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.
1. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.
2. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.
3. Surface Burning Characteristics: Flame spread index of zero and smoke developed index of zero, when tested in accordance with ASTM E84.
4. Surface Burning Characteristics: Flame spread index of zero and smoke developed index of zero, when tested in accordance with ASTM E84.

D. Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

E. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:

F. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
1. Concrete Wedge Expansion Anchors: Complying with ICC-ES AC193.
2. Concrete Wedge Expansion Anchors: Complying with ICC-ES AC193.
3. Masonry Screw Type Anchors: Complying with ICC-ES AC106.
4. Masonry Screw Type Anchors: Complying with ICC-ES AC106.
5. Other Types: As required.
6. Other Types: As required.

2.04 DUCTWORK FABRICATION

2.05 DUCTWORK FABRICATION

A. Fabricate and support in accordance with SMACNA (DCS) and as indicated.

B. Fabricate and support in accordance with SMACNA (DCS) and as indicated.

C. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

D. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide air foil turning vanes of perforated metal with glass fiber insulation.

E. Provide turning vanes of perforated metal with glass fiber insulation when acoustical lining is indicated.

F. Provide turning vanes of perforated metal with glass fiber insulation when acoustical lining is indicated.

G. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

H. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.

I. Fabricate continuously welded round and oval duct fittings in accordance with SMACNA (DCS).

J. Fabricate continuously welded round and oval duct fittings in accordance with SMACNA (DCS).

2.06 METAL DUCTS

A. Material Requirements:
   1. Galvanized Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G60/Z180 coating.

B. Spiral Ducts: Round spiral lockseam duct with galvanized steel outer wall.

C. Spiral Ducts: Round spiral lockseam duct with galvanized steel outer wall.
   1. Manufacture in accordance with SMACNA (DCS).
   2. Manufacture in accordance with SMACNA (DCS).

D. Round Ducts: Round lockseam duct with galvanized steel outer wall.

E. Round Ducts: Round lockseam duct with galvanized steel outer wall.
   1. Manufacture in accordance with SMACNA (DCS).
   2. Manufacture in accordance with SMACNA (DCS).

F. Flexible Ducts: Two ply vinyl film supported by helically wound spring steel wire.

G. Flexible Ducts: Two ply vinyl film supported by helically wound spring steel wire.
   1. Pressure Rating: 10 inches wg (2.50 kPa) positive and 1.0 inches wg (250 Pa) negative.
   2. Maximum Velocity: 4000 fpm (20.3 m/sec).
   3. Temperature Range: Minus 10 degrees F to 160 degrees F (Minus 23 degrees C to 71 degrees C).

H. Flexible Ducts: Black polymer film supported by helically wound spring steel wire.

I. Flexible Ducts: Black polymer film supported by helically wound spring steel wire.
   1. Pressure Rating: 4 inches wg (1000 Pa) positive and {CH#369481} negative.
   2. Maximum Velocity: 4000 fpm (20.3 m/sec).
   3. Temperature Range: Minus 20 degrees F to 175 degrees F (Minus 28 degrees C to 79 degrees C).

PART 3 EXECUTION

3.01 INSTALLATION

A. Install, support, and seal ducts in accordance with SMACNA (DCS).

B. Install products following the manufacturer's instructions.

C. Duct sizes indicated are precise inside dimensions. For lined ducts, maintain sizes inside lining.

D. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

E. Connect terminal units to supply ducts directly or with one foot (300 mm) maximum length of flexible duct. Do not use flexible duct to change direction.

END OF SECTION

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SECTION 23 34 23
HVAC POWER VENTILATORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cabinet exhaust fans.

1.02 RELATED REQUIREMENTS

A. Section 23 05 48 - Vibration and Seismic Controls for HVAC.

1.03 REFERENCE STANDARDS

A. AMCA (DIR) - (Directory of) Products Licensed Under AMCA International Certified Ratings Program; 2015.

B. AMCA 99 - Standards Handbook; 2016.

C. AMCA 204 - Balance Quality and Vibration Levels for Fans; 2005 (Reaffirmed 2012).

D. AMCA 210 - Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating; 2016.

E. AMCA 300 - Reverberant Room Method for Sound Testing of Fans; 2014.

F. AMCA 301 - Methods for Calculating Fan Sound Ratings from Laboratory Test Data; 2014.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on fans and accessories, including fan curves with specified operating point plotted, power, rpm, sound power levels at rated capacity, and electrical characteristics and connection requirements.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

PART 2 PRODUCTS

2.01 POWER VENTILATORS - GENERAL

A. Static and Dynamically Balanced: Comply with AMCA 204.

B. Performance Ratings: Comply with AMCA 210, bearing certified rating seal.

C. Sound Ratings: Comply with AMCA 301, tested to AMCA 300, bearing certified sound ratings seal.

D. Fabrication: Comply with AMCA 99.

E. Electrical Components: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Hung Cabinet Fans:
   1. Install fans with resilient mountings and flexible electrical leads, see Section 23 05 48.

END OF SECTION

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SECTION 23 37 00
AIR OUTLETS AND INLETS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Diffusers:
   1. Rectangular ceiling diffusers.
   2. Round ceiling diffusers.

B. Registers/grilles:
   1. Ceiling-mounted, egg crate exhaust and return register/grilles.
   2. Wall-mounted, supply register/grilles.
   3. Wall-mounted, exhaust and return register/grilles.

C. Duct-mounted supply and return registers/louvers.

1.02 REFERENCE STANDARDS

A. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

B. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

PART 2 PRODUCTS

2.01 ROUND CEILING DIFFUSERS

A. Type: Round, adjustable pattern, stamped or spun, multicore diffuser to discharge air in 360-degree pattern, with sectorizing baffles where indicated. Project diffuser collar not more than 1 inch (25 mm) above ceiling. In plaster ceilings, provide plaster ring and ceiling plaque.

B. Fabrication: Steel with baked enamel finish.

C. Color: As indicated.

2.02 RECTANGULAR CEILING DIFFUSERS

A. Type: Provide square, stamped, multi-core diffuser to discharge air.

B. Connections: Round.

C. Frame: Provide surface mount, snap-in, and inverted T-bar type.

D. Fabrication: Steel with baked enamel finish.

2.03 DUCT-MOUNTED SUPPLY AND RETURN REGISTERS/LOUVERS

A. Type: Duct-mounted, rectangular register for round-spiral duct with adjustable pivot-ended blades, end caps, built-in volume damper, and dual cover flanges to lay flush on duct surface regardless of diameter. Performance to match manufacturer's catalog data.

2.04 CEILING EGG CRATE EXHAUST AND RETURN GRILLES

A. Type: Egg crate style face consisting of 1/2 by 1/2 by 1/2 inch (13 by 13 by 13 mm) grid core.

B. Fabrication: Grid core consists of aluminum with mill aluminum finish.

C. Color: As indicated.

D. Frame: Channel lay-in frame for suspended grid ceilings.

E. Accessories: Provide integral gang and face operated opposed blade damper, 2 inch filter frame (50 mm), plaster frame, square mesh insect screen, square mesh debris screen, prescored molded fiberglass back, and 45 degree angled eggcrate or other similar provisions for visual blocking such as angled louver or 90 degree duct elbow.

2.05 WALL SUPPLY REGISTERS/GRILLES

A. Type: Streamlined and individually adjustable blades, 3/4" maximum spacing with spring or other device to set blades, nominal plus 1-3/4" face, double deflection.

B. Fabrication: Steel with 20 gauge, 0.0359 inch (0.91 mm) minimum frames and 22 gauge, 0.0299 inch (0.76 mm) minimum blades, steel and aluminum with 20 gauge, 0.0359 inch (0.91 mm) minimum frame, or aluminum extrusions, with factory baked enamel finish.

C. Color: As indicated.

2.06 WALL EXHAUST AND RETURN REGISTERS/GRILLES

A. Type: Streamlined blades, 3/4 inch (19 mm) minimum depth, 3/4 inch (19 mm) maximum spacing, with spring or other device to set blades, vertical face.

B. Color: As indicated on the drawings.

C. Gymnasiums: Provide front pivoted or welded in place blades, securely fastened to be immobile.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Comply with SMACNA (ASMM) for flashing/counter-flashing of roof penetrations and supports for roof curbs and roof mounted equipment.

C. Check location of outlets and inlets and make necessary adjustments in position to comply with architectural features, symmetry, and lighting arrangement.

D. Install diffusers to ductwork with air tight connection.

E. Provide balancing dampers on duct take-off to diffusers and grilles and registers, despite whether dampers are specified as part of diffuser, or grille and register assembly.

END OF SECTION

SECTION 23 81 29
VARIABLE REFRIGERANT FLOW HVAC SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Refrigerant piping.

B. Indoor units.

C. Variable refrigerant volume HVAC system includes:

D. Variable refrigerant volume HVAC system includes:
   1. Outdoor/condensing unit(s).
   2. Outdoor/condensing unit(s).
   3. Indoor/evaporator units.
   4. Indoor/evaporator units.
   5. Refrigerant piping.
   6. Refrigerant piping.
   7. Control panels.
   8. Control panels.
   9. Control wiring.
   10. Control wiring.

1.02 RELATED REQUIREMENTS

A. Section 22 10 05 - Plumbing Piping: Condensate drain piping.

B. Section 23 23 00 - Refrigerant Piping.

1.03 REFERENCE STANDARDS

A. AHRI 210/240 - Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment; 2008, Including All Addenda.

B. AHRI 1230 - Performance Rating of Variable Refrigerant Flow (VRF) Multi-Split Air-Conditioning and Heat Pump Equipment; 2021.

C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

D. ASHRAE (FUND) - ASHRAE Handbook - Fundamentals; Most Recent Edition Cited by Referring Code or Reference Standard.

E. ASHRAE (FUND) - ASHRAE Handbook - Fundamentals; Most Recent Edition Cited by Referring Code or Reference Standard.

F. ITS (DIR) - Directory of Listed Products; current edition.

G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. UL 1995 - Heating and Cooling Equipment; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Pre-Bid Submittals: For proposed substitute systems/products, as defined in PART 2, and alternate systems/products, as defined above, proposer shall submit all data described in this article, under the terms given for substitutions stated in PART 2.

C. Product Data: Submit manufacturer's standard data sheets showing the following for each item of equipment, marked to correlate to equipment item markings indicated in Contract Documents:
   1. Outdoor Units:
      a. Refrigerant Type and Size of Charge.

b. Output and Input Cooling Capacity: Btu/h (W).
c. Output and Input Heating Capacity: Btu/h (W).
d. Cooling Input Power: Btu/h (kW).
e. Heating Input Power: Btu/h (kW).
f. Operating Temperature Range, Cooling and Heating.
g. Fan Capacity: Flow in cfm (L/sec) with respective fan curves.
h. Fan Curves.
i. Fan Curves.
j. External Static Pressure (ESP): In-wc (Pa).
k. Sound Pressure Level: dB(A).
l. Electrical Data: Complete including motor size.
    1) Maximum Circuit Amps (MCA).
    2) Maximum Fuse Amps (MFA).
    3) Maximum Starting Current (MSC).
    4) Full Load Amps (FLA).
    5) Total Over Current Amps (TOCA).
    6) Fan Motor: HP (W).
m. Weight and Dimensions.
n. Weight and Dimensions.
o. Maximum number of indoor units that can be served.
p. Maximum refrigerant piping run from outdoor unit to indoor unit(s).
q. Maximum height difference between outdoor unit to Indoor unit(s), both above and below.
r. Control Options.
s. Control Options.

2. Indoor Units:
    a. Output and Input Cooling Capacity: Btu/h (W).
    b. Cooling Input Power: Btu/h (kW).
    c. Heating Input Power: Btu/h (kW).
    d. Fan Capacity: Flow in cfm (L/sec) with respective fan curves.
    e. Fan Curves.
    f. External Static Pressure (ESP): In-wc (Pa).
    g. Sound Pressure level: dB(A).
    h. Electrical Data: Complete including motor size.
        1) Maximum Circuit Amps (MCA).
        2) Maximum Fuse Amps (MFA).
        3) Maximum Starting Current (MSC).
        4) Full Load Amps (FLA).
        5) Total Over Current Amps (TOCA).
        6) Fan Motor: HP (W).
    i. Maximum Lift of Built-in Condensate Pump.
    j. Weight and Dimensions.
    k. Control Options.
3. Control Panels: Complete data of controllers, input-output points, and zones.

D. Shop Drawings: Installation drawings custom-made for this project; include as-designed HVAC layouts, locations of equipment items, refrigerant piping sizes and locations, condensate piping sizes and locations, remote sensing devices, control components, electrical connections, control wiring connections. Include:
1. Detailed piping diagrams, with branch balancing devices.
2. Condensate piping routing, size, and pump connections.
3. Detailed power wiring diagrams.
4. Detailed control wiring diagrams.

5. Locations of required access through fixed construction.
6. Drawings required by manufacturer.

E. Warranty: Executed warranty, made out in Owner's name.

F. Specimen Warranty: Copy of manufacturer's warranties.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications:
1. Company that has been manufacturing variable refrigerant volume heat pump equipment for at least 5 years.

B. Installer Qualifications: Trained and approved by manufacturer of equipment.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle equipment and refrigerant piping according to manufacturer's recommendations.

1.07 WARRANTY

A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.

B. Compressors: Provide manufacturer's warranty for 6 years from date of installation.

PART 2 PRODUCTS

2.01 HVAC SYSTEM DESIGN

2.02 HVAC SYSTEM DESIGN

A. System Operation: Refer to drawings for system operation.

B. System Operation:
1. Provide a complete functional system that achieves the specified performance based on the specified design conditions and that is designed and constructed according to the equipment manufacturer's requirements.
2. Conditioned spaces are indicated on drawings.
3. Outdoor/Condenser unit locations are indicated on drawings.
4. Indoor/Evaporator unit locations are indicated on drawings.
5. Branch selector unit locations are indicated on drawings.
6. Required equipment unit capacities are indicated on drawings.
7. Refrigerant piping sizes are not indicated on drawings.

C. Cooling Mode Interior Performance:

D. Cooling Mode Interior Performance:
1. Daytime Setpoint: 68 degrees F (20 degrees C), plus or minus 2 degrees F (1 degrees C).
2. Night Setback: 78 degrees F (25 degrees C).

E. Heating Mode Interior Performance:

F. Heating Mode Interior Performance:
1. Daytime Setpoint: 68 degrees F (20 degrees C), plus or minus 5 degrees F.
2. Night Setback: 60 degrees F (15 degrees C).

G. Outside Air Design Conditions:

H. Outside Air Design Conditions:
1. Summer Outside Air Design Temperature: 0.4 percent cooling design condition listed in ASHRAE Fundamentals Handbook - ASHRAE (FUND).
2. Summer Outside Air Design Temperature: {CH#160222} cooling design condition listed in ASHRAE Fundamentals Handbook - ASHRAE (FUND).
3. Winter Outside Air Design Temperature: {CH#160226} heating design condition listed in ASHRAE Fundamentals Handbook - ASHRAE (FUND).

4. Winter Outside Air Design Temperature: 99.6 percent heating design condition listed in ASHRAE Fundamentals Handbook - ASHRAE (FUND).

I. Energy Design Wind Speed: 25 mph (40 km/h).

J. Operating Temperature Ranges:
1. Cooling Mode Operating Range: 23 degrees F (minus 5 degrees C) to 100 degrees F dry bulb.
2. Heating Mode Operating Range: -20 degrees F to 60 degrees dry bulb

K. Controls: Provide the following control interfaces:
1. For Each Indoor/Evaporator Unit: One wall-mounted wired "local" controller, with temperature sensor; locate where indicated.
2. One central remote control panel for entire system; locate where directed.

L. Local Controllers: Wall-mounted, wired, containing temperature sensor.

2.03 VARIABLE REFRIGERANT FLOW SYSTEM

A. Minimum System Requirements:
1. System Testing, Capacity Rating, and Performance:
a. AHRI 1230 when cooling capacity is equal or greater than 65,000 Btu/h (19 kWh).
b. AHRI 210/240 when cooling capacity is below 65,000 Btu/h (19 kWh).
2. Safety Certification: Bear UL 1995 tested and ITS (DIR) listed certification label.
3. Outdoor Units: Furnish installation and surface support hardware products in accordance with ASCE 7 for wind restraint.
4. Cooling Mode Interior Performance:
a. Daytime Setpoint: 68 degrees F (20 degrees C), plus or minus 2 degrees F (1 degrees C).
b. Setpoint Range: 57 degrees F (14 degrees C) to 77 degrees F (25 degrees C).
c. Night Setback: 78 degrees F (25 degrees C).
d. Interior Relative Humidity: 20 percent, maximum.

B. All Units: Factory assembled, wired, and piped.

C. All Units: Factory assembled, wired, and piped.
1. Performance Certification: AHRI Certified; www.ahrinet.org.
2. Performance Certification: AHRI Certified; www.ahrinet.org.
3. Safety Certification: Tested to UL 1995 by UL or Intertek-ETL, listed in ITS (DIR), and bearing the certification label.
4. Safety Certification: Tested to UL 1995 by UL or Intertek-ETL, listed in ITS (DIR), and bearing the certification label.
5. Provide units capable of serving the zones indicated.
6. Provide units capable of serving the zones indicated.

D. Refrigerant Piping:

E. Refrigerant Piping:
1. Insulate each refrigerant line individually between the condensing and indoor units.
2. Insulate each refrigerant line individually between the condensing and indoor units.

2.04 REFRIGERANT PIPING

A. Two-Pipe Run: Provide low-pressure vapor and high-pressure vapor gas pipes for each indoor unit selected for seasonal heating or cooling service.

B. Three-Pipe Run: Provide low-pressure vapor, high-pressure vapor gas, and liquid pipes for each indoor unit selected for off-season heating and cooling changeover service.

C. Refrigerant Flow Balancing: Provide refrigerant piping joints and headers specifically designed to ensure proper refrigerant balance and flow for optimum system capacity and performance; T-style joints are prohibited.

2.05 OUTDOOR/CONDENSING UNITS

2.06 OUTDOOR/CONDENSING UNITS

A. Outdoor/Condensing Units: Air-cooled DX refrigeration units, designed specifically for use with indoor/evaporator units; factory assembled and wired.

B. Outdoor/Condensing Units: Air-cooled DX refrigeration units, designed specifically for use with indoor/evaporator units; factory assembled and wired.
   1. Variable Volume Control: Modulate compressor capacity automatically to maintain constant suction and condensing pressures while varying refrigerant volume to suit heating/cooling loads.
   2. Variable Volume Control: Modulate compressor capacity automatically to maintain constant suction and condensing pressures while varying refrigerant volume to suit heating/cooling loads.
   3. Power Failure Mode: Automatically restart operation after power failure without loss of programmed settings.
   4. Power Failure Mode: Automatically restart operation after power failure without loss of programmed settings.

2.07 INDOOR UNITS

A. Minimum Unit Requirements:
   1. DX Evaporator Coil:
      a. Copper tubes expanded into aluminum fins to form a mechanical bond; waffle louver fin and high heat exchange, rifled bore tube design; factory tested.
      b. 2-, 3-, or 4-row cross fin design with 14 to 17 fins per inch and flare end-connections.
      c. Provide thermistor on liquid and gas lines wired into local controller.
      d. Refrigerant circuits factory-charged with dehydrated air for field charging.
   2. Fan Section:
      a. Variable or three-speed ECM fan with automatic airflow adjustment; external static pressure selectable during commissioning.
      b. Thermally protected, direct-drive motor with statically and dynamically balanced fan blades.
      c. Minimum-adjustable external static pressure 0.32 in-wc (80 Pa); provide for mounting of field-installed ducts.
   3. Local Unit Controls:
      a. Temperature Control: Return air control using thermistor tied to computerized Proportional-Integral-Derivative (PID) control of superheat.
      b. Temperature Zones:
         1) Single Indoor Unit: Set served space(s) as the local temperature zone.
         2) Multiple Indoor Units: For large zones, group and coordinate related indoor units with served spaces as the local temperature zone with each indoor unit as sub-zone.
   4. Return Air Filter:
   5. Condensate:
      a. Built-in condensate drain pan with PVC drain connection for drainage.
      b. Units With Built-In Condensate Pumps: Provide condensate safety shutoff and alarm.
      c. Units Without Built-In Condensate Pump: Provide built-in condensate float switch and wiring connections.
   6. Cabinet Insulation: Sound absorbing foamed polystyrene and polyethylene insulation.

B. All Indoor/Evaporator Units: Factory assembled DX fan-coil units, factory wiring and piping.

C. All Indoor/Evaporator Units: Factory assembled DX fan-coil units, factory wiring and piping.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that required electrical services have been installed and are in the proper locations prior to starting installation.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install refrigerant piping in accordance with equipment manufacturer's instructions.

C. Perform wiring in accordance with NFPA 70, National Electric Code (NEC).

D. Coordinate with installers of systems and equipment connecting to this system.

3.03 SYSTEM STARTUP

A. Prepare and start equipment and system in accordance with manufacturer's instructions and recommendations.

B. Adjust equipment for proper operation within manufacturer's published tolerances.

3.04 CLEANING

A. Clean exposed components of dirt, finger marks, and other disfigurements.

3.05 CLOSEOUT ACTIVITIES

A. See Section 01 78 00 - Closeout Submittals for additional submittals.

B. Demonstration: Demonstrate operation of system to Owner's personnel.
   1. Use operation and maintenance data as reference during demonstration.
   2. Conduct walking tour of project.
   3. Briefly describe function, operation, and maintenance of each component.

C. Training: Train Owner's personnel on operation and maintenance of system.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Provide minimum of two hours of training.

3.06 PROTECTION

A. Protect installed components from subsequent construction operations.

B. Replace exposed components broken or otherwise damaged beyond repair.

END OF SECTION

SECTION 23 82 00
CONVECTION HEATING AND COOLING UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hydronic or steam cabinet unit heaters.

B. Electric cabinet unit heaters.

1.02 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide typical catalog of information including arrangements.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

PART 2 PRODUCTS

2.01 ELECTRIC CABINET UNIT HEATERS

A. Provide products listed, classified, and labeled by Underwriters Laboratories Inc. (UL) as suitable for the purpose indicated.

B. Cabinet:
   1. Minimum 18 gauge, 0.0478 inch (1.21 mm) thick steel front panel with exposed corners and edges rounded, easily removed panels, glass fiber insulation and integral air outlet, and inlet grilles.
   2. Provide required hardware accessories for ceiling, duct, recessed, semi-recessed, surface, or wall mounting.

C. Cabinet: Minimum 18 gauge, 0.0478 inch (1.21 mm) thick steel front panel with exposed corners and edges rounded, easily removed panels, glass fiber insulation.

D. Finish:
   1. Factory applied, painted finish.
   2. Color: As indicated on drawings.

E. Motor: Tap wound multiple speed permanent split capacitor with sleeve bearings, resiliently mounted.

F. Controls:
   1. Thermal cutout with automatic reset to de-energize electric heating elements in the event of overheating.
   2. Thermal cutout with automatic reset to de-energize electric heating elements in the event of overheating.
   3. Built-in line-voltage thermostat.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are suitable for installation.

3.02 INSTALLATION

A. Install in accordance with manufacturer's recommendations.

B. Install equipment exposed to finished areas after walls and ceilings are finished and painted.

C. Do not damage equipment or finishes.

D. Cabinet Unit Heaters:
   1. Install as indicated.
   2. Coordinate to ensure correct recess size for recessed units.

3.03 CLEANING

A. After construction and painting is completed, clean exposed surfaces of units.

B. Vacuum clean coils and inside of units.

C. Touch-up marred or scratched surfaces of factory-finished cabinets using finish materials furnished by the manufacturer.

END OF SECTION

SECTION 26 05 00
COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.01 SCOPE

A. The work under this section includes basic electrical requirements, which are applicable to all Division 26 sections.

B. Provide materials, methods, workmanship, testing, etc., unless otherwise specified, that conforms with the latest rules, regulations and specifications of the NEC, local and state codes having jurisdiction and applicable utility companies.

C. The electrical work included in all other divisions is the responsibility of the Contractor performing the division 26 work unless noted otherwise.

1.02 RELATED WORK

A. Applicable provisions of Division 1 govern work under this section.

B. Section 07 84 00 – Fire Stopping

1.03 DEFINITIONS

A. Unless noted otherwise in the drawings and specs:
1. "Contractor" - Electrical contractor, installer or subcontractor.
2. "Equal" or "Equivalent" - Products other than basis of design where equivalency shall be as determined by the Architect, Engineer or Owner in accordance with Section 01 60 00. Where equivalent items deviate from the electrical requirements of the basis of design, modify the electrical system to the item at no charge.
3. "Furnish" - Supply and deliver to the project.
4. "Flush" - Recessed in respective surface with visible face flush and even with respective surface.
5. "Install" - Assemble, wire and connect loose-shipped components on site. Place in position for service or use, including material, labor, accessories, services, and testing. Wire, connect, and render fully operational for intended use. Note that most products to be installed shall also be furnished under Division 26, though some products require only installation under Division 26 - depending on context and application.
6. "Provide" - Furnish and Install.
7. "Work" - Material, labor, accessories, services, testing, etc. as required to render respective work fully operational.

1.04 REFERENCE STANDARDS

A. Abbreviations of standards organizations referenced in this and other sections are as follows:
1. ASHRAE American Society of Heathing, Refrigerating, and Air-Conditioning Engineers.
2. ANSI American National Standards Institute.
3. ASTM American Society for Testing and Materials.
4. ASME Americal Society of Mechanical Engineers.
5. EPA Environmental Protection Agency.
6. ETL Electrical Testing Laboratories, Inc.
7. IBC International Building Code.
8. IECC International Energy Conservation Code.
9. IEEE Institute of Electrical and Electronics Engineers.
10. IES Illuminating Engineering Society.
11. Local codes.
12. NEC National Electric Code, NFPA 70.
13. NEMA National Electrical Manufacturers Association.
14. NESC National Electrical Safety Code.
15. NFPA National Fire Protection Association.
16. NRTL Nationally Recognized Testing Laboratory.

17. OBC Ohio Building Code.
18. UL Underwriters Laboratories Inc.
19. Utility Company requirements.

1.05 REGULATORY REQUIREMENTS

A. All work and materials are to conform in every detail to applicable rules and requirements of the State Electrical Code, the NEC, other applicable NFPA codes, the NESC, and present manufacturing standards (including NEMA).

B. All Division 26 work shall be done under the direction of a currently licensed State Electrical Contractor.

1.06 QUALITY ASSURANCE

A. Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated on the contract documents, the Contractor is responsible for all costs involved in integrating the equipment or accessories into the system and the assigned space, and for obtaining the performance from the system into which these items are placed.

B. Manufacturer references used herein are intended to establish a level of quality and performance requirements unless more explicit restrictions are stated to apply.

C. Should there be a conflict between the drawings and specifications, the Contractor shall comply with the most stringent requirements. Provide the greater quantity and better quality.

D. All materials, shall be listed by and shall bear the label of an approved Nationally Recognized Testing Laboratory (NRTL) as identified by the United States Occupational Safety and Health Administration (OSHA), per the OSHA Nationally Recognized Testing Laboratory Program. If none of the approved electrical testing laboratories has published standards for a particular item, then other national independent testing standards, if available, applicable, and approved by the Authority Having Jurisdiction, shall apply and such items shall bear those labels. Where one of the approved electrical testing laboratories has an applicable system listing and label, the entire system, shall be so labeled.

E. Prior to energizing, test wires and cables for proper phase to phase connections, for electrical continuity and for short-circuits. Ensure tha direction of rotation of each motor fulfills requirement.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver equipment and materials according to factory shipping requirements. Protect equipment and materials in factory approved containers. Dimensions of materials and equipment shall be capable of passing through building openings.

B. Provide rigging and special handling as required.

C. Store materials and equipment in a clean dry space protected from weather, condensation and physical damage. Do not exceed structural capacity of the floor where materials and equipment are stored.

D. Return damaged materials and equipment to the manufacurer and replace with new.

1.08 CONTINUITY OF EXISTING SERVICES AND SYSTEMS

A. No outages shall be permitted on existing systems except at the time and during the interval specified by the Owner's Representative. The Owner may require written approval. Any outage must be scheduled when the interruption causes the least interference with normal operating institutional schedules and business routines.

B. The Contractor shall restore any circuit interrupted as a result of this work to proper operation as soon as possible.

1.09 SEALING AND FIRE STOPPING

A. Sealing and fire stopping of sleeves/openings between conduits, cable trays, wireways, troughs, cablebus, busduct, etc. and the sleeve, structural or partition opening shall be the

responsibility of the Contractor whose work penetrates the opening. Provide fire stopping of fire rated penetrations and sealing of smoke rated penetrations in compliance with section 07 84 00 Fire Stopping.

1.10 INTENT

A. The Contractor shall furnish and install all the necessary materials, apparatus, and devices to complete the electrical equipment and systems installation herein specified, except such parts as are specifically exempted herein.

B. Obtain and pay for all required permits and installation inspections. Deliver originals of these certificates to the Owner's Representative.

C. The Contractor is responsible for coordination of electrical inspections.

D. If an item is either called for in the specifications or shown on the plans, it shall be considered sufficient for the inclusion of said item in this contract. If a conflict exists within the Specifications or exists within the Drawings, the Contractor shall furnish the item, system, or workmanship, which is the highest quality, largest, or most closely fits the intent.

E. It must be understood that the details and drawings are diagrammatic. The Contractor shall verify all dimensions at the site and be responsible for their accuracy.

F. All sizes as given are minimum except as noted.

G. Materials and labor shall be new (unless noted or stated otherwise), first class, and workmanlike, and shall be subject at all times to the owner's and/or Architect/Engineer's inspections, tests and approval from the commencement until the acceptance of the completed work.

H. Whenever a particular manufacturer's product is named, it is intended to establish a level of quality and performance requirements unless more explicit restrictions are stated to apply.

1.11 SUBMITTALS

A. Submit for all equipment and systems as indicated in the respective specification sections, marking each submittal with that specification section number. Mark general catalog sheets and drawings to indicate specific items being submitted and proper identification of equipment by name and/or number, as indicated in the contract documents. Failure to do this may result in the submittal(s) being returned to the Contractor for correction and resubmission. Failing to follow these instructions does not relieve the Contractor from the requirement of meeting the project schedule.

B. On request, the successful bidder shall furnish additional drawings, illustrations, catalog data, performance characteristics, etc.

C. Submittals shall be grouped to include complete submittals of related systems, products, and accessories in a single submittal. Mark dimensions and values in units to match those specified. Include wiring diagrams of electrically powered equipment.

D. The submittals must be approved before fabrication is authorized.

E. Do not purchase material until the submittal has been reviewed and not rejected or marked "revise and resubmit."

F. Failure of the design professional to identify an error or omission during submittal review, site obervation, etc. does not relieve the Contractor from being responsible for furnishing and installing electrical work as defined and specified under the drawings and specifications.

G. Operation and Maintenance Data
   1. All operations and maintenance data shall comply with the submission and content requirements specified under section "General Requirements."
   2. In addition to the general content specified under "General Requirements," supply the following additional documentation:
      a. Manufacturer’s wiring diagrams for electrically powered equipment.
      b. All required passwords required to gain local access to equipment and controllers.

1.12 PROJECT/SITE CONDITIONS

A. Install work in locations shown on drawings, unless prevented by project conditions.

B. Prepare drawings showing proposed rearrangement of work to meet project conditions, including changes to work specified in other sections. Obtain permission of the Architect before proceeding.

C. Tools, materials and equipment shall be confined to areas designated by the Owner.

1.13 TEMPORARY ELECTRIC

A. Refer to Division 01.

B. Provide temporary electrical service. Provide GFCI protection for all work.

C. Provide and maintain power lines (including circuit protection, physical protection, grounding, etc.) to the temporary offices and sheds of trades requiring same, extending from the temporary electrical service. Provide temporary security site lighting as required to illuminate temporary offices and sheds, material storage areas and other areas as required to prevent theft and injury.

D. Route temporary service lines on the site overhead as required so that the work does not interfere with existing site operations or new construction related work of other trades. Install overhead lines at least 18 feet (from the lowest point) above grade/pavement where lines cross areas accessible to vehicles. Coordinate carefully in field prior to installation. Properly support overhead lines by messenger cable, physically protect wiring at risers and drops, properly mount to supporting structures with insulators and drip loops.

E. Provide temporary lighting (including lamps) and power complete with wiring and similar equipment, for work on the site and within the affected buildings during the construction period. Provide proper overcurrent and ground fault protection for wiring. Physically protect feeders and lamps along their entire length. Provide temporary branch circuit wiring per NEC in each area with outlets on nominal ten foot centers for lamps and with receptacles on nominal fifty foot centers to accommodate extension cords.

F. Provide and maintain lamps required for the duration of the job. Provide sufficient sockets and circuit capacity for construction areas. Provide and maintain a minimum of 10 foot candles of illumination in construction spaces or more if required by NIOSH/OSHA. Provide necessary specialty temporary power and supplementary light for trades requiring same. At the conclusion of the project, remove and take possession of temporary electric materials.

G. Make necessary arrangements with local utility companies for temporary electrical service and pay associated fees for inspections, connections, initiation, etc.

1.14 WORK SEQUENCE AND SCHEDULING

A. Install work in phases to accommodate Owner's occupancy requirements. During the construction period coordinate electrical schedule and operations with the Owner.

1.15 WORK BY OTHER TRADES

A. Every attempt has been made to indicate in this trade's specifications and drawings all work required of this Contractor. However, there may be additional specific paragraphs in other trade specifications and addenda, and additional notes on drawings for other trades which pertain to this trade's work, and thus those additional requirements are hereby made a part of these specifications and drawings.

B. Electrical details on drawings for equipment to be provided by others are based on preliminary design data only. This Contractor shall lay out the electrical work and shall be responsible for its correctness to match equipment actually provided by others.

1.16 SALVAGE MATERIALS

A. No materials removed from this project shall be reused unless specifically noted otherwise. All materials removed shall become the property of the Owner unless otherwise noted on the drawings and shall be disposed of by the Contractor.

1.17 RECORD DRAWINGS

A. The Contractor shall maintain at least one copy each of the specifications and drawings on the job site at all times.

B. Contractor shall record dimensions and elevations on the record drawings. Locate all buried or concealed piping, conduit, or similar items.

C. At completion of the project, the Contractor shall submit the marked-up record drawings to the Architect/Engineer prior to final payment.

1.18 WARRANTY

A. Correct defective work within a one year period after date of Substantial Completion at no cost to the Owner.
   1. Provide written warranty as part of the project closeout documents.
   2. Response to requests for corrective work shall not exceed one week from date of notification by the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Provide revised electrical work where equipment may have different electrical requirements depending on what manufacturer is chosen. Coordinate changes with related installers prior to submittals.

B. Discrepancies or uncertainties perceived by a bidder, or other questionable interpretations by a bidder, are subject to final interpretations and decisions by the Owner unless addressed before bidding by addendum.

C. Provide material manufacturers equivalent in quality, performance, aesthetics, and product support to that specified as basis of design. Other products, materials, articles, devices, luminaires or forms of construction not mentioned as basis of design, required or acceptable are subject to review by the Architect or Engineer for possible rejection. Listing of a manufacturer by name alone does not equate another manufacturer to what is specified. Provide materials with equal to or exceeding the quality of the basis of design products.

D. In cases where luminaires, devices, equipment, or other electrical materials are furnished by Owner or others, provide the following services: receive, transport and securely store materials on site; remove materials and components from packaging; assemble materials and components per factory instructions; install, wire and connect materials and components as recommended by manufacturer for a fully operational installation.

2.02 ACCESS PANELS AND DOORS

A. Subject to compliance with requirements, provide products by one of the following manufacturers:
   1. J.L. Industries.
   2. Karp Associates, Inc.
   3. Milcor, Inc.
   4. Nystrom, Inc.

B. Plaster Walls and Ceilings, Concealed Cavities:
   1. 16 gauge frame with not less than a 20 gauge hinged door panel, prime coated steel for general applications, stainless steel for use in toilets, showers and similar wet areas, concealed hinges, screwdriver operated cam latch for general application, key lock for use in public areas, UL listed for use in fire rated partitions if required by the application. Use the largest size access opening possible, consistent with the space and the equipment needing service; minimum size 20” x 30”.
   2. Provide unit assemblies that are rated for the respective fire and/or smoke rating of the surface to which they are installed.
   3. Provide flanges as required.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Coordinate work with affected trades. Refer to coordination drawings provided by other trades.

C. Refer to the architectural drawings for additional information such as locations and mounting height.
   1. Wiring device mounting heights as indicated on the plans are preliminary. Determine the exact mounting heights (and locations) of outlets in the field with relation to architectural detail and equipment being served and in accordance with accessibility requirements. Coordinate outlet location with equipment, with furniture plans and with architectural elevation plans. Where mounting heights are not detailed or dimensioned, contact the Architect for direction.

D. Install conduit and equipment in such manner as to conform to the building structure, avoiding obstructions, preserving headroom and keeping openings and passageways clear. Install systems level and plumb, parallel and perpendicular to other building systems and structural comp

E. Review documents of other trades to identify electrically operated/controlled equipment that is furnished or installed by the Owner, or by other trades. Provide connections and local disconnects for same. Provide control wiring (including relays, starters, etc.), as required to render equipment fully operable unless indicated otherwise on drawings or project manual. Determine requirements in field from respictive equipment installer.

F. Arrange for chases, slots and openings during progress of construction, to all for electrical installations.

G. Install electrical equipment to facilitate servicing, maintenance, and repair and replacement of equipment components. Install equipment for ease of disconnecting, with minimum of interference with other installations. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope. Protect the structure, furnishings, finishes, and adjacent materials.

H. Verify dimensions by field measurements. Take measurements and be responsible for exact size and locations of openings required for the installation of work. Figured dimensions are reasonably accurate and should govern in setting out work. Where detailed method of installation is not indicated or where variations exist between described work and approved practice, follow direction of the owner's representative.

I. Do not install device wall outlets directly back to back, where located on opposite sides of common walls. Offset outlets by at least two feet for applications in fire rated walls and acoustically treated walls. Offset outlets by at least one foot for other applications.

J. Provide wires continuous from outlet to outlet and properly splice joints. Provide insulation value for joints 100% in excess of that of the wire. Mechanical wire splicers may be used. Provide minimum 8” tail for conductors terminating at each wired outlet at their outlet fittings to facilitate installment of devices, luminaires, etc.

K. If during construction it becomes apparent that some specific minor changes in layout will effect a neater job or better arrangement, make such alterations without additional compensation and without having to offer credit. Obtain Architect's review before making such changes.

L. Provide workmanship throughout that conforms to the standards of best practice. Marks, dents and finish scratches are prohibited on exposed materials, luminaires, fittings, etc. Clean inside of panels and equipment boxes.

3.02 SYSTEMS INTEGRATION

A. Provide detail design, accessories, equipment, devices, wiring, and programming as required to render systems fully operable. Program, check, and test each system using respective certified

factory technician. After making tests and corrections, demonstrate systems to the Owner and Authority Having Jurisdiction.

B. Provide complete design and installation drawings using information supplied by respective system supplier. Show layouts, conduit sizes, number and types of cables/conductors required to components, and detailed wiring connections required at each type of device. Provide these submittals, as part of the submittals of the respective specification section, in compliance with requirements of Authorities Having Jurisdiction.

C. Provide latest release of system software (furnished, installed and adapted). Provide upgrade(s) at final close-out of project, where system software originally installed has been upgraded since it was originally installed.

D. Provide programming described below for programmable systems, and for systems with room number identifications that are required for successful system operation. Wherever the term "programming" is used below, interpret it to mean "programming, configuration and identification".
   1. Room names and numbers may change from architectural drawing names and numbers to actual operational room names and numbers. Contact Design Professionals and Owner to determine actual operating room names, room numbers, etc. and program using actual operational information. Provide interim and permanent programming and configuration work as required to render and maintain systems in full operation.
   2. Provide programming related services (including machine language, English language, etc.) associated with rendering work fully operational, and neatly document in detail.
   3. Provide custom and detailed programming to a level satisfactory to the Owner, including correct operational room numbers, and room names. Provide neatly typed orderly and logical submittal of proposed programming for review; prior to entering data; revise this submittal as required to satisfy the Owner. Determine project-specific requirements in field.
   4. Provide programming for auxiliary control and interface functions. Provide custom programming for address labels. Provide detailed English language print statements for each system point/address, and for each respective auxiliary control sequence. Include in these print statements as many characters, sentences, lines, or paragraphs as required to provide detailed descriptions of system status including alarm or trouble condition, and status of related auxiliary controls. Provide level of detail acceptable to the Owner. Provide clear specific English language descriptions for remote annunciators.

E. Provide programming services for new work, for retrofit work, and for interfaces with new and existing systems. Provide schedule for cross reference of new system labels to nomenclature used to enter them into existing systems.

F. Account for, and indicate, differentiation for construction phasing and sub-phasing on submittals. Provide custom services and programming (including machine language, English language, etc.), testing, certification, and documentation after each phase (and sub-phase) of the project (for projects with multi-phase construction) as required to render systems fully operable after each construction phase. Change room names and numbers from architectural drawing names and numbers to actual operational room names and numbers, after each phase of construction. Provide these services also at the end of construction phases, including programming of final room names and numbers.

G. Provide interim, and permanent, programming and configuration work. Provide, replace and re-burn EPROM's, and other integrated circuits, as required to accommodate construction schedules and multiple construction phases. Do not begin warranty periods until final acceptance of work by the Owner after completion of the final construction phase.

3.03 FIELD QUALITY CONTROL

A. Test and field verify the following conditions prior to applying power to luminaires, equipment, etc. Take corrective action if necessary to ensure systems and equipment are energized safely and to proper and properly configured power sources.
   1. Proper voltages and service configurations exist at service entrance(s).

2. Proper voltages and configurations exist at all facility power sources.
3. Conductors are connected to the correct lines/phases.
4. Grounded (neutral) conductors are properly referenced and connected.
5. Grounding electrode and equipment grounding conductors are properly referenced and connected.

3.04 EXCAVATION AND BACKFILL

A. Perform all excavation and backfill work to accomplish indicated electrical systems installation unless noted otherwise.

3.05 CONCRETE WORK

A. Coordinate the quantity and location of all cast-in-place concrete work with the architectural drawings.

B. The Division 3 Contractor will perform all cast-in-place concrete unless noted otherwise elsewhere. Provide all layout drawings, anchor bolts, metal shapes, and/or templates required to be cast into concrete or used to form concrete for the support of electrical equipment.

3.06 CUTTING AND PATCHING

A. Refer to Division 1, General Requirements, Cutting and Patching.

B. Provide cutting and patching for the admission of work. Perform cutting, fitting, and patching for electrical equipment and materials as required to:
   1. Uncover work to provide for installation of ill-timed work.
   2. Remove and replace defective work.
   3. Remove and replace work not conforming to requirements of the contract documents.
   4. Remove samples of installed work as specified for testing.

C. Upon written instructions from the Owner, uncover and restore work to provide for observation of concealed work by the Owner or by the Authority Having Jurisdiction.

D. During cutting and patching operations, protect adjacent installations (structure, finishes, furnishings, etc.). Where applicable, provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to system components and components of other trades.

E. Patch surfaces and building components using new materials, matching existing materials as applicable and using experienced Installers.

F. Patch through fire rated walls and enclosures in a manner that does not diminish the rating of that wall or enclosure. Provide materials used for patching to meet or exceed the smoke and fire rating of the respective surface being patched.

G. Neatly cut and drill openings in walls and floors required for the installation. Secure approval of the Owner before cutting and drilling in work that is already in place. Neatly patch openings cut.

H. Hold cutting and patching to a minimum by arranging with other trades for sleeves and openings before construction is started.

3.07 BUILDING ACCESS

A. Arrange for the necessary openings in the building to allow for admittance of all apparatus. When the building access was not previously arranged and must be provided by this contractor, restore any opening to its original condition after the apparatus has been brought into the building.

3.08 EQUIPMENT ACCESS

A. Install all piping, conduit, ductwork, and accessories to permit access to equipment for maintenance. Coordinate the exact location of wall and ceiling access panels and doors with the General Contractor, making sure that access is available for all equipment and specialties. Where access is required in plaster or drywall walls or ceilings, furnish the access doors to the

General Contractor and reimburse the General Contractor for installation of those access doors.

3.09 COORDINATION

A. The Contractor shall cooperate with other trades and the Owner's Representative in locating work in a proper manner. Should it be necessary to raise or lower or move longitudinally any part of the electrical work to better fit the general installation, such work shall be done at no extra cost, provided such decision is reached prior to actual installation. The Contractor shall check location of electrical outlets with respect to other installations before installing.

B. The Contractor shall verify that all devices are compatible for the surfaces on which they will be used. This includes, but is not limited to light fixtures, panelboards, devices, etc. and recessed or semi-recessed heating units installed in/on architectural surfaces.

C. Coordinate all work with other contractors prior to installation. Any installed work that is not coordinated and that interferes with other contractor's work shall be removed or relocated at the installing contractor's expense.

D. Coordinate all equipment requirements with the various contractors and the Owner. Review the complete set of drawings and specifications to determine the extent of wiring, starters, devices, etc., required. Coordinate the available fault current- equipment including control panels and internal components shall be rated to interrupt the available fault current.

3.10 SLEEVES AND OPENINGS

A. Conduit penetrations in new poured concrete horizontal construction requiring F and T rating: Form opening using hole form or core drill opening. Alternatively provide cast in place fire stopping devices/sleeves.

B. Conduit penetrations in new poured concrete horizontal construction requiring F rating but no T rating: Same as conduit penetrations in new poured concrete construction requiring F and T ratings except that schedule 40 steel pipe sleeves may also be used.

C. Conduit penetrations in new poured concrete horizontal construction that do not require F or T ratings: Provide schedule 40 steel pipe sleeve, form opening using hole form or core drill opening.

D. Conduit penetrations in existing concrete floors: Core drill openings.

E. Conduit penetrations through existing floors located in food service areas that do not require a T rating: Core drill sleeve opening large enough to insert schedule 40 sleeve, extend sleeve 2 inches (50.8 mm) above the floor and grout area around sleeve with hydraulic setting, non-shrink grout.

F. Where penetrating conduit weight is supported by floor, provide manufactured product or structural bearing collar designed to carry load.

3.11 SEALING AND FIRE STOPPING

A. Fire and/or smoke rated penetrations:
   1. Provide all fire stopping of fire rated penetrations and sealing of smoke rated penetrations in compliance with section 07 84 00 Fire Stopping.
   2. Provide all fire stopping for all existing penetrations through fire rated walls, ceilings and floors.
   3. Whenever possible, avoid penetrations of fire and smoke rated construction. When they cannot be avoided, verify that the design provides sufficient space for the penetration to be effectively fire and smoke stopped.

B. Non-Rated Penetrations:
   1. Conduit Penetrations Below Grade:
      a. In exterior wall openings below grade, use a modular mechanical type seal consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the uninsulated conduit and the cored opening or water-stop type wall sleeve.

b. In exterior wall openings below grade, assemble rubber links of mechanical seal to the proper size for the conduit and tighten in place, in accordance with the manufacturer's instructions. Install so that the bolts used to tighten the seal are accessible from the interior of the building or vault.

2. Conduit and Cable Tray Penetrations above grade:
   a. At through-wall conduit and cable tray penetrations of non-rated interior and exterior walls, and floors, use urethane caulk in annular space between conduit and sleeve, or the core drilled opening.
3. At all interior and exterior walls, through-wall conduit penetrations are required to be sealed. Apply sealant to both sides of the penetration in such a manner that the annular space between the sleeve or cored opening and the conduit is completely blocked.

C. Penetrations subjuect to water intrusion:
1. For penetrations (both rated and non-rated) in floors subject to water intrusion or in rooms housing electrical equipment (but not within walls) provide one of the following:
   a. Conduit penetration where steel pipe sleeve is used extend steel sleeve 2” above the floor.
   b. Conduit penetration where cast in place fire stopping device/sleeve is used, extend device/sleeve 2” above the floor (provided it meets the device’s UL listing).
   c. Conduit penetration where there is no steel sleeve or cast in place fire stopping device/sleeve, provide 2”x 2” x 1/8” galvanized steel angles fastened to floor surrounding the penetration or group of penetrations to prevent water from getting to penetration. Provide urethane caulk between angles and floor and fasten angles to floor minimum 8”on center. Seal corners water tight with urethane caulk.
   d. Floors subject to water intrusion or rooms housing electrical equipment include the following locations:
      1) Restrooms
      2) Janitor Rooms w/ Sinks
      3) Mechanical/Plumbing Equipment Rooms
      4) Data/Telecommunications Rooms
      5) Electrical Equipment Rooms

D. Provide waterproof caulk sealant top coating on fire stopping system (or other approved means to protect the fire stopping system from water) in areas subject to wash down such as Food Service and Dish Washing Areas.

3.12 LOCK OUT TAG OUT DEVICES

A. Provide permanenly installed lock out tag out devices compliant with NEC and OSHA, with padlock provisions, at source overcurrent devices.

3.13 HOUSEKEEPING AND CLEAN UP

A. The Contractor shall clean up and remove from the premises, on a daily basis, all debris and rubbish resulting from its work and shall repair all damage to new and existing equipment resulting from its work. When job is complete, this Contractor shall remove all tools, excess material and equipment, etc., from the site.

B. Clean materials and equipment.

3.14 OWNER TRAINING

A. All training shall comply with the format, general content requirements and submission guidelines specified under Section 01 91 01 or 01 91 02.

B. Contractor to provide factory authorized representative and/or field personnel knowledgeable with the operations, maintenance and troubleshooting of the system and/or components defined within this section for a minimum period of two hours.

END OF SECTION

SECTION 26 05 05
SELECTIVE DEMOLITION FOR ELECTRICAL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical demolition.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in individual sections.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that abandoned wiring and equipment serve only abandoned facilities.

B. Demolition drawings are based on casual field observation and existing record documents.

C. Report discrepancies to Architect before disturbing existing installation.

D. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

A. Disconnect electrical systems in walls, floors, and ceilings to be removed.

B. Coordinate utility service outages with utility company.

C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.

E. Existing Fire Alarm System: Maintain existing system in service until new system is accepted. Disable system only to make switchovers and connections. Minimize outage duration.
   1. Notify Owner before partially or completely disabling system.
   2. Make temporary connections to maintain service in areas adjacent to work area.

F. Existing Telephone System: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
   1. Notify Owner at least 72 hours before partially or completely disabling system.
   2. Notify Owner at least {CH#106962} hours before partially or completely disabling system.
   3. Make temporary connections to maintain service in areas adjacent to work area.

G. Existing State fiber System: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Minimize outage duration.
   1. Obtain permission from Owner at least 72 hours before partially or completely disabling system.
   2. {CH#106968} Owner at least {CH#106969} hours before partially or completely disabling system.
   3. Make temporary connections to maintain service in areas adjacent to work area.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Perform work for removal and disposal of equipment and materials containing toxic substances regulated under the Federal Toxic Substances Control Act (TSCA) in accordance with

applicable federal, state, and local regulations. Applicable equipment and materials include, but are not limited to:

1. PCB-containing electrical equipment, including transformers, capacitors, and switches.
2. PCB- and DEHP-containing lighting ballasts.
3. Mercury-containing lamps and tubes, including fluorescent lamps, high intensity discharge (HID), arc lamps, ultra-violet, high pressure sodium, mercury vapor, ignitron tubes, neon, and incandescent.

B. Remove, relocate, and extend existing installations to accommodate new construction.

C. Remove abandoned wiring to source of supply.

D. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.

E. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.

F. Disconnect and remove abandoned panelboards and distribution equipment.

G. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

H. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.

I. Repair adjacent construction and finishes damaged during demolition and extension work.

J. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel as appropriate.

K. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

3.04 CLEANING AND REPAIR

A. See Section 01 74 19 - Construction Waste Management and Disposal for additional requirements.

B. Clean and repair existing materials and equipment that remain or that are to be reused.

END OF SECTION

SECTION 26 05 19
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Single conductor building wire.

B. Metal-clad cable.

C. Wiring connectors.

D. Electrical tape.

E. Heat shrink tubing.

F. Oxide inhibiting compound.

G. Wire pulling lubricant.

H. Cable ties.

I. Firestop sleeves.

1.02 RELATED REQUIREMENTS

A. Section 07 84 00 - Firestopping.

B. Section 26 05 26 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.

C. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.

D. Section 31 23 16.13 - Trenching: Excavating, bedding, and backfilling.

1.03 REFERENCE STANDARDS

A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013 (Reapproved 2024).

B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2023.

C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes; 2010, with Editorial Revision (2020).

D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2020).

E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

F. NECA 120 - Standard for Installing Armored Cable (AC) and Type Metal-Clad (MC) Cable; 2018.

G. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy; 2021.

H. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.

J. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.

K. UL 267 - Outline of Investigation for Wire-Pulling Compounds; Current Edition, Including All Revisions.

L. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.

M. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.

N. UL 486D - Sealed Wire Connector Systems; Current Edition, Including All Revisions.

O. UL 1569 - Metal-Clad Cables; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
   2. Coordinate the installation of direct burial cable with other trades to avoid conflicts with piping or other potential conflicts.
   3. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
   4. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F (-10 degrees C), unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Architect and obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.

B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.

C. Nonmetallic-sheathed cable is not permitted.

D. Underground feeder and branch-circuit cable is not permitted.

E. Service entrance cable is not permitted.

F. Armored cable is not permitted.

G. Metal-clad cable is permitted only as follows:
   1. Where not otherwise restricted, may be used:
      a. Where concealed above accessible ceilings for final connections from junction boxes to luminaires.
         1) Maximum Length: 6 feet (1.8 m).
      b. Where concealed in hollow stud walls, above accessible ceilings, and under raised floors for branch circuits up to 20 A.
         1) Exception: Provide single conductor building wire in raceway for circuit homerun from first outlet to panelboard.
   2. In addition to other applicable restrictions, may not be used:
      a. Unless approved by Owner.
      b. Where not approved for use by the authority having jurisdiction.
      c. Where exposed to view.
      d. Where exposed to damage.
      e. For damp, wet, or corrosive locations.
      f. For damp, wet, or corrosive locations{CH#107181}.

H. Manufactured wiring systems are not permitted.

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

A. Provide products that comply with requirements of NFPA 70.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.

D. Comply with NEMA WC 70.

E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.

F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.

G. Conductors for Grounding and Bonding: Also comply with Section 26 05 26.

H. Conductors and Cables Installed Where Exposed to Direct Rays of Sun: Listed and labeled as sunlight resistant.

I. Conductors and Cables Installed Exposed in Spaces Used for Environmental Air (only where specifically permitted): Plenum rated, listed and labeled as suitable for use in return air plenums.

J. Conductor Material:
   1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
   2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
   3. Tinned Copper Conductors: Comply with ASTM B33.

K. Minimum Conductor Size:
   1. Branch Circuits: 12 AWG.
      a. Exceptions:
         1) 20 A, 120 V circuits longer than 75 feet (23 m): 10 AWG, for voltage drop.
         2) 20 A, 120 V circuits longer than 150 feet (46 m): 8 AWG, for voltage drop.
   2. Control Circuits: 14 AWG.

L. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

M. Conductor Color Coding:
   1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
   2. Color Coding Method: Integrally colored insulation.
   3. Color Code:
      a. 240/120 V, 1 Phase, 3 Wire System:
         1) Phase A: Black.
         2) Phase B: Red.
         3) Neutral/Grounded: White.
      b. Equipment Ground, All Systems: Green.
      c. For modifications or additions to existing wiring systems, comply with existing color code when existing code complies with NFPA 70 and is approved by the authority having jurisdiction.
      d. For control circuits, comply with manufacturer's recommended color code.

2.03 SINGLE CONDUCTOR BUILDING WIRE

A. Description: Single conductor insulated wire.

B. Conductor Stranding:
   1. Feeders and Branch Circuits:
      a. Size 10 AWG and Smaller: Solid.

b. Size 8 AWG and Larger: Stranded.
2. Control Circuits: Stranded.

C. Insulation Voltage Rating: 600 V.

D. Insulation:
1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.
a. Installed Underground: Type XHHW-2.
b. Fixture Wiring Within Luminaires: Type TFFN/TFN for luminaires with labeled maximum temperature of 90 degrees C; Approved suitable type for luminaires with labeled maximum temperature greater than 90 degrees C.

2.04 METAL-CLAD CABLE

A. Description: NFPA 70, Type MC cable listed and labeled as complying with UL 1569, and listed for use in classified firestop systems to be used.

B. Conductor Stranding:
1. Size 10 AWG and Smaller: Solid.
2. Size 8 AWG and Larger: Stranded.

C. Insulation Voltage Rating: 600 V.

D. Insulation: Type THHN, THHN/THWN, or THHN/THWN-2.

E. Provide dedicated neutral conductor for each phase conductor.

F. Grounding: Full-size integral equipment grounding conductor.

G. Armor: Aluminum or steel, interlocked tape.

H. Armor: {CH#107291}.

2.05 WIRING CONNECTORS

A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.

B. Connectors for Grounding and Bonding: Comply with Section 26 05 26.

C. Wiring Connectors for Splices and Taps:
1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.

D. Wiring Connectors for Terminations:
1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
3. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
4. Provide motor pigtail connectors for connecting motor leads in order to facilitate disconnection.
5. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
6. Stranded Conductors Size 10 AWG and Smaller: Use crimped terminals for connections to terminal screws.
7. Conductors for Control Circuits: Use crimped terminals for all connections.

E. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.

F. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.

G. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F (105 degrees C) for standard applications and 302 degrees F (150 degrees C) for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.

H. Mechanical Connectors: Provide bolted type or set-screw type.

I. Compression Connectors: Provide circumferential type or hex type crimp configuration.

J. Crimped Terminals: Nylon-insulated, with insulation grip and terminal configuration suitable for connection to be made.

2.06 ACCESSORIES

A. Electrical Tape:
   1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
   2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F (-18 degrees C) and suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
   3. Rubber Splicing Electrical Tape: Ethylene Propylene Rubber (EPR) tape, complying with ASTM D4388; minimum thickness of 30 mil (0.76 mm); suitable for continuous temperature environment up to 194 degrees F (90 degrees C) and short-term 266 degrees F (130 degrees C) overload service.
   4. Electrical Filler Tape: Rubber-based insulating moldable putty, minimum thickness of 125 mil (3.2 mm); suitable for continuous temperature environment up to 176 degrees F (80 degrees C).
   5. Varnished Cambric Electrical Tape: Cotton cambric fabric tape, with or without adhesive, oil-primed and coated with high-grade insulating varnish; minimum thickness of 7 mil (0.18 mm); suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
   6. Moisture Sealing Electrical Tape: Insulating mastic compound laminated to flexible, all-weather vinyl backing; minimum thickness of 90 mil (2.3 mm).

B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.

C. Oxide Inhibiting Compound: Listed; suitable for use with the conductors or cables to be installed.

D. Wire Pulling Lubricant:
   1. Listed and labeled as complying with UL 267.
   2. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
   3. Suitable for use at installation temperature.

E. Cable Ties: Material and tensile strength rating suitable for application.

F. Sealing Systems for Roof Penetrations: Premanufactured components and accessories as required to preserve integrity of roofing system and maintain roof warranty; suitable for cables and roofing system to be installed; designed to accommodate existing penetrations where applicable.

G. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that interior of building has been protected from weather.

B. Verify that work likely to damage wire and cable has been completed.

C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.

D. Verify that field measurements are as indicated.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

A. Circuiting Requirements:
   1. Unless dimensioned, circuit routing indicated is diagrammatic.
   2. When circuit destination is indicated without specific routing, determine exact routing required.
   3. Arrange circuiting to minimize splices.
   4. Include circuit lengths required to install connected devices within 10 ft (3.0 m) of location indicated.
   5. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
   6. Maintain separation of wiring for emergency systems in accordance with NFPA 70.
   7. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is permitted, under the following conditions:
   8. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is {CH#107402}
      a. Provide no more than six current-carrying conductors in a single raceway. Dedicated neutral conductors are considered current-carrying conductors.
      b. Increase size of conductors as required to account for ampacity derating.
      c. Size raceways, boxes, etc. to accommodate conductors.
   9. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among{CH#308115} single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.
   10. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among single phase branch circuits of different phases installed in the same raceway is {CH#308114}

B. Install products in accordance with manufacturer's instructions.

C. Perform work in accordance with NECA 1 (general workmanship).

D. Install metal-clad cable (Type MC) in accordance with NECA 120.

E. Installation in Raceway:
   1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
   2. Pull all conductors and cables together into raceway at same time.
   3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
   4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.

F. Exposed Cable Installation (only where specifically permitted):
   1. Route cables parallel or perpendicular to building structural members and surfaces.
   2. Protect cables from physical damage.

G. Direct Burial Cable Installation:
   1. Provide trenching and backfilling in accordance with Section 31 23 16.13 - Trenching.

2. Install cable with minimum cover of 24 inches (610 mm) unless otherwise indicated or required.
3. Protect cables from damage in accordance with NFPA 70.
4. Provide underground warning tape in accordance with Section 26 05 53 along entire cable length.

H. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.

I. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
1. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conductors and cables to lay on ceiling tiles.
2. Installation in Vertical Raceways: Provide supports where vertical rise exceeds permissible limits.

J. Terminate cables using suitable fittings.
1. Metal-Clad Cable (Type MC):
a. Use listed fittings.
b. Cut cable armor only using specialized tools to prevent damaging conductors or insulation. Do not use hacksaw or wire cutters to cut armor.
c. Do not use direct-bearing set-screw type fittings for cables with aluminum armor.

K. Install conductors with a minimum of 12 inches (300 mm) of slack at each outlet.

L. Where conductors are installed in enclosures for future termination by others, provide a minimum of 5 feet (1.5 m) of slack.

M. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.

N. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.

O. Make wiring connections using specified wiring connectors.
1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
3. Do not remove conductor strands to facilitate insertion into connector.
4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.
5. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
6. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.

P. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
1. Dry Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
a. For taped connections, first apply adequate amount of rubber splicing electrical tape or electrical filler tape, followed by outer covering of vinyl insulating electrical tape.
b. For taped connections likely to require re-entering, including motor leads, first apply varnished cambric electrical tape, followed by adequate amount of rubber splicing electrical tape, followed by outer covering of vinyl insulating electrical tape.

2. Damp Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
   a. For connections with insulating covers, apply outer covering of moisture sealing electrical tape.
   b. For taped connections, follow same procedure as for dry locations but apply outer covering of moisture sealing electrical tape.
3. Wet Locations: Use heat shrink tubing.

Q. Insulate ends of spare conductors using vinyl insulating electrical tape.

R. Field-Applied Color Coding: Where vinyl color coding electrical tape is used in lieu of integrally colored insulation as permitted in Part 2 under "Color Coding", apply half overlapping turns of tape at each termination and at each location conductors are accessible.

S. Identify conductors and cables in accordance with Section 26 05 53.

T. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.

U. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

3.04 FIELD QUALITY CONTROL

A. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION

SECTION 26 05 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Grounding and bonding requirements.

B. Conductors for grounding and bonding.

C. Connectors for grounding and bonding.

D. Ground bars.

E. Ground rod electrodes.

F. Ground access wells.

1.02 RELATED REQUIREMENTS

A. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.

B. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.

C. Section 26 56 00 - Exterior Lighting: Additional grounding and bonding requirements for pole-mounted luminaires.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

B. NEMA GR 1 - Grounding Rod Electrodes and Grounding Rod Electrode Couplings; 2022.

C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

D. UL 467 - Grounding and Bonding Equipment; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Verify exact locations of underground metal water service pipe entrances to building.
2. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:

1. Do not install ground rod electrodes until final backfill and compaction is complete.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS

A. Existing Work: Where existing grounding and bonding system components are indicated to be reused, they may be reused only where they are free from corrosion, integrity and continuity are verified, and where acceptable to the authority having jurisdiction.

B. Do not use products for applications other than as permitted by NFPA 70 and product listing.

C. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.

D. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

E. Grounding Electrode System:
   1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
      a. Provide continuous grounding electrode conductors without splice or joint.
      b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.
   2. Metal Underground Water Pipe(s):
      a. Provide connection to underground metal domestic and fire protection (where present) water service pipe(s) that are in direct contact with earth for at least 10 feet (3.0 m) at an accessible location not more than 5 feet (1.5 m) from the point of entrance to the building.
      b. Provide bonding jumper(s) around insulating joints/pipes as required to make pipe electrically continuous.
      c. Provide bonding jumper around water meter of sufficient length to permit removal of meter without disconnecting jumper.
   3. Ground Rod Electrode(s):
      a. Provide three electrodes in an equilateral triangle configuration unless otherwise indicated or required.
      b. Space electrodes not less than 10 feet (3.0 m) from each other and any other ground electrode.
      c. Where location is not indicated, locate electrode(s) at least 5 feet (1.5 m) outside building perimeter foundation as near as possible to electrical service entrance; where possible, locate in softscape (uncovered) area.
      d. Provide ground access well for each electrode.
   4. Ground Bar: Provide ground bar, separate from service equipment enclosure, for common connection point of grounding electrode system bonding jumpers as permitted in NFPA 70. Connect grounding electrode conductor provided for service-supplied system grounding to this ground bar.
      a. Ground Bar Size: Refer to the drawings unless otherwise indicated or required.
      b. Ground Bar Size: {CH#106182} unless otherwise indicated or required.
      c. Where ground bar location is not indicated, locate in accessible location as near as possible to service disconnect enclosure.
      d. Ground Bar Mounting Height: 18 inches (450 mm) above finished floor unless otherwise indicated.

F. Service-Supplied System Grounding:
   1. For each service disconnect, provide grounding electrode conductor to connect neutral (grounded) service conductor to grounding electrode system. Unless otherwise indicated, make connection at neutral (grounded) bus in service disconnect enclosure.
   2. For each service disconnect, provide main bonding jumper to connect neutral (grounded) bus to equipment ground bus where not factory-installed. Do not make any other connections between neutral (grounded) conductors and ground on load side of service disconnect.

G. Bonding and Equipment Grounding:
   1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
   2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.

3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.
7. Provide bonding for interior metal piping systems in accordance with NFPA 70. This includes, but is not limited to:
   a. Metal water piping where not already effectively bonded to metal underground water pipe used as grounding electrode.
   b. Metal gas piping.
8. Provide bonding for interior metal air ducts.

H. Communications Systems Grounding and Bonding:
1. Provide intersystem bonding termination at service equipment or metering equipment enclosure and at disconnecting means for any additional buildings or structures in accordance with NFPA 70.
2. Provide bonding jumper in raceway from intersystem bonding termination to each communications room or backboard and provide ground bar for termination.
   a. Bonding Jumper Size: 6 AWG, unless otherwise indicated or required.
   b. Raceway Size: 3/4 inch (21 mm) trade size unless otherwise indicated or required.
   c. Ground Bar Size: Refer to the drawings unless otherwise indicated or required.
   d. Ground Bar Size: {CH#106205} unless otherwise indicated or required.

I. Pole-Mounted Luminaires: Also comply with Section 26 56 00.

2.02 GROUNDING AND BONDING COMPONENTS

A. General Requirements:
1. Provide products listed, classified, and labeled as suitable for the purpose intended.
2. Provide products listed and labeled as complying with UL 467 where applicable.

B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 05 26:
1. Use insulated copper conductors unless otherwise indicated.
   a. Exceptions:
      1) Use bare copper conductors where installed underground in direct contact with earth.
      2) Use bare copper conductors where directly encased in concrete (not in raceway).

C. Connectors for Grounding and Bonding:
1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.

D. Ground Bars:
1. Description: Copper rectangular ground bars with mounting brackets and insulators.
2. Size: As indicated.
3. Holes for Connections: As indicated or as required for connections to be made.

E. Ground Rod Electrodes:
1. Comply with NEMA GR 1.
2. Material: Copper-bonded (copper-clad) steel.
3. Size: 3/4 inch (19 mm) diameter by 10 feet (3.0 m) length, unless otherwise indicated.

F. Ground Access Wells:
   1. Description: Open bottom round or rectangular well with access cover for testing and inspection; suitable for the expected load at the installed location.
   2. Size: As required to provide adequate access for testing and inspection, but not less than minimum size requirements specified.
   3. Depth: As required to extend below frost line to prevent frost upheaval, but not less than 10 inches (250 mm).
   4. Cover: Factory-identified by permanent means with word "GROUND".

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that work likely to damage grounding and bonding system components has been completed.

B. Verify that field measurements are as indicated.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Ground Rod Electrodes: Unless otherwise indicated, install ground rod electrodes vertically. Where encountered rock prohibits vertical installation, install at 45 degree angle or bury horizontally in trench at least 30 inches (750 mm) deep in accordance with NFPA 70 or provide ground plates.
   1. Outdoor Installations: Unless otherwise indicated, install with top of rod 6 inches (150 mm) below finished grade.

D. Make grounding and bonding connections using specified connectors.
   1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
   2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
   3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
   4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
   5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.

E. Identify grounding and bonding system components in accordance with Section 26 05 53.

END OF SECTION

SECTION 26 05 29
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Concrete equipment pads.

B. Section 26 05 33.13 - Conduit for Electrical Systems: Additional support and attachment requirements for conduits.

C. Section 26 51 00 - Interior Lighting: Additional support and attachment requirements for interior luminaires.

D. Section 26 56 00 - Exterior Lighting: Additional support and attachment requirements for exterior luminaires.

1.03 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2023.

D. MFMA-4 - Metal Framing Standards Publication; 2004.

E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate sizes and arrangement of supports and bases with actual equipment and components to be installed.
   2. Coordinate work to provide additional framing and materials required for installation.
   3. Coordinate compatibility of support and attachment components with mounting surfaces at installed locations.
   4. Coordinate arrangement of supports with ductwork, piping, equipment and other potential conflicts.
   5. Notify Architect of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not install products on or provide attachment to concrete surfaces until concrete has cured; see Section 03 30 00.

1.05 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Comply with NFPA 70.

C. Comply with applicable building code.

D. Comply with {CH#106408}.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:
   1. Comply with the following. Where requirements differ, comply with most stringent.
      a. NFPA 70.
      b. Requirements of authorities having jurisdiction.
   2. Provide required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for complete installation of electrical work.
   3. Provide products listed, classified, and labeled as suitable for purpose intended, where applicable.
   4. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for load to be supported with minimum safety factor of _____. Include consideration for vibration, equipment operation, and shock loads where applicable.
   5. Do not use products for applications other than as permitted by NFPA 70 and product listing.
   6. Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.
   7. Steel Components: Use corrosion-resistant materials suitable for environment where installed.
      a. Indoor Dry Locations: Use zinc-plated steel or approved equivalent unless otherwise indicated.
      b. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel, stainless steel, or approved equivalent unless otherwise indicated.
      c. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
      d. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.

B. Conduit and Cable Supports: Straps and clamps suitable for conduit or cable to be supported.
   1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
   2. Conduit Clamps: Bolted type unless otherwise indicated.

C. Outlet Box Supports: Hangers and brackets suitable for boxes to be supported.

D. Metal Channel/Strut Framing Systems:
   1. Description: Factory-fabricated, continuous-slot, metal channel/strut and associated fittings, accessories, and hardware required for field assembly of supports.
   2. Comply with MFMA-4.
   3. Minimum Channel Thickness: Steel sheet, 12 gauge, 0.1046 inch (2.66 mm).
   4. Minimum Channel Dimensions: 1-5/8 inch (41 mm) wide by 13/16 inch (21 mm) high.

E. Hanger Rods: Threaded, zinc-plated steel unless otherwise indicated.
   1. Minimum Size, Unless Otherwise Indicated or Required:
      a. Equipment Supports: 1/2-inch (13 mm) diameter.
      b. Single Conduit up to 1-inch (27 mm) Trade Size: 1/4-inch (6 mm) diameter.
      c. Single Conduit Larger than 1-inch (27 mm) Trade Size: 3/8-inch (10 mm) diameter.
      d. Trapeze Support for Multiple Conduits: 3/8-inch (10 mm) diameter.
      e. Outlet Boxes: 1/4-inch (6 mm) diameter.
      f. Luminaires: 1/4-inch (6 mm) diameter.

F. Nonpenetrating Rooftop Supports for Low-Slope Roofs:

1. Description: Steel pedestals with thermoplastic or rubber bases that rest on top of roofing membrane, not requiring attachment to roof structure and not penetrating roofing assembly, with support fixtures as specified.
2. Base Sizes: As required to distribute load sufficiently to prevent indentation of roofing assembly.
3. Attachment/Support Fixtures: As recommended by manufacturer, same type as indicated for equivalent indoor hangers and supports.
4. Mounting Height: Provide minimum clearance of 6 inches (150 mm) under supported component to top of roofing.

G. Anchors and Fasteners:
1. Unless otherwise indicated and where not otherwise restricted, use anchor and fastener types indicated for specified applications.
2. Concrete: Use preset concrete inserts, expansion anchors, or screw anchors.
3. Solid or Grout-Filled Masonry: Use expansion anchors or screw anchors.
4. Hollow Masonry: Use toggle bolts.
5. Hollow Stud Walls: Use toggle bolts.
6. Steel: Use beam clamps, machine bolts, or welded threaded studs.
7. Sheet Metal: Use sheet metal screws.
8. Wood: Use wood screws.
9. Plastic and lead anchors are not permitted.
10. Powder-actuated fasteners are not permitted.
11. Preset Concrete Inserts: Continuous metal channel/strut and spot inserts specifically designed to be cast in concrete ceilings, walls, and floors.
    a. Manufacturer: Same as manufacturer of metal channel/strut framing system.
    b. Comply with MFMA-4.
    c. Channel Material: Use galvanized steel.
    d. Manufacturer: Same as manufacturer of metal channel (strut) framing system.
    e. Manufacturer: Same as manufacturer of metal channel (strut) framing system.
12. Post-Installed Concrete and Masonry Anchors: Evaluated and recognized by ICC Evaluation Service, LLC (ICC-ES) for compliance with applicable building code.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive support and attachment components.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install hangers and supports in accordance with NECA 1.

C. Install anchors and fasteners in accordance with ICC Evaluation Services, LLC (ICC-ES) evaluation report conditions of use where applicable.

D. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

E. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.

F. Unless specifically indicated or approved by Architect, do not provide support from roof deck.

G. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.

H. Equipment Support and Attachment:

1. Use metal, fabricated supports or supports assembled from metal channel/strut to support equipment as required.
2. Use metal channel/strut secured to studs to support equipment surface mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
3. Use metal channel/strut to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

I. Conduit Support and Attachment: See Section 26 05 33.13 for additional requirements.

J. Interior Luminaire Support and Attachment: See Section 26 51 00 for additional requirements.

K. Exterior Luminaire Support and Attachment: See Section 26 56 00 for additional requirements.

L. Preset Concrete Inserts: Use manufacturer provided closure strips to inhibit concrete seepage during concrete pour.

M. Secure fasteners in accordance with manufacturer's recommended torque settings.

N. Remove temporary supports.

3.03 FIELD QUALITY CONTROL

A. Inspect support and attachment components for damage and defects.

B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

C. Correct deficiencies and replace damaged or defective support and attachment components.

END OF SECTION

SECTION 26 05 53
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical identification requirements.

B. Identification nameplates and labels.

C. Underground warning tape.

D. Warning signs and labels.

1.02 RELATED REQUIREMENTS

A. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.

1.03 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

B. UL 969 - Marking and Labeling Systems; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Verify final designations for equipment, systems, and components to be identified prior to fabrication of identification products.

B. Sequencing:
   1. Do not conceal items to be identified, in locations such as above suspended ceilings, until identification products have been installed.
   2. Do not install identification products until final surface finishes and painting are complete.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.06 FIELD CONDITIONS

A. Do not install adhesive products when ambient temperature is lower than recommended by manufacturer.

PART 2 PRODUCTS

2.01 IDENTIFICATION REQUIREMENTS

A. Existing Work: Unless specifically excluded, identify existing elements to remain that are not already identified in accordance with specified requirements.

B. Identification for Equipment:
   1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
      a. Panelboards:
         1) Identify power source and circuit number. Include location when not within sight of equipment.
         2) Use typewritten circuit directory to identify load(s) served for panelboards with a door. Identify spares and spaces using pencil.
         3) For power panelboards without a door, use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.
      b. Enclosed switches, circuit breakers, and motor controllers:
         1) Identify load(s) served. Include location.
         2) Identify load(s) served. Include location{CH#106644}.
   2. Service Equipment:

a. Use identification nameplate to identify each service disconnecting means.
3. Use identification nameplate to identify disconnect location for equipment with remote disconnecting means.
4. Use identification label or handwritten text using indelible marker on inside of door at each fused switch to identify required NEMA fuse class and size.
5. Use identification label to identify overcurrent protective devices for branch circuits serving fire alarm circuits. Identify with text "FIRE ALARM CIRCUIT".
6. Available Fault Current Documentation: Use identification label to identify the available fault current and date calculations were performed at locations requiring documentation by NFPA 70 including but not limited to the following.
   a. Service equipment.
7. Arc Flash Hazard Warning Labels: Use warning labels to identify arc flash hazards for electrical equipment, such as switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are likely to require examination, adjustment, servicing, or maintenance while energized.

C. Identification for Conductors and Cables:
1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26 05 19.
2. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.

D. Identification for Raceways:
1. Use identification labels, handwritten text using indelible marker, or plastic marker tags to identify spare conduits at each end. Identify purpose and termination location.
2. Use underground warning tape to identify underground raceways.

E. Identification for Boxes:
1. Use identification labels or handwritten text using indelible marker to identify circuits enclosed.
   a. For exposed boxes in public areas, use only identification labels.

2.02 IDENTIFICATION NAMEPLATES AND LABELS

A. Identification Nameplates:
1. Materials:
   a. Indoor Clean, Dry Locations: Use plastic nameplates.
   b. Outdoor Locations: Use plastic, stainless steel, or aluminum nameplates suitable for exterior use.
2. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch (1.6 mm); engraved text.
3. Stainless Steel Nameplates: Minimum thickness of 1/32 inch (0.8 mm); engraved or laser-etched text.
4. Aluminum Nameplates: Anodized; minimum thickness of 1/32 inch (0.8 mm); engraved or laser-etched text.
5. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch (25 mm) high; Four, located at corners for larger sizes.

B. Identification Labels:
1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
   a. Use only for indoor locations.
2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.

C. Format for Equipment Identification:
1. Minimum Size: 1 inch (25 mm) by 2.5 inches (64 mm).

2. Legend:
    a. Equipment designation or other approved description.
3. Text: All capitalized unless otherwise indicated.
4. Minimum Text Height:
    a. Equipment Designation: 1/2 inch (13 mm).
5. Color:
    a. Normal Power System: White text on black background.

2.03 UNDERGROUND WARNING TAPE

A. Material: Polyethylene tape suitable for direct burial.

B. Use nondetectable tape for open trench applications, unless otherwise indicated.

C. Nondetectable Tape for Open Trench Applications: 6 inches (150 mm) wide, with minimum thickness of 4 mils, 0.0004 inch (0.1 mm).

D. Legend: Type of service, continuously repeated over full length of tape.

E. Color:
1. Buried Electrical Lines: Black text on red background.
2. Buried Communication, Alarm, and Signal Lines: Black text on orange background.

2.04 WARNING SIGNS AND LABELS

A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.

B. Warning Signs:
1. Materials:
    a. Indoor Dry, Clean Locations: Use factory pre-printed rigid plastic or self-adhesive vinyl signs.
    b. Outdoor Locations: Use factory pre-printed rigid aluminum signs.
2. Rigid Signs: Provide four mounting holes at corners for mechanical fasteners.
3. Minimum Size: 7 by 10 inches (178 by 254 mm) unless otherwise indicated.

C. Warning Labels:
1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
3. Minimum Size: 2 by 4 inches (51 mm by 102 mm) unless otherwise indicated.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
1. Surface-Mounted Equipment: Enclosure front.
2. Flush-Mounted Equipment: Inside of equipment door.
3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
4. Elevated Equipment: Legible from the floor or working platform.
5. Branch Devices: Adjacent to device.
6. Interior Components: Legible from the point of access.
7. Conduits: Legible from the floor.
8. Boxes: Outside face of cover.

9. Conductors and Cables: Legible from the point of access.

C. Install identification products centered, level, and parallel with lines of item being identified.

D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.

E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.

F. Install underground warning tape above buried lines with one tape per trench at 3 inches (75 mm) below finished grade.

G. Secure rigid signs using stainless steel screws.

H. Mark all handwritten text, where permitted, to be neat and legible.

3.03 FIELD QUALITY CONTROL

A. Replace self-adhesive labels and markers that exhibit bubbles, wrinkles, curling or other signs of improper adhesion.

END OF SECTION

SECTION 26 05 83
WIRING CONNECTIONS

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.

B. Section 26 05 33.13 - Conduit for Electrical Systems.

C. Section 26 05 33.16 - Boxes for Electrical Systems.

D. Section 26 27 26 - Wiring Devices.

E. Section 26 28 16.16 - Enclosed Switches.

1.02 REFERENCE STANDARDS

A. NEMA WD 1 - General Color Requirements for Wiring Devices; 1999 (Reaffirmed 2020).

B. NEMA WD 6 - Wiring Devices - Dimensional Specifications; 2021.

C. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
   2. Determine connection locations and requirements.

B. Sequencing:
   1. Install rough-in of electrical connections before installation of equipment is required.
   2. Make electrical connections before required start-up of equipment.

1.04 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Products: Listed, classified, and labeled as suitable for the purpose intended.

PART 2 PRODUCTS

2.01 MATERIALS

A. Cords and Caps: NEMA WD 6; match receptacle configuration at outlet provided for equipment.
   1. Colors: Comply with NEMA WD 1.
   2. Cord Construction: NFPA 70, Type SO, multiconductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.
   3. Size: Suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.

B. Disconnect Switches: As specified in Section 26 28 16.16 and in individual equipment sections.

C. Wiring Devices: As specified in Section 26 27 26.

D. Flexible Conduit: As specified in Section 26 05 33.13.

E. Wire and Cable: As specified in Section 26 05 19.

F. Boxes: As specified in Section 26 05 33.16.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.02 ELECTRICAL CONNECTIONS

A. Make electrical connections in accordance with equipment manufacturer's instructions.

B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.

C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.

D. Provide receptacle outlet to accommodate connection with attachment plug.

E. Provide cord and cap where field-supplied attachment plug is required.

F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.

G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.

H. Install terminal block jumpers to complete equipment wiring requirements.

I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

END OF SECTION

SECTION 26 09 23
LIGHTING CONTROL DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Occupancy sensors.

1.02 RELATED REQUIREMENTS

A. Section 26 05 29 - Hangers and Supports for Electrical Systems

B. Section 26 05 33.16 - Boxes for Electrical Systems.

C. Section 26 27 26 - Wiring Devices: Devices for manual control of lighting, including wall switches, wall dimmers, and fan speed controllers.
   1. Includes finish requirements for wall controls specified in this section.

D. Section 26 51 00 - Interior Lighting.

1.03 REFERENCE STANDARDS

A. 47 CFR 15 - Radio Frequency Devices; current edition.

B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

C. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.

D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. UL 1472 - Solid-State Dimming Controls; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate placement of lighting control devices with millwork, furniture, equipment and other potential conflicts.
   2. Coordinate placement of wall switch occupancy sensors with installed door swings.
   3. Coordinate placement of occupancy sensors with millwork, furniture, equipment and other potential obstructions to motion detection coverage.
   4. Coordinate lighting control device product selections with luminaire characteristics; see Section 26 51 00 and lighting fixture schedule.
   5. Notify Architect of conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

B. Sequencing:
   1. Do not install lighting control devices until final surface finishes and painting are complete.

1.05 SUBMITTALS

A. Product Data: Include ratings, operating modes or sequence of functions, configurations, standard wiring diagrams, dimensions, colors, service condition requirements, and installed features.
   1. Occupancy Sensors: Include detailed motion detection coverage range diagrams.

B. Shop Drawings:
   1. Occupancy Sensors: Provide lighting plan indicating location, model number, and orientation of each occupancy sensor and associated system component.

1.06 QUALITY ASSURANCE

A. Comply with NFPA 70.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Store products in clean, dry space in original manufacturer's packaging in accordance with manufacturer's written instructions until ready for installation.

1.08 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.09 WARRANTY

PART 2 PRODUCTS

2.01 LIGHTING CONTROL DEVICES - GENERAL REQUIREMENTS

A. Provide products listed, classified, and labeled as suitable for purpose intended.

B. Unless specifically indicated as excluded, provide components necessary for complete operating system including, but not limited to, conduit, wiring, connectors, hardware, and accessories.

2.02 OCCUPANCY SENSORS

A. Manufacturers:
   1. Acuity Brands, Inc: .
   2. Hubbell Incorporated.
   3. Legrand North America, Inc:
   4. Lutron Electronics Company, Inc:

B. General Requirements:
   1. Description: Factory-assembled commercial specification grade devices for indoor use capable of sensing both major motion, such as walking, and minor motion, such as small desktop level movements, according to published coverage areas, for automatic control of load indicated.
   2. Sensor Technology:
      a. Passive Infrared/Ultrasonic Dual Technology Occupancy Sensors: Designed to detect occupancy using combination of both passive infrared and ultrasonic technologies.
   3. Provide LED to visually indicate motion detection.
   4. Operation: Unless otherwise indicated, occupancy sensor to turn load on when occupant presence is detected and to turn load off when no occupant presence is detected during adjustable turn-off delay time interval.
   5. Dual Technology Occupancy Sensors: Field configurable turn-on and hold-on activation with settings for activation by either or both sensing technologies.
   6. Turn-Off Delay: Field adjustable, with time delay settings up to 30 minutes.
   7. Sensitivity: Field adjustable.
   8. Adaptive Technology: Field selectable; capable of self-adjusting sensitivity and time delay according to conditions.
   9. Compatibility (Non-Dimming Sensors): Suitable for controlling incandescent lighting, low-voltage lighting with electronic and magnetic transformers, fluorescent lighting with electronic and magnetic ballasts, and fractional motor loads, with no minimum load requirements.
   10. Load Rating for Line Voltage Occupancy Sensors: As required to control load indicated on drawings.
   11. Where wired sensors are indicated, wireless sensors are acceptable provided that components and wiring modifications necessary for proper operation are included.
   12. Wireless Sensors:
      a. RF Range: 30 feet (9 m) through typical construction materials.
      b. Electromagnetic Interference/Radio Frequency Interference (EMI/RFI) Limits: Comply with FCC requirements of 47 CFR 15, for Class B application.
      c. Power: Battery-operated with minimum ten-year battery life.

C. Wall Switch Occupancy Sensors:
   1. General Requirements:

a. Description: Occupancy sensors designed for installation in standard wall box at standard wall switch mounting height with field of view of 180 degrees, integrated manual control capability, and no leakage current to load in off mode.
b. Unless otherwise indicated or required to control load indicated on drawings, provide line voltage units with self-contained relay.
c. Operation: Field selectable to operate either as occupancy sensor (automatic on/off) or as vacancy sensor (manual-on/automatic off).
d. Manual-Off Override Control: When used to turn off load while in automatic-on mode, unit to revert back to automatic mode after no occupant presence is detected during delayed-off time interval.
e. Finish: Match finishes specified for wiring devices in Section 26 27 26, unless otherwise indicated.

2. Passive Infrared/Ultrasonic Dual Technology Wall Switch Occupancy Sensors: Capable of detecting motion within area of 900 square feet (83.6 sq m).

D. Wall Dimmer Occupancy Sensors:
1. General Requirements:
a. Description: Occupancy sensors designed for installation in standard wall box at standard wall switch mounting height with field of view of 180 degrees, integrated dimming control capability, and no leakage current to load in off mode.
b. Operation: Field selectable to operate either as occupancy sensor (automatic on/off) or as vacancy sensor (manual-on/automatic off).
c. Dimmer: Solid-state with continuous full-range even control following square law dimming curve, integral radio frequency interference filtering, power failure preset memory, air gap switch accessible without removing wall plate, and listed as complying with UL 1472; type and rating suitable for load controlled.
d. Provide field adjustable dimming preset for occupied state.
e. Finish: Match finishes specified for wiring devices in Section 26 27 26, unless otherwise indicated.

E. Ceiling Mounted Occupancy Sensors:
1. General Requirements:
a. Description: Low profile occupancy sensors designed for ceiling installation.
b. Unless otherwise indicated or required to control load indicated on drawings, provide low voltage units, for use with separate compatible accessory power packs.
c. Occupancy sensor to be field selectable as either manual-on/automatic-off or automatic on/off.
d. Finish: White unless otherwise indicated.
2. Passive Infrared/Ultrasonic Dual Technology Ceiling Mounted Occupancy Sensors:
a. Standard Range Sensors: Capable of detecting motion within area of 450 square feet (41.8 sq m) at mounting height of 9 feet (2.7 m), with field of view of 360 degrees.
b. Extended Range Sensors: Capable of detecting motion within area of 1,200 square feet (111.5 sq m) at mounting height of 9 feet (2.7 m), with field of view of 360 degrees.

F. Directional Occupancy Sensors:
1. General Requirements:
a. Description: Occupancy sensors designed for wall or ceiling mounting, with integral swivel for field adjustment of motion detection coverage.
2. Passive Infrared/Ultrasonic Dual Technology Directional Occupancy Sensors: Capable of detecting motion within distance of 40 feet (12 m) at mounting height of 10 feet (3.1 m).

G. Power Packs for Low-Voltage Occupancy Sensors:
1. Description: Plenum rated, self-contained low-voltage class 2 transformer and relay compatible with specified low-voltage occupancy sensors for switching of line-voltage loads.

2. Provide quantity and configuration of power and slave packs with associated wiring and accessories as required to control load indicated on drawings.
3. Input Supply Voltage: Dual rated for 120/277 V ac.
4. Load Rating: As required to control load indicated on drawings.

H. Power Packs for Wireless Occupancy Sensors:
1. Description: Plenum rated, self-contained relay compatible with specified wireless occupancy sensors for switching of line-voltage loads.
2. Input Supply Voltage: Dual rated for 120/277 V ac.
3. Load Rating: As required to control load indicated on drawings.

I. Accessories:
1. Provide heavy duty coated steel wire protective guards compatible with specified occupancy sensorsfor occupancy sensors located in the gym..
2. Provide heavy duty coated steel wire protective guards compatible with specified occupancy sensors{CH#161683}.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.

C. Verify that openings for outlet boxes are neatly cut and will be completely covered by devices or wall plates.

D. Verify that final surface finishes are complete, including painting.

E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to lighting control devices.

F. Verify that service voltage and ratings of lighting control devices are appropriate for service voltage and load requirements at location to be installed.

G. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Install lighting control devices in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.

B. Coordinate locations of outlet boxes as required for installation of lighting control devices; see Section 26 05 33.16.

C. Maintain separation of remote-control, signaling, and power-limited circuits.
1. See manufacturer instructions and Section 26 05 19 for control wiring conductors, wiring methods, and identification requirements.

D. Install lighting control devices in accordance with manufacturer's instructions.

E. Unless otherwise indicated, connect lighting control device grounding terminal or conductor to branch circuit equipment grounding conductor and to outlet box with bonding jumper.

F. Install lighting control devices plumb and level, and held securely in place.

G. Where required and not furnished with lighting control device, provide wall plate; see Section 26 27 26.

H. Provide required supports; see Section 26 05 29.

I. Where applicable, install lighting control devices and associated wall plates to fit completely flush to mounting surface with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.

J. Occupancy Sensor Locations:
   1. Location Adjustments: Locations indicated are diagrammatic and only intended to indicate which rooms or areas require devices. Provide quantity and locations as required for complete coverage of respective room or area based on manufacturer's recommendations for installed devices.
   2. Locate ultrasonic and dual technology passive infrared/ultrasonic occupancy sensors a minimum of 3 feet from air supply ducts or other sources of heavy air flow and as per manufacturer's recommendations, in order to minimize false triggers.

K. Unless otherwise indicated, install power packs for lighting control devices above accessible ceiling or above access panel in inaccessible ceiling near sensor location.

L. Unless otherwise indicated, install switches on load side of power packs so that switch does not turn off power pack.

3.04 FIELD QUALITY CONTROL

A. Inspect each lighting control device for damage and defects.

B. Test occupancy sensors to verify proper operation, including time delays and ambient light thresholds where applicable. Verify optimal coverage for entire room or area.

C. Test occupancy sensors to verify proper operation, including time delays and ambient light thresholds where applicable. Verify optimal coverage for entire room or area{CH#161842}.

D. Correct wiring deficiencies and replace damaged or defective conductors, cables, and lighting control devices.

3.05 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

B. Adjust occupancy sensor settings to minimize undesired activations while optimizing energy savings, and to achieve desired function as indicated or as directed by Architect.

C. Adjust position of directional occupancy sensors and outdoor motion sensors to achieve optimal coverage as required.

D. Where indicated or as directed by Architect, install factory masking material or adjust integral blinders on passive infrared (PIR) and dual technology occupancy sensor lenses to block undesired motion detection.

3.06 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.07 CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate proper operation of lighting control devices to Architect, and correct deficiencies or make adjustments as directed.

B. Training: Train Owner's personnel on operation, adjustment, programming, and maintenance of lighting control devices.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Provide minimum of one hour of training.
   3. Provide minimum of {CH#161856} of training.
   4. Instructor: Qualified contractor familiar with the project and with sufficient knowledge of installed lighting control devices.

5. Location: At project site.

END OF SECTION

SECTION 26 21 00
LOW-VOLTAGE ELECTRICAL SERVICE ENTRANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical service requirements.

1.02 RELATED REQUIREMENTS

A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

B. Section 26 05 29 - Hangers and Supports for Electrical Systems.

C. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.

D. Section 31 23 16.13 - Trenching: Excavating, bedding, and backfilling.

1.03 DEFINITIONS

A. Service Point: The point of connection between the facilities of the serving utility and the premises wiring as defined in NFPA 70, and as designated by the Utility Company.

1.04 REFERENCE STANDARDS

A. IEEE C2 - National Electrical Safety Code(R) (NESC(R)); 2023.

B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.05 ADMINISTRATIVE REQUIREMENTS

A. No later than two weeks , notify Utility Company of anticipated date of service.

B. Coordination:
   1. Verify the following with Utility Company representative:
      a. Utility Company requirements, including division of responsibility.
      b. Exact location and details of utility point of connection.
      c. Utility easement requirements.
      d. Utility Company charges associated with providing service.
   2. Coordinate the work with other trades to avoid placement of other utilities or obstructions within the spaces dedicated for electrical service and associated equipment.
   3. Coordinate arrangement of service entrance equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   4. Coordinate the work with other installers to provide communication lines required for Utility Company meters.
   5. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

C. Arrange for Utility Company to provide permanent electrical service. Prepare and submit documentation required by Utility Company.

D. Utility Company charges associated with providing permanent service to be paid by Owner.

E. Preinstallation Meeting: Convene one week prior to commencing work of this section to review service requirements and details with Utility Company representative.

F. Scheduling:
   1. Where work of this section involves interruption of existing electrical service, arrange service interruption with Owner.
   2. Arrange for inspections necessary to obtain Utility Company approval of installation.

1.06 QUALITY ASSURANCE

A. Comply with the following:
   1. IEEE C2 (National Electrical Safety Code).

2. NFPA 70 (National Electrical Code).
3. The requirements of the Utility Company.
4. The requirements of the local authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

B. Store products indoors in a clean, dry space having a uniform temperature to prevent condensation (including outdoor rated products which are not weatherproof until completely and properly installed). Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle products carefully to avoid damage to internal components, enclosure, and finish.

PART 2 PRODUCTS

2.01 ELECTRICAL SERVICE REQUIREMENTS

A. Provide replacement of existing electrical service consisting of all required conduits, conductors, equipment, metering provisions, supports, accessories, etc. as necessary for connection between Utility Company point of supply and service entrance equipment.

B. Electrical Service Characteristics:
   1. Service Type: Underground.
   2. Service Voltage: 240/120 V, 1 phase, 60 Hz.

C. Utility Company: Ohio Edison.

D. Division of Responsibility:
   1. Pole-Mounted Utility Transformers:
      a. Utility Poles: Furnished and installed by Utility Company.
      b. Transformers: Furnished and installed by Utility Company.
      c. Transformer Grounding Provisions: Furnished and installed by Utility Company.
      d. Primary: Furnished and installed by Utility Company.
      e. Secondary - Underground Service:
         1) Conduits: Furnished and installed by Contractor.
         2) Conductors: Furnished and installed by Contractor (Service Point at utility pole).
   2. Terminations at Service Point: Provided by Utility Company.
   3. Metering Provisions:
      a. Meter Bases: Furnished and installed by Contractor per Utility Company requirements.
      b. Metering Transformer Cabinets: Furnished and installed by Contractor per Utility Company requirements.
      c. Metering Transformers: Furnished and installed by Utility Company.
      d. Conduits Between Metering Transformers and Meters: Furnished and installed by Contractor per Utility Company requirements.
      e. Wiring Between Metering Transformers and Meters: Furnished and installed by Utility Company.
      f. Communications Conduits for Meters: Furnished and installed by Contractor per Utility Company requirements.

E. Products Furnished by Contractor: Comply with Utility Company requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that ratings and configurations of service entrance equipment are consistent with the indicated requirements.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Verify and mark locations of existing underground utilities.

3.03 INSTALLATION

A. Install products in accordance with manufacturer's instructions and Utility Company requirements.

B. Arrange equipment to provide minimum clearances and required maintenance access.

C. Provide required trenching and backfilling in accordance with Section 31 23 16.13.

D. Provide required support and attachment components in accordance with Section 26 05 29.

E. Provide grounding and bonding for service entrance equipment in accordance with Section 26 05 26.

F. Identify service entrance equipment, including main service disconnect(s) in accordance with Section 26 05 53.

3.04 PROTECTION

A. Protect installed equipment from subsequent construction operations.

END OF SECTION

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SECTION 26 24 16
PANELBOARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Lighting and appliance panelboards.

B. Overcurrent protective devices for panelboards.

1.02 RELATED REQUIREMENTS

A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

B. Section 26 05 29 - Hangers and Supports for Electrical Systems.

C. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. FS W-C-375 - Circuit Breakers, Molded Case; Branch Circuit and Service; 2013e, with Amendments (2022).

B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

C. NECA 407 - Standard for Installing and Maintaining Panelboards; 2025.

D. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

E. NEMA PB 1 - Panelboards; 2011.

F. NEMA PB 1.1 - General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 1000V or Less; 2023.

G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.

I. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

J. UL 67 - Panelboards; Current Edition, Including All Revisions.

K. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures; Current Edition, Including All Revisions.

L. UL 869A - Reference Standard for Service Equipment; Current Edition, Including All Revisions.

M. UL 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
3. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted panelboards where indicated.
4. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
5. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. Product Data: Provide manufacturer's standard catalog pages and data sheets for panelboards, enclosures, overcurrent protective devices, and other installed components and accessories.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store panelboards in accordance with manufacturer's instructions and NECA 407.

B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle carefully in accordance with manufacturer's written instructions to avoid damage to panelboard internal components, enclosure, and finish.

1.08 FIELD CONDITIONS

A. Maintain ambient temperature within the following limits during and after installation of panelboards:
   1. Panelboards Containing Circuit Breakers: Between 23 degrees F (-5 degrees C) and 104 degrees F (40 degrees C).

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. ABB/GE.

B. Eaton Corporation.

C. Schneider Electric; Square D Products.

D. Siemens Industry, Inc.

E. Source Limitations: Provide panelboards and associated components produced by same manufacturer as other electrical distribution equipment used for project and obtained from a single supplier.

2.02 PANELBOARDS - GENERAL REQUIREMENTS

A. Provide products listed, classified, and labeled as suitable for the purpose intended.

B. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
   1. Altitude: Less than 6,600 feet (2,000 m).
   2. Ambient Temperature:
      a. Panelboards Containing Circuit Breakers: Between 23 degrees F (-5 degrees C) and 104 degrees F (40 degrees C).

C. Short Circuit Current Rating:
   1. Provide panelboards with listed short circuit current rating not less than the available fault current at the installed location as indicated on the drawings.

D. Panelboards Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.

E. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.

F. Branch Overcurrent Protective Devices: Replaceable without disturbing adjacent devices.

G. Bussing: Sized in accordance with UL 67 temperature rise requirements.
   1. Provide fully rated neutral bus unless otherwise indicated, with a suitable lug for each feeder or branch circuit requiring a neutral connection.

2. Provide solidly bonded equipment ground bus in each panelboard, with a suitable lug for each feeder and branch circuit equipment grounding conductor.

H. Conductor Terminations: Suitable for use with the conductors to be installed.

I. Enclosures: Comply with NEMA EN 10250, and list and label as complying with UL 50 and UL 50E.
   1. Environment Type per NEMA EN 10250: Unless otherwise indicated, as specified for the following installation locations:
      a. Indoor Clean, Dry Locations: Type 1.
   2. Boxes: Galvanized steel unless otherwise indicated.
      a. Provide wiring gutters sized to accommodate the conductors to be installed.
      b. Increase gutter space as required where sub-feed lugs, feed-through lugs, gutter taps, or oversized lugs are provided.
   3. Fronts:
      a. Fronts for Surface-Mounted Enclosures: Same dimensions as boxes.
      b. Fronts for Flush-Mounted Enclosures: Overlap boxes on all sides to conceal rough opening.
      c. Finish for Painted Steel Fronts: Manufacturer's standard grey unless otherwise indicated.
   4. Lockable Doors: All locks keyed alike unless otherwise indicated.

J. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.

K. Selectivity: Where the requirement for selectivity is indicated, furnish products as required to achieve selective coordination.

L. Load centers are not acceptable.

M. Provide the following features and accessories where indicated or where required to complete installation:
   1. Feed-through lugs.
   2. Sub-feed lugs.

2.03 LIGHTING AND APPLIANCE PANELBOARDS

A. Description: Panelboards complying with NEMA PB 1, lighting and appliance branch circuit type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.

B. Conductor Terminations:
   1. Main and Neutral Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
   2. Main and Neutral Lug Type: Mechanical.

C. Bussing:
   1. Phase Bus Connections: Arranged for sequential phasing of overcurrent protective devices.
   2. Phase and Neutral Bus Material: Aluminum or copper.
   3. Phase and Neutral Bus Material: {CH#113257}.
   4. Ground Bus Material: Aluminum or copper.
   5. Ground Bus Material: {CH#113258}.

D. Circuit Breakers: Thermal magnetic bolt-on type unless otherwise indicated.

E. Enclosures:
   1. Provide surface-mounted or flush-mounted enclosures as indicated.
   2. Fronts: Provide lockable hinged door with concealed hinges for access to overcurrent protective device handles without exposing live parts.
   3. Provide clear plastic circuit directory holder mounted on inside of door.

2.04 OVERCURRENT PROTECTIVE DEVICES

A. Molded Case Circuit Breakers:
   1. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489, and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.
   2. Interrupting Capacity:
      a. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated, but not less than:
         1) 10,000 rms symmetrical amperes at 240 VAC or 208 VAC.
      b. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.
   3. Conductor Terminations:
      a. Provide mechanical lugs unless otherwise indicated.
      b. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
   4. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
   5. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.
   6. Provide the following circuit breaker types where indicated:
      a. Ground Fault Circuit Interrupter (GFCI) Circuit Breakers: Listed as complying with UL 943, class A for protection of personnel.
      b. Ground Fault Equipment Protection Circuit Breakers: Designed to trip at 30 mA for protection of equipment.
   7. Do not use tandem circuit breakers.
   8. Do not use handle ties in lieu of multi-pole circuit breakers.
   9. Provide the following features and accessories where indicated or where required to complete installation:
      a. Shunt Trip: Provide coil voltage as required for connection to indicated trip actuator.
      b. Handle Pad-Lock Provision: For locking circuit breaker handle in OFF position.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the ratings and configurations of the panelboards and associated components are consistent with the indicated requirements.

C. Verify that mounting surfaces are ready to receive panelboards.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Install panelboards in accordance with NECA 407 and NEMA PB 1.1.

D. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

E. Provide required support and attachment in accordance with Section 26 05 29.

F. Install panelboards plumb.

G. Install flush-mounted panelboards so that trims fit completely flush to wall with no gaps and rough opening completely covered.

H. Mount panelboards such that the highest position of any operating handle for circuit breakers or switches does not exceed 79 inches (2000 mm) above the floor or working platform.

I. Provide grounding and bonding in accordance with Section 26 05 26.

J. Install all field-installed branch devices, components, and accessories.

K. Provide filler plates to cover unused spaces in panelboards.

L. Provide circuit breaker lock-on devices to prevent unauthorized personnel from de-energizing essential loads where indicated.{CH#113318}

M. Provide circuit breaker lock-on devices to prevent unauthorized personnel from de-energizing essential loads{CH#113317}. Also provide for the following:
   1. Emergency and night lighting circuits.
   2. Fire detection and alarm circuits.
   3. Communications equipment circuits.
   4. Intrusion detection and access control system circuits.
   5. Video surveillance system circuits.

N. Identify panelboards in accordance with Section 26 05 53.

3.03 FIELD QUALITY CONTROL

A. Test GFCI circuit breakers to verify proper operation.

B. Test shunt trips to verify proper operation.

C. Correct deficiencies and replace damaged or defective panelboards or associated components.

3.04 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

B. Adjust alignment of panelboard fronts.

C. Load Balancing: For each panelboard, rearrange circuits such that the difference between each measured steady state phase load does not exceed 20 percent and adjust circuit directories accordingly. Maintain proper phasing for multi-wire branch circuits.

3.05 CLEANING

A. Clean dirt and debris from panelboard enclosures and components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

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SECTION 26 27 26
WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall switches.

B. Receptacles.

C. Wall plates and covers.

1.02 RELATED REQUIREMENTS

A. Section 26 05 33.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. FS W-C-596 - Connector, Electrical, Power, General Specification for; 2014h (Validated 2022).

B. FS W-S-896 - Switches, Toggle (Toggle and Lock), Flush Mounted (General Specification); 2017g (Validated 2023).

C. NEMA WD 1 - General Color Requirements for Wiring Devices; 1999 (Reaffirmed 2020).

D. NEMA WD 6 - Wiring Devices - Dimensional Specifications; 2021.

E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. UL 20 - General-Use Snap Switches; Current Edition, Including All Revisions.

G. UL 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.

H. UL 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.

I. UL 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
2. Coordinate wiring device ratings and configurations with the electrical requirements of actual equipment to be installed.
3. Coordinate the placement of outlet boxes for wall switches with actual installed door swings.
4. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
5. Notify Architect of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

A. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Products: Listed, classified, and labeled as suitable for the purpose intended.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Store in a clean, dry space in original manufacturer's packaging until ready for installation.

PART 2 PRODUCTS

2.01 WIRING DEVICES - GENERAL REQUIREMENTS

A. Provide wiring devices suitable for intended use with ratings adequate for load served.

B. Wiring Device Applications:
   1. Receptacles Installed Outdoors or in Damp or Wet Locations: Use weather-resistant GFCI receptacles with weatherproof covers.
   2. Provide GFCI protection for:
      a. Receptacles installed within 6 feet (1.8 m) of sinks.
      b. Receptacles installed in kitchens.
      c. Receptacles serving electric drinking fountains.

C. Wiring Device Finishes:
   1. Provide wiring device finishes as described below, unless otherwise indicated.
   2. Wiring Devices, Unless Otherwise Indicated: Ivory with ivory nylon wall plate.

2.02 WALL SWITCHES

A. Manufacturers:
   1. Hubbell Incorporated.
   2. Leviton Manufacturing Company, Inc.
   3. Pass & Seymour, a brand of Legrand North America, Inc.

B. Wall Switches - General Requirements: AC only, quiet operating, general-use snap switches with silver alloy contacts, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 20 and where applicable, FS W-S-896; types as indicated{CH#109123}.
   1. Wiring Provisions: Terminal screws for side wiring with separate ground terminal screw.
   2. Wiring Provisions: Terminal screws for side wiring{CH#109124} with separate ground terminal screw.

C. Standard Wall Switches: Industrial specification grade, 20 Amps, 120-277V.

2.03 RECEPTACLES

A. Manufacturers:
   1. Hubbell Incorporated.
   2. Leviton Manufacturing Company, Inc.
   3. Pass & Seymour, a brand of Legrand North America, Inc.

B. General Requirements: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498, and where applicable, FS W-C-596; types as indicated on the drawings.
   1. Wiring Provisions: Terminal screws for side wiring with separate ground terminal screw.
   2. Wiring Provisions: Terminal screws for side wiring{CH#109244} with separate ground terminal screw.
   3. NEMA configurations specified are according to NEMA WD 6.

C. Convenience Receptacles:
   1. Standard Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R; single or duplex as indicated on the drawings.
   2. Weather Resistant Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R, listed and labeled as weather resistant type complying with UL 498 Supplement SD suitable for installation in damp or wet locations; single or duplex as indicated on the drawings.
   3. Tamper Resistant Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R, listed and labeled as tamper resistant type; single or duplex as indicated on the drawings.

D. GFCI Receptacles:

1. General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with UL 943, class A.
   a. Provide test and reset buttons of same color as device.
2. Standard GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style.
3. Weather Resistant GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style, listed and labeled as weather resistant type complying with UL 498 Supplement SD suitable for installation in damp or wet locations.

2.04 WALL PLATES AND COVERS

A. Manufacturers:
   1. Hubbell Incorporated.
   2. Leviton Manufacturing Company, Inc.
   3. Pass & Seymour, a brand of Legrand North America, Inc.

B. Wall Plates: Comply with UL 514D.
   1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
   2. Size: Standard.
   3. Screws: Metal with slotted heads finished to match wall plate finish.

C. Nylon Wall Plates: Smooth finish, high-impact thermoplastic.

D. Weatherproof Receptacle Covers for Wet Locations: Gasketed, cast aluminum, with hinged lockable cover and corrosion-resistant screws; listed as suitable for use in wet locations while in use with attachment plugs connected and identified as extra-duty type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate devices and conductors in accordance with NFPA 70.

C. Verify that wall openings are neatly cut and will be completely covered by wall plates.

D. Verify that final surface finishes are complete, including painting.

E. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

F. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of wiring devices provided under this section.
   1. Mounting Heights: As indicated on the drawings.
   2. Orient outlet boxes for vertical installation of wiring devices unless otherwise indicated.
   3. Locate wall switches on strike side of door with edge of wall plate 3 inches (80 mm) from edge of door frame. Where locations are indicated otherwise, notify Architect to obtain direction prior to proceeding with work.
   4. Locate receptacles for electric drinking fountains concealed behind drinking fountain according to manufacturer's instructions.

B. Install wiring devices in accordance with manufacturer's instructions.

C. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

D. Where required, connect wiring devices using pigtails not less than 6 inches (150 mm) long. Do not connect more than one conductor to wiring device terminals.

E. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.

F. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.

G. Provide GFCI receptacles with integral GFCI protection at each location indicated. Do not use feed-through wiring to protect downstream devices.

H. Install wiring devices plumb and level with mounting yoke held rigidly in place.

I. Install wall switches with OFF position down.

J. Install vertically mounted receptacles with grounding pole on top and horizontally mounted receptacles with grounding pole on left.

K. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.

L. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

3.04 FIELD QUALITY CONTROL

A. Inspect each wiring device for damage and defects.

B. Operate each wall switch and wall dimmer with circuit energized to verify proper operation.

C. Test each receptacle to verify operation and proper polarity.

D. Test each GFCI receptacle for proper tripping operation according to manufacturer's instructions.

E. Correct wiring deficiencies and replace damaged or defective wiring devices.

3.05 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

B. Adjust presets for wall dimmers according to manufacturer's instructions as directed by Architect.

3.06 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

END OF SECTION

SECTION 26 28 13
FUSES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fuses.

1.02 REFERENCE STANDARDS

A. NEMA FU 1 - Low Voltage Cartridge Fuses; 2012.

B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

C. UL 248-1 - Low-Voltage Fuses - Part 1: General Requirements; Current Edition, Including All Revisions.

D. UL 248-4 - Low-Voltage Fuses - Part 4: Class CC Fuses; Current Edition, Including All Revisions.

E. UL 248-12 - Low-Voltage Fuses - Part 12: Class R Fuses; Current Edition, Including All Revisions.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate fuse clips furnished in equipment provided under other sections for compatibility with indicated fuses.
   2. Coordinate fuse requirements according to manufacturer's recommendations and nameplate data for actual equipment to be installed.
   3. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.04 SUBMITTALS

A. Product Data: Provide manufacturer's standard data sheets including voltage and current ratings, interrupting ratings, time-current curves, and current limitation curves.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Bussmann, a division of Eaton Corporation.

B. Littelfuse, Inc.

C. Littelfuse, Inc{CH#113610}.

D. Mersen.

2.02 APPLICATIONS

A. General Purpose Branch Circuits: Class RK1, time-delay.

B. Individual Motor Branch Circuits: Class RK1, time-delay.

C. In-Line Protection for Pole-Mounted Luminaires: Class CC, time-delay.

D. Primary Protection for Control Transformers: Class CC, time-delay.

2.03 FUSES

A. Provide products listed, classified, and labeled as suitable for the purpose intended.

B. Unless specifically indicated to be excluded, provide fuses for all fusible equipment as required for a complete operating system.

C. Provide fuses of the same type, rating, and manufacturer within the same switch.

D. Comply with UL 248-1.

E. Unless otherwise indicated, provide cartridge type fuses complying with NEMA FU 1, Class and ratings as indicated.

F. Voltage Rating: Suitable for circuit voltage.

G. Class R Fuses: Comply with UL 248-12.

H. Class CC Fuses: Comply with UL 248-4.

I. Selectivity: Where the requirement for selectivity is indicated, furnish products as required to achieve selective coordination.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that fuse ratings are consistent with circuit voltage and manufacturer's recommendations and nameplate data for equipment.

B. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Do not install fuses until circuits are ready to be energized.

B. Install fuses with label oriented such that manufacturer, type, and size are easily read.

END OF SECTION

SECTION 26 43 00
SURGE PROTECTIVE DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surge protective devices for service entrance locations.

1.02 RELATED REQUIREMENTS

A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

1.03 REFERENCE STANDARDS

A. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

C. UL 1449 - Standard for Surge Protective Devices; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate size and location of overcurrent device compatible with the actual surge protective device and location to be installed. Notify Architect of any conflicts or deviations from Contract Documents to obtain direction prior to ordering equipment.

1.05 SUBMITTALS

A. Product Data: Include detailed component information, voltage, surge current ratings, repetitive surge current capacity, voltage protection rating (VPR) for all protection modes, maximum continuous operating voltage (MCOV), nominal discharge current (I-n), short circuit current rating (SCCR), connection means including any required external overcurrent protection, enclosure ratings, outline and support point dimensions, weight, service condition requirements, and installed features.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Store in a clean, dry space in accordance with manufacturer's written instructions.

1.08 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.09 WARRANTY

A. Manufacturer's Warranty: Provide minimum five year warranty covering repair or replacement of surge protective devices showing evidence of failure due to defective materials or workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Field-Installed, Externally Mounted Surge Protective Devices:
   1. ABB/GE.
   2. Schneider Electric; Square D Brand Surgelogic Products.
   3. Surge Suppression, LLC (SSI).

2.02 SURGE PROTECTIVE DEVICES - GENERAL REQUIREMENTS

A. Description: Factory-assembled surge protective devices (SPDs) for 60 Hz service; listed, classified, and labeled as suitable for the purpose intended; system voltage as indicated.

B. Description: Factory-assembled surge protective devices (SPDs) for 60 Hz service; listed, classified, and labeled as suitable for the purpose intended; system voltage as indicated{CH#159618}.

C. Unless otherwise indicated, provide field-installed, externally-mounted or factory-installed, internally-mouonted SPDs.

D. List and label as complying with UL 1449, Type 1 when connected on line side of service disconnect overcurrent device and Type 1 or 2 when connected on load side of service disconnect overcurrent device.

E. Protected Modes:
   1. Wye Systems: L-N, L-G, N-G, L-L.

F. UL 1449 Voltage Protection Ratings (VPRs):
   1. 240/120V System Voltage: Not more than 1,000 V for L-N, L-G, and N-G modes and 1,200 V for L-L mode.

G. UL 1449 Maximum Continuous Operating Voltage (MCOV): Not less than 115% of nominal system voltage.

H. Enclosure Environment Type per NEMA EN 10250: Unless otherwise indicated, as specified for the following installation locations:
   1. Indoor clean, dry locations: Type 1.

I. Mounting for Field-installed, Externally Mounted SPDs: Unless otherwise indicated, as specified for the following locations:
   1. Provide surface-mounted SPD where mounted adjacent to surface-mounted equipment.

2.03 SURGE PROTECTIVE DEVICES FOR SERVICE ENTRANCE LOCATIONS

A. Surge Protective Device:
   1. Protection Circuits: Field-replaceable modular or non-modular.
   2. Surge Current Rating: Not less than 120 kA per mode/240 kA per phase.
   3. UL 1449 Nominal Discharge Current (I-n): 20 kA.
   4. UL 1449 Short Circuit Current Rating (SCCR): Not less than the available fault current at the installed location as indicated on the drawings.
   5. Diagnostics:
      a. Protection Status Monitoring: Provide indicator lights to report the protection for each phase.
      b. Alarm Notification: Provide indicator light and audible alarm to report alarm condition. Provide button to manually silence audible alarm.
      c. Surge Counter: Provide surge event counter with manual reset button, surge count retention upon power loss, and six digit LCD display that indicates quantity of surge events.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the service voltage and configuration marked on the SPD are consistent with the service voltage and configuration at the location to be installed.

C. Verify system grounding and bonding is in accordance with Section 26 05 26, including bonding of neutral and ground for service entrance and separately derived systems where applicable. Do not energize SPD until deficiencies have been corrected.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

C. Unless indicated otherwise, connect service entrance surge protective device on load side of service disconnect main overcurrent device.

D. Provide conductors with minimum ampacity as indicated on the drawings, as required by NFPA 70, and not less than manufacturer's recommended minimum conductor size.

E. Install conductors between SPD and equipment terminations as short and straight as possible, not exceeding manufacturer's recommended maximum conductor length. Breaker locations may be reasonably rearranged in order to provide leads as short and straight as possible. Twist conductors together to reduce inductance.

F. Do not energize SPD until bonding of neutral and ground for service entrance and separately derived systems is complete in accordance with Section 26 05 26 where applicable. Replace SPDs damaged by improper or missing neutral-ground bond.

3.03 CLEANING

A. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

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SECTION 26 51 00
INTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior luminaires.

B. Emergency lighting units.

C. Exit signs.

D. Ballasts and drivers.

1.02 RELATED REQUIREMENTS

A. Section 26 05 29 - Hangers and Supports for Electrical Systems.

B. Section 26 05 33.16 - Boxes for Electrical Systems.

C. Section 26 27 26 - Wiring Devices: Manual wall switches and wall dimmers.

1.03 REFERENCE STANDARDS

A. IES LM-79 - Approved Method: Optical and Electrical Measurements of Solid-State Lighting Products; 2024.

B. IES LM-80 - Approved Method: Measuring Maintenance of Light Output Characteristics of Solid-State Light Sources; 2021.

C. NECA/IESNA 500 - Standard for Installing Indoor Commercial Lighting Systems; 2025.

D. NECA/IESNA 502 - Standard for Installing Industrial Lighting Systems; 2006.

E. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility; 2023.

F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

G. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

H. UL 924 - Emergency Lighting and Power Equipment; Current Edition, Including All Revisions.

I. UL 1598 - Luminaires; Current Edition, Including All Revisions.

J. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc. required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.
2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
3. Coordinate the placement of exit signs with furniture, equipment, signage or other potential obstructions to visibility installed under other sections or by others.
4. Notify Architect of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting

requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.07 DELIVERY, STORAGE, AND PROTECTION

A. Receive, handle, and store products according to manufacturer's written instructions.

B. Receive, handle, and store products according to {CH#113841}.

C. Keep products in original manufacturer's packaging and protect from damage until ready for installation.

1.08 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.09 WARRANTY

A. Provide 3-year manufacturer warranty for LED luminaires, including drivers.

B. Provide 5-year pro-rata warranty for batteries for emergency lighting units.

C. Provide 10-year pro-rata warranty for batteries for self-powered exit signs.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

A. Furnish products as indicated in luminaire schedule included on the drawings.

2.02 LUMINAIRES

A. Provide products that comply with requirements of NFPA 70.

B. Provide products that are listed and labeled as complying with UL 1598, where applicable.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.

E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.

F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

G. Recessed Luminaires:
   1. Ceiling Compatibility: Comply with NEMA LE 4.
   2. Luminaires Recessed in Insulated Ceilings: Listed and labeled as IC-rated, suitable for direct contact with insulation and combustible materials.
   3. Luminaires Recessed in Sloped Ceilings: Provide suitable sloped ceiling adapters.

H. LED Luminaires:
   1. Components: UL 8750 recognized or listed as applicable.
   2. Tested in accordance with IES LM-79 and IES LM-80.
   3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

I. Luminaires Mounted in Continuous Rows: Provide quantity of units required for length indicated, with all accessories required for joining and aligning.

2.03 EMERGENCY LIGHTING UNITS

A. Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.

B. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.

C. Battery:
   1. Size battery to supply all connected lamps, including emergency remote heads where indicated.

D. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.

E. Provide low-voltage disconnect to prevent battery damage from deep discharge.

F. Accessories:
   1. Provide compatible accessory mounting brackets where indicated or required to complete installation.
   2. Provide compatible accessory wire guards where indicated.

2.04 EXIT SIGNS

A. Description: Exit signs complying with NFPA 101 and applicable state and local codes, and listed and labeled as complying with UL 924.
   1. Number of Faces: Single- or double-face as indicated or as required for installed location.
   2. Directional Arrows: As indicated or as required for installed location.

B. Powered Exit Signs: Internally illuminated with LEDs unless otherwise indicated.
   1. Self-Powered Exit Signs:
      a. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.
      b. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.
      c. Provide low-voltage disconnect to prevent battery damage from deep discharge.

C. Accessories:
   1. Provide compatible accessory wire guards where indicated.

2.05 BALLASTS AND DRIVERS

A. Ballasts/Drivers - General Requirements:
   1. Provide ballasts containing no polychlorinated biphenyls (PCBs).
   2. Minimum Efficiency/Efficacy: Provide ballasts complying with all current applicable federal and state ballast efficiency/efficacy standards.

B. Dimmable LED Drivers:
   1. Dimming Range: Continuous dimming from 100 percent to 10% percent relative light output unless dimming capability to lower level is indicated, without flicker.
   2. Dimming Range: Continuous dimming from 100 percent to {CH#114365} percent relative light output unless dimming capability to lower level is indicated, without flicker.
   3. Control Compatibility: Fully compatible with the dimming controls to be installed.
      a. Wall Dimmers: See Section 26 27 26.

2.06 ACCESSORIES

A. Stems for Suspended Luminaires: Steel tubing, size as indicated{CH#114283}.

B. Stems for Suspended Luminaires: Steel tubing{CH#114282}, factory finished to match luminaire or field-painted as directed.

C. Threaded Rods for Suspended Luminaires: Zinc-plated steel, minimum 1/4" size, field-painted as directed.

D. Provide accessory plaster frames for luminaires recessed in plaster ceilings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.

C. Verify that suitable support frames are installed where required.

D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of luminaires provided under this section.

B. Install products in accordance with manufacturer's instructions.

C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting) and NECA 502 (industrial lighting).

D. Provide required support and attachment in accordance with Section 26 05 29.

E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

F. Suspended Ceiling Mounted Luminaires:
   1. Do not use ceiling tiles to bear weight of luminaires.
   2. Do not use ceiling support system to bear weight of luminaires unless ceiling support system is certified as suitable to do so.
   3. Secure pendant-mounted luminaires to building structure.
   4. Secure lay-in luminaires to ceiling support channels using listed safety clips at four corners.
   5. See appropriate Division 9 section where suspended grid ceiling is specified for additional requirements.

G. Recessed Luminaires:
   1. Install trims tight to mounting surface with no visible light leakage.
   2. Non-IC Rated Luminaires: Maintain required separation from insulation and combustible materials according to listing.

H. Install accessories furnished with each luminaire.

I. Bond products and metal accessories to branch circuit equipment grounding conductor.

J. Emergency Lighting Units:
   1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
   2. Install lock-on device on branch circuit breaker serving units.

K. Exit Signs:
   1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
   2. Install lock-on device on branch circuit breaker serving units.

L. Install lamps in each luminaire.

3.04 FIELD QUALITY CONTROL

A. Inspect each product for damage and defects.

B. Operate each luminaire after installation and connection to verify proper operation.

C. Test self-powered exit signs, emergency lighting units, and fluorescent emergency power supply units to verify proper operation upon loss of normal power supply.

D. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Architect.

3.05 ADJUSTING

A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Architect. Secure locking fittings in place.

B. Aim and position adjustable emergency lighting unit lamps to achieve optimum illumination of egress path as required or as directed by Architect or authority having jurisdiction.

C. Exit Signs with Field-Selectable Directional Arrows: Set as indicated or as required to properly designate egress path as directed by Architect or authority having jurisdiction.

3.06 CLEANING

A. Clean surfaces according to manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

B. Clean surfaces according to {CH#114320} to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.07 CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate proper operation of luminaires to Architect, and correct deficiencies or make adjustments as directed.

3.08 PROTECTION

A. Protect installed luminaires from subsequent construction operations.

END OF SECTION

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SECTION 26 56 00
EXTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exterior luminaires.

B. Ballasts.

C. Luminaire accessories.

1.02 RELATED REQUIREMENTS

A. Section 26 05 29 - Hangers and Supports for Electrical Systems.

B. Section 26 05 33.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. IES LM-79 - Approved Method: Optical and Electrical Measurements of Solid-State Lighting Products; 2024.

B. IES LM-80 - Approved Method: Measuring Maintenance of Light Output Characteristics of Solid-State Light Sources; 2021.

C. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

D. NECA/IESNA 501 - Standard for Installing Exterior Lighting Systems; 2000 (Reaffirmed 2006).

E. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility; 2023.

F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

G. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Notify Architect of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

A. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, weight, effective projected area (EPA), and installed accessories; include model number nomenclature clearly marked with all proposed features.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, handle, and store products according to NECA/IESNA 501 and manufacturer's written instructions.

B. Keep products in original manufacturer's packaging and protect from damage until ready for installation.

1.08 WARRANTY

A. Provide 2-year manufacturer warranty for all LED luminaires, including drivers.

PART 2 PRODUCTS

2.01 LUMINAIRE TYPES

A. Furnish products as indicated in luminaire schedule included on the drawings.

2.02 LUMINAIRES

A. Provide products that comply with requirements of NFPA 70.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.

D. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, poles, foundations, supports, trims, accessories, etc. as necessary for a complete operating system.

E. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

F. Provide luminaires listed and labeled as suitable for wet locations unless otherwise indicated.

G. Recessed Luminaires:
   1. Ceiling Compatibility: Comply with NEMA LE 4.

H. LED Luminaires:
   1. Components: UL 8750 recognized or listed as applicable.
   2. Tested in accordance with IES LM-79 and IES LM-80.
   3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

2.03 BALLASTS AND DRIVERS

A. Ballasts/Drivers - General Requirements:
   1. Provide ballasts containing no polychlorinated biphenyls (PCBs).
   2. Minimum Efficiency/Efficacy: Provide ballasts complying with all current applicable federal and state ballast efficiency/efficacy standards.

2.04 ACCESSORIES

A. Provide accessory plaster frames for luminaires recessed in plaster ceilings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.

C. Verify that suitable support frames are installed where required.

D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

A. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of luminaires provided under this section.

B. Install products in accordance with manufacturer's instructions.

C. Install luminaires in accordance with NECA/IESNA 501.

D. Provide required support and attachment in accordance with Section 26 05 29.

E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.

F. Recessed Luminaires:
   1. Install trims tight to mounting surface with no visible light leakage.

G. Install accessories furnished with each luminaire.

H. Bond products and metal accessories to branch circuit equipment grounding conductor.

I. Install lamps in each luminaire.

3.04 FIELD QUALITY CONTROL

A. Inspect each product for damage and defects.

B. Operate each luminaire after installation and connection to verify proper operation.

C. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Architect.

3.05 ADJUSTING

A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Architect. Secure locking fittings in place.

3.06 CLEANING

A. Clean surfaces according to NECA/IESNA 501 and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.07 CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate proper operation of luminaires to Architect, and correct deficiencies or make adjustments as directed.

3.08 PROTECTION

A. Protect installed luminaires from subsequent construction operations.

END OF SECTION

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SECTION 26 05 33.13
CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Galvanized steel rigid metal conduit (RMC).
B. Stainless steel rigid metal conduit (RMC).
C. Galvanized steel intermediate metal conduit (IMC).
D. Flexible metal conduit (FMC).
E. Liquidtight flexible metal conduit (LFMC).
F. Galvanized steel electrical metallic tubing (EMT).
G. Rigid polyvinyl chloride (PVC) conduit.
H. Conduit fittings.
I. Conduit fittings.
J. Accessories.
K. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 07 84 00 - Firestopping.
B. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
   1. Includes additional requirements for fittings for grounding and bonding.
C. Section 26 05 29 - Hangers and Supports for Electrical Systems.
D. Section 26 05 53 - Identification for Electrical Systems: Identification products and requirements.
E. Section 26 21 00 - Low-Voltage Electrical Service Entrance: Additional requirements for electrical service conduits.
F. Section 31 23 16.13 - Trenching: Excavating, bedding, and backfilling.

1.03 REFERENCE STANDARDS

A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); 2025.
B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S); 2020.
C. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit; 2025.
D. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
E. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2020.
F. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC); 2025.
G. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.
H. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit; 2020.
I. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; 2021.
J. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
K. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.
L. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.
M. UL 6A - Electrical Rigid Metal Conduit-Aluminum, Red Brass, and Stainless Steel; Current Edition, Including All Revisions.

N. UL 360 - Liquid-Tight Flexible Metal Conduit; Current Edition, Including All Revisions.

O. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.

P. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings; Current Edition, Including All Revisions.

Q. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.

R. UL 1242 - Electrical Intermediate Metal Conduit-Steel; Current Edition, Including All Revisions.

S. UL 2419 - Outline of Investigation for Electrically Conductive Corrosion Resistant Compounds; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate minimum sizes of conduits with actual type and quantity of conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
   2. Coordinate arrangement of conduits with structural members, ductwork, piping, equipment, and other potential conflicts.
   3. Verify exact conduit termination locations required for boxes, enclosures, and equipment.
   4. Coordinate work to provide roof penetrations that preserve integrity of roofing system and do not void roof warranty.
   5. Notify Architect of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not begin installation of conductors and cables until installation of conduit between termination points is complete.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70, manufacturer's instructions, and product listing.

B. Unless otherwise indicated and where not otherwise restricted, use conduit types indicated for specified applications. Where more than one listed application applies, comply with most restrictive requirements. Where conduit type for particular application is not specified, use galvanized steel rigid metal conduit.

C. Underground:
   1. Under Slab on Grade: Use PVC-coated galvanized steel rigid metal conduit or rigid PVC conduit.
   2. Exterior, Direct-Buried: Use rigid PVC conduit.
   3. Where rigid polyvinyl chloride (PVC) conduit is provided, transition to galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or schedule 80 rigid PVC conduit where emerging from underground.

D. Concealed Within Masonry Walls: Use electrical metallic tubing (EMT).

E. Concealed Within Hollow Stud Walls: Use electrical metallic tubing (EMT).

F. Concealed Above Accessible Ceilings: Use electrical metallic tubing (EMT).

G. Interior, Damp or Wet Locations: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).

H. Exposed, Interior, Not Subject to Physical Damage: Use electrical metallic tubing (EMT) or surface raceway. Note: surface raceway if required in finished spaces for surface applications unless noted otherwise on the drawings..

I. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).
   1. Locations subject to physical damage include, but are not limited to:
      a. Where exposed below 8 feet (2.4 m), except within electrical and communication rooms or closets.

J. Exposed, Exterior, Not Subject to Severe Physical Damage: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).

K. Exposed, Exterior, Subject to Severe Physical Damage: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or stainless steel intermediate metal conduit (IMC).

L. Concealed, Exterior, Not Embedded in Concrete or in Contact With Earth: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).

M. Flexible Connections to Vibrating Equipment:
   1. Dry Locations: Use flexible metal conduit (FMC).
   2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit (LFMC).
   3. Maximum Length: 6 feet (1.8 m) unless otherwise indicated.
   4. Vibrating equipment includes, but is not limited to:
      a. Motors.

N. Fished in Existing Walls, Where Necessary: Use flexible metal conduit (FMC) or galvanized steel electrical metallic tubing (EMT).

2.02 CONDUIT - GENERAL REQUIREMENTS

A. Comply with NFPA 70.

B. Existing Work: Where existing conduits are indicated to be reused, they may be reused only where they comply with specified requirements, are free from corrosion, and integrity is verified by pulling mandrel through them.

C. Electrical Service Conduits: See Section 26 21 00 for additional requirements.

D. Fittings for Grounding and Bonding: See Section 26 05 26 for additional requirements.

E. Provide conduit, fittings, supports, and accessories required for complete raceway system.

F. Provide products listed, classified, and labeled as suitable for purpose intended.

G. Minimum Conduit Size, Unless Otherwise Indicated:
   1. Branch Circuits: 3/4 inch (21 mm) trade size.
   2. Control Circuits: 1/2-inch (16 mm) trade size.
   3. Underground, Interior: 1 inch (27 mm) trade size.
   4. Underground, Exterior: 1-inch (27 mm) trade size.

H. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.

B. Fittings:
   1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6.

2. Material: Use steel or malleable iron.
3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.04 STAINLESS STEEL RIGID METAL CONDUIT (RMC)

A. Description: NFPA 70, Type RMC stainless steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6A.

B. Fittings:
1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6A.
2. Material: Use stainless steel with corrosion resistance equivalent to conduit.
3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.05 GALVANIZED STEEL INTERMEDIATE METAL CONDUIT (IMC)

A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.

B. Fittings:
1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 1242.
2. Material: Use steel or malleable iron.
3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.06 FLEXIBLE METAL CONDUIT (FMC)

A. Description: NFPA 70, Type FMC standard-wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems.

B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
2. Material: Use steel or malleable iron.

2.07 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.

B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
2. Material: Use steel or malleable iron.

2.08 GALVANIZED STEEL ELECTRICAL METALLIC TUBING (EMT)

A. Description: NFPA 70, Type EMT galvanized steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.

B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
2. Material: Use steel or malleable iron.
3. Connectors and Couplings: Use compression/gland or set-screw type.
a. Do not use indenter type connectors and couplings.
4. Damp or Wet Locations, Where Permitted: Use fittings listed for use in wet locations.

2.09 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated,

Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.

B. Fittings:
   1. Manufacturer: Same as manufacturer of conduit to be connected.
   2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

2.10 ACCESSORIES

A. Corrosion Protection Tape: PVC-based, minimum thickness of 20 mil, 0.020 inch (0.51 mm).

B. Conduit Joint Compound: Corrosion-resistant, electrically conductive compound listed as complying with UL 2419; suitable for use with conduit to be installed.

C. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.

D. Pull Strings: Use nylon or polyester tape with average breaking strength of not less than 1,250 lbf (5.6 kN).

E. Sealing Compound for Hazardous/Classified Location Sealing Fittings: Listed for use with particular fittings to be installed.

F. Sealing Systems for Concrete Penetrations:
   1. Sleeves: Provide water stop ring or cement coating that bonds to concrete to prevent water infiltration.
   2. Rate for minimum of 40 psig; suitable for sealing around conduits to be installed.

G. Sealing Systems for Roof Penetrations: Premanufactured components and accessories as required to preserve integrity of roofing system and maintain roof warranty; suitable for conduits and roofing system to be installed; designed to accommodate existing penetrations where applicable.

H. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for conduits and facade materials to be installed.

I. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive conduits.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install conduit in accordance with NECA 1.

C. Galvanized Steel Rigid Metal Conduit (RMC): Install in accordance with NECA 101.

D. Intermediate Metal Conduit (IMC): Install in accordance with NECA 101.

E. Rigid Polyvinyl Chloride (PVC) Conduit: Install in accordance with NECA 111.

F. Conduit Routing:
   1. Unless dimensioned, conduit routing indicated is diagrammatic.
   2. When conduit destination is indicated without specific routing, determine exact routing required.
   3. Conceal conduits unless specifically indicated to be exposed.
   4. Conduits in the following areas may be exposed, unless otherwise indicated:
      a. Electrical rooms.

b. Mechanical equipment rooms.

5. Unless otherwise approved, do not route exposed conduits:
   a. Across floors.
   b. Across roofs.
   c. Across building exterior surfaces.
6. Conduits installed underground or embedded in concrete may be routed in shortest possible manner unless otherwise indicated. Route other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.
7. Arrange conduit to maintain adequate headroom, clearances, and access.
8. Arrange conduit to provide no more than equivalent of four 90-degree bends between pull points.
9. Route conduits above water and drain piping where possible.
10. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
11. Maintain minimum clearance of 6 inches (150 mm) between conduits and piping for other systems.
12. Maintain minimum clearance of 12 inches (300 mm) between conduits and hot surfaces. This includes, but is not limited to:
    a. Heaters.
    b. Hot water piping.
    c. Flues.
13. Group parallel conduits in same area on common rack.

G. Conduit Support:
1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by authorities having jurisdiction; see Section 26 05 29.
2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
4. Use conduit strap to support single surface-mounted conduit.
   a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.
5. Use metal channel/strut with accessory conduit clamps to support multiple parallel surface-mounted conduits.
6. Use conduit clamp to support single conduit from beam clamp or threaded rod.
7. Use trapeze hangers assembled from threaded rods and metal channel/strut with accessory conduit clamps to support multiple parallel suspended conduits.
8. Use of wire for support of conduits is not permitted.
9. Where conduit support intervals specified in NFPA 70 and NECA standards differ, comply with most stringent requirements.

H. Connections and Terminations:
1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
3. Use suitable adapters where required to transition from one type of conduit to another.
4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
6. Provide insulating bushings, insulated throats, or listed metal fittings with smooth, rounded edges at conduit terminations to protect conductors.

7. Secure joints and connections to provide mechanical strength and electrical continuity.

I. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
2. Make penetrations perpendicular to surfaces unless otherwise indicated.
3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
4. Conceal bends for conduit risers emerging above ground.
5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
6. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
7. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
8. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty.
9. Provide metal escutcheon plates for conduit penetrations exposed to public view.
10. Install firestopping to preserve fire resistance rating of partitions and other elements; see Section 07 84 00.

J. Underground Installation:
1. Provide trenching and backfilling; see Section 31 23 16.13.
2. Minimum Cover, Unless Otherwise Indicated or Required:
   a. Underground, Exterior: 24 inches (610 mm).
3. Provide underground warning tape along entire conduit length for service entrance where not concrete-encased; see Section 26 05 53.

K. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
2. Where calculated in accordance with NFPA 70 for rigid polyvinyl chloride (PVC) conduit installed above ground to compensate for thermal expansion and contraction.
3. Where conduits are subject to earth movement by settlement or frost.

L. Conduit Sealing:
1. Use foam conduit sealant to prevent entry of moisture and gases. This includes, but is not limited to:
   a. Where conduits enter building from outside.
   b. Where service conduits enter building from underground distribution system.
   c. Where conduits enter building from underground.
   d. Where conduits may transport moisture to contact live parts.
2. Where conduits cross barriers between areas of potential substantial temperature differential, use foam conduit sealant at accessible point near penetration to prevent condensation. This includes, but is not limited to:
   a. Where conduits pass from outdoors into conditioned interior spaces.
   b. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.

M. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide {CH#370478} at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:

N. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation.{CH#370477}
   1. Where conduits pass from outdoors into conditioned interior spaces.
   2. Where conduits pass from outdoors into conditioned interior spaces.
   3. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
   4. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.

O. Provide pull string in each empty conduit and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches (300 mm) at each end.

P. Provide grounding and bonding; see Section 26 05 26.

Q. Identify conduits; see Section 26 05 53.

3.03 FIELD QUALITY CONTROL

A. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

B. Correct deficiencies and replace damaged or defective conduits.

3.04 CLEANING

A. Clean interior of conduits to remove moisture and foreign matter.

3.05 PROTECTION

A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END OF SECTION

SECTION 26 05 33.16
BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Outlet and device boxes up to 100 cubic inches (1,650 cu cm), including those used as junction and pull boxes.

B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches (1,650 cu cm).

C. Boxes and enclosures for integrated power, data, and audio/video.

D. Underground boxes/enclosures.

E. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 08 31 00 - Access Doors and Panels: Panels for maintaining access to concealed boxes.

B. Section 26 05 29 - Hangers and Supports for Electrical Systems.

C. Section 26 05 33.13 - Conduit for Electrical Systems:
   1. Conduit bodies and other fittings.
   2. Additional requirements for locating boxes to limit conduit length and/or number of bends between pulling points.

D. Section 26 27 26 - Wiring Devices:
   1. Wall plates.
   2. Additional requirements for locating boxes for wiring devices.

E. Section 27 10 00 - Structured Cabling: Additional requirements for communications systems outlet boxes.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

B. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.

C. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

D. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

E. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.

G. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; 2013 (Reaffirmed 2020).

H. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports; 2013 (Reaffirmed 2020).

I. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

J. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.

K. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

L. UL 508A - Industrial Control Panels; Current Edition, Including All Revisions.

M. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.

N. UL 514C - Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.
4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
6. Coordinate the work with other trades to preserve insulation integrity.
7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
8. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 BOXES

A. General Requirements:
1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
3. Provide products listed, classified, and labeled as suitable for the purpose intended.
4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
5. Provide grounding terminals within boxes where equipment grounding conductors terminate.

B. Outlet and Device Boxes Up to 100 cubic inches (1,650 cu cm), Including Those Used as Junction and Pull Boxes:
1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
3. Use nonmetallic boxes where exposed rigid PVC conduit is used.
4. Use suitable concrete type boxes where flush-mounted in concrete.
5. Use suitable masonry type boxes where flush-mounted in masonry walls.
6. Use raised covers suitable for the type of wall construction and device configuration where required.
7. Use shallow boxes where required by the type of wall construction.
8. Do not use "through-wall" boxes designed for access from both sides of wall.
9. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.

10. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
11. Nonmetallic Boxes: Comply with NEMA OS 2, and list and label as complying with UL 514C.
12. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
13. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
14. Minimum Box Size, Unless Otherwise Indicated:
    a. Communications Systems Outlets: 4 inch square by 2-1/8 inch (100 by 54 mm) trade size.
    b. Ceiling Outlets: 4 inch octagonal or square by 1-1/2 inch deep (100 by 38 mm) trade size.
15. Wall Plates: Comply with Section 26 27 26.

C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):
1. Comply with NEMA EN 10250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
2. NEMA EN 10250 Environment Type, Unless Otherwise Indicated:
    a. Indoor Clean, Dry Locations: Type 1, painted steel.
    b. Outdoor Locations: Type 3R, painted steel.
3. Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):
    a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
4. Cabinets and Hinged-Cover Enclosures, Other Than Junction and Pull Boxes:
    a. Provide lockable hinged covers, all locks keyed alike unless otherwise indicated.
    b. Back Panels: Painted steel, removable.
    c. Terminal Blocks: Provide voltage/current ratings and terminal quantity suitable for purpose indicated, with 25 percent spare terminal capacity.
5. Finish for Painted Steel Enclosures: Manufacturer's standard grey unless otherwise indicated.

D. Boxes and Enclosures for Integrated Power, Data, and Audio/Video: Size and configuration as indicated or as required with partitions to separate services; field-connected gangable boxes may be used.

E. Underground Boxes/Enclosures:
1. Description: In-ground, open bottom boxes furnished with flush, non-skid covers with legend indicating type of service and stainless steel tamper resistant cover bolts.
2. Size: As indicated on drawings.
3. Depth: As required to extend below frost line to prevent frost upheaval, but not less than 12 inches (300 mm).
4. Provide logo on cover to indicate type of service.
5. Applications:
    a. Do not use polymer concrete enclosures in areas subject to deliberate vehicular traffic.

2.02 ACCESSORIES

A. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for boxes and facade materials to be installed.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive boxes.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Provide separate boxes for emergency power and normal power systems.

E. Unless otherwise indicated, provide separate boxes for line voltage and low voltage systems.

F. Flush-mount boxes in finished areas unless specifically indicated to be surface-mounted.

G. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.

H. Box Locations:
   1. Locate boxes to be accessible. Provide access panels in accordance with Section 08 31 00 as required where approved by the Architect.
   2. Unless dimensioned, box locations indicated are approximate.
   3. Locate boxes as required for devices installed under other sections or by others.
      a. Switches, Receptacles, and Other Wiring Devices: Comply with Section 26 27 26.
      b. Communications Systems Outlets: Comply with Section 27 10 00.
   4. Locate boxes so that wall plates do not span different building finishes.
   5. Locate boxes so that wall plates do not cross masonry joints.
   6. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
   7. Do not install flush-mounted boxes on opposite sides of walls back-to-back. Provide minimum 6 inches (150 mm) horizontal separation unless otherwise indicated.
   8. Acoustic-Rated Walls: Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches (610 mm) horizontal separation.
   9. Fire Resistance Rated Walls: Install flush-mounted boxes such that the required fire resistance will not be reduced.
      a. Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches (610 mm) separation where wall is constructed with individual noncommunicating stud cavities or protect both boxes with listed putty pads.
      b. Do not install flush-mounted boxes with area larger than 16 square inches (0.0103 sq m) or such that the total aggregate area of openings exceeds 100 square inches (0.0645 sq m) for any 100 square feet (9.29 sq m) of wall area.
   10. Locate junction and pull boxes as indicated, as required to facilitate installation of conductors, and to limit conduit length and/or number of bends between pulling points in accordance with Section 26 05 33.13.
   11. Locate junction and pull boxes in the following areas, unless otherwise indicated or approved by the Architect:
      a. Concealed above accessible suspended ceilings.
      b. Within joists in areas with no ceiling.
      c. Electrical rooms.
      d. Mechanical equipment rooms.

I. Box Supports:
   1. Secure and support boxes in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.

2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.

J. Install boxes plumb and level.

K. Flush-Mounted Boxes:
1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch (6 mm) or does not project beyond finished surface.
2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch (3 mm) at the edge of the box.

L. Install boxes as required to preserve insulation integrity.

M. Underground Boxes/Enclosures:
1. Install enclosure on gravel base, minimum 6 inches (150 mm) deep.
2. Install additional bracing inside enclosures in accordance with manufacturer's instructions to minimize box sidewall deflections during backfilling. Backfill with cover bolted in place.

N. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.

O. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.

P. Close unused box openings.

Q. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.

R. Provide grounding and bonding in accordance with Section 26 05 26.

3.03 CLEANING

A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

3.04 PROTECTION

A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.

END OF SECTION

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SECTION 26 05 33.23
SURFACE RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface raceway systems.

1.02 RELATED REQUIREMENTS

A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

B. Section 26 05 29 - Hangers and Supports for Electrical Systems.

C. Section 26 05 33.13 - Conduit for Electrical Systems.

D. Section 26 05 33.16 - Boxes for Electrical Systems.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

B. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

C. UL 5 - Surface Metal Raceways and Fittings; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the placement of raceways with millwork, furniture, equipment, etc. installed under other sections or by others.
   2. Coordinate rough-in locations of outlet boxes provided under Section 26 05 33.16 and conduit provided under Section 26 05 33.13 as required for installation of raceways provided under this section.
   3. Verify minimum sizes of raceways with the actual conductors and components to be installed.
   4. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:
   1. Do not install raceways until final surface finishes and painting are complete.
   2. Do not begin installation of conductors and cables until installation of raceways is complete between outlet, junction and splicing points.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets including dimensions, knockout sizes and locations, materials, fabrication details, finishes, service condition requirements, and accessories.
   1. Surface Raceway Systems: Include information on fill capacities for conductors and cables.

C. Shop Drawings:
   1. Raceway: Provide dimensioned plan and elevation views including adjacent equipment with all required clearances indicated.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 RACEWAY REQUIREMENTS

A. Provide all components, fittings, supports, and accessories required for a complete raceway system.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Do not use raceways for applications other than as permitted by NFPA 70 and product listing.

2.02 SURFACE RACEWAY SYSTEMS

A. Manufacturers:
   1. Hubbell Incorporated:
   2. Legrand North America, Inc: .

B. Surface Metal Raceways: Listed and labeled as complying with UL 5.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that outlet boxes and conduit terminations are installed in proper locations and are properly sized in accordance with NFPA 70 to accommodate raceways.

C. Verify that mounting surfaces are ready to receive raceways and that final surface finishes are complete, including painting.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Install raceways plumb and level.

D. Secure and support raceways in accordance with Section 26 05 29 at intervals complying with NFPA 70 and manufacturer's requirements.

E. Close unused raceway openings.

F. Provide grounding and bonding in accordance with Section 26 05 26.

3.03 FIELD QUALITY CONTROL

A. Inspect raceways for damage and defects.

B. Correct wiring deficiencies and replace damaged or defective raceways.

3.04 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.05 PROTECTION

A. Protect installed raceways from subsequent construction operations.

END OF SECTION

SECTION 26 28 16.16
ENCLOSED SWITCHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Enclosed safety switches.

1.02 RELATED REQUIREMENTS

A. Section 26 05 26 - Grounding and Bonding for Electrical Systems.

B. Section 26 05 29 - Hangers and Supports for Electrical Systems.

C. Section 26 28 13 - Fuses.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

B. NEMA BS 31047 - Heavy Duty Enclosed and Dead-Front Switches (600 Volts Maximum); 2013 (Reaffirmed 2023).

C. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.

F. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

G. UL 98 - Enclosed and Dead-Front Switches; Current Edition, Including All Revisions.

H. UL 869A - Reference Standard for Service Equipment; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the work with other trades. Avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and within working clearances for electrical equipment required by NFPA 70.
2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
3. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
4. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. Product Data: Provide manufacturer's standard catalog pages and data sheets for enclosed switches and other installed components and accessories.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

B. Handle carefully in accordance with manufacturer's written instructions to avoid damage to enclosed switch internal components, enclosure, and finish.

1.08 FIELD CONDITIONS

A. Maintain ambient temperature between -22 degrees F (-30 degrees C) and 104 degrees F (40 degrees C) during and after installation of enclosed switches.

PART 2 PRODUCTS

2.01 ENCLOSED SAFETY SWITCHES

A. Manufacturers:
   1. Source Limitations: Furnish products produced by same manufacturer as other electrical distribution equipment for project and obtained from single supplier.

B. Description: Quick-make, quick-break enclosed safety switches listed and labeled as complying with UL 98; heavy duty; ratings, configurations, and features as indicated on the drawings.

C. Provide products listed, classified, and labeled as suitable for the purpose intended.

D. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
   1. Altitude: Less than 6,600 feet (2,000 m).
   2. Ambient Temperature: Between -22 degrees F (-30 degrees C) and 104 degrees F (40 degrees C).

E. Horsepower Rating: Suitable for connected load.

F. Voltage Rating: Suitable for circuit voltage.

G. Short Circuit Current Rating:
   1. Provide enclosed safety switches, when protected by the fuses or supply side overcurrent protective devices to be installed, with listed short circuit current rating not less than the available fault current at the installed location as indicated on the drawings.
   2. Minimum Ratings:
      a. Heavy Duty Single Throw Switches Protected by Class R, Class J, Class L, or Class T Fuses: 200,000 rms symmetrical amperes.

H. Enclosed Safety Switches Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.

I. Provide with switch blade contact position that is visible when the cover is open.

J. Conductor Terminations: Suitable for use with the conductors to be installed.

K. Provide insulated, groundable fully rated solid neutral assembly where a neutral connection is required, with a suitable lug for terminating each neutral conductor.

L. Provide solidly bonded equipment ground bus in each enclosed safety switch, with a suitable lug for terminating each equipment grounding conductor.

M. Enclosures: Comply with NEMA EN 10250, and list and label as complying with UL 50 and UL 50E.
   1. Environment Type per NEMA EN 10250: Unless otherwise indicated, as specified for the following installation locations:
      a. Indoor Clean, Dry Locations: Type 1.
      b. Outdoor Locations: Type 3R.
   2. Finish for Painted Steel Enclosures: Manufacturer's standard, factory applied grey unless otherwise indicated.

N. Provide safety interlock to prevent opening the cover with the switch in the ON position with capability of overriding interlock for testing purposes.

O. Heavy Duty Switches:
   1. Comply with NEMA BS 31047.
   2. Conductor Terminations:
      a. Provide mechanical lugs unless otherwise indicated.

b. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.

3. Provide externally operable handle with means for locking in the OFF position, capable of accepting three padlocks.
   a. Provide means for locking handle in the ON position.
   b. Provide means for locking handle in the ON position{CH#111833}.

P. Provide the following features and accessories where indicated or where required to complete installation:
   1. Viewing Window: Positioned over switch blades for visual confirmation of contact position with door closed.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the ratings of the enclosed switches are consistent with the indicated requirements.

C. Verify that mounting surfaces are ready to receive enclosed safety switches.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Provide required support and attachment in accordance with Section 26 05 29.

E. Install enclosed switches plumb.

F. Except where indicated to be mounted adjacent to the equipment they supply, mount enclosed switches such that the highest position of the operating handle does not exceed 79 inches (2000 mm) above the floor or working platform.

G. Provide grounding and bonding in accordance with Section 26 05 26.

H. Provide fuses complying with Section 26 28 13 for fusible switches as indicated or as required by equipment manufacturer's recommendations.

3.03 FIELD QUALITY CONTROL

A. Correct deficiencies and replace damaged or defective enclosed safety switches or associated components.

3.04 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

3.05 CLEANING

A. Clean dirt and debris from switch enclosures and components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

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SECTION 32 91 19

SITE PROTECTION AND RESTORATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Site protection during construction and restoration after construction.

B. Related Sections:
   1. Section 32 92 19 - Seeding and Soil Supplements: Finish ground cover.

1.2 SUBMITTALS

A. See Division 1 specifications.

B. Materials Source: Submit name of imported materials source.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.3 QUALITY ASSURANCE

A. Furnish each topsoil material from single source throughout the Work.

PART 2 PRODUCTS

2.1 MATERIAL

A. Topsoil: Blended soil mix consisting of ASTM D5268-92(96) soil component, ASTM C33 course sand and approved organic amendment, tested to determine fertilizer and lime recommendations. Topsoil shall be fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay or impurities, plants, weeds and roots; minimum pH value of 5.4 and maximum 7.0; organic matter to exceed 1.5%, magnesium to exceed 100 units; phosphorus to exceed 150 units; potassium to exceed 120 units; soluble salts/conductivity not to exceed 900 ppm/0.9 mmhos/cm in soil.

2.2 SOIL AMENDMENT MATERIALS

A. When soil tests indicate soil amendment, apply soil conditioners or fertilizers to amend soil to specified conditions.

B. Bone Meal: Raw, finely ground, commercial grade, minimum of 3 percent nitrogen and 20 percent phosphorous.

C. Lime: Ground limestone, dolomite type, minimum 95 percent carbonates.

D. Water: Clean, fresh, and free of substances or matter capable of inhibiting vigorous growth of plants.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify substrate base has been contoured and compacted.

3.2 SITE PROTECTION

A. Protect adjacent building surfaces, site paving areas and landscape against damage from roofing work.

B. Protect existing lawn areas with ¾" thick plywood sheathing when any vehicular traffic or dumpster traffic is intended to be used over areas.

C. No trees are to be inside contractor's staging areas. If contractor proposes to enclose a tree within a staging area, see requirements below.

D. See tree protection requirements from City of Columbus for trees in right-of-way.

E. Contractor is required to restore site and landscaping to existing condition prior to work starting.

F. See Site Plan for allowable staging areas, contractor parking and required protection of site amenities.

1. Temporary Protection & Staging Area Fencing:

2. Fencing must be installed prior to any equipment arrival on the site. Work may not begin until fencing is installed.

3. Fencing shall be galvanized chain link as specified below, 6' minimum height. Plastic fencing and wood stakes, or snow fencing are NOT acceptable.

4. Fence shall be maintained for the duration of the project and shall not be removed without the owner's permission.

5. The minimum height for all temporary fencing shall be 6 feet.

6. The fencing shall be of galvanized 11-1/2 ga. chain-link construction with a minimum of 1-5/8" O.D. tubular steel posts and top rails. Provide opaque fabric on chain link fencing as approved by Owner.

7. Surface mounted fence panels may be used with the approval of the owner and are to be adequately braced to resist wind and ice loading and shall be continuously connected to prevent access by the public.

8. Barbed wire shall not be used.

9. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

3.3 TOPSOIL SUBSTRATE PREPARATION

A. Existing lawns must be restored when compacted during construction. Repair any ruts or depressions left by equipment or storage of material. Remove topsoil containing foreign materials resulting from contractors operations including oil drippings, fuel spills, stone, gravel, and other construction materials, and replace with new topsoil. Mow, dethatch, core aerate at a rate of 9 holes per square foot and rake existing lawn. Remove weeds before seeding. Where weeds are excessive, apply selective herbicides as required. Do not use emerging herbicides. Till stripped, bare and compacted areas to a soil depth of 6". Apply 1" compost over entire area to be repaired. Slit seed using seed mix and rate appropriate to area. See Specification Section 32 92 10 Seeding.

B. Eliminate uneven areas and low spots.

C. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove contaminated subsoil.

3.4 PLACING TOPSOIL

A. Place topsoil in areas where seeding is required to thickness as scheduled. Place topsoil during dry weather.

B. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.

C. Remove roots, weeds, rocks, and foreign material while spreading.

D. Manually spread topsoil close to plant material and building to prevent damage.

E. Lightly compact placed topsoil.

F. Remove surplus subsoil and topsoil from site.

3.5 TOLERANCES

A. Top of Topsoil: Plus or minus ½ inch.

3.6 PLANTING PROTECTION

A. Existing Shrubs: Existing shrubs within the construction area or staging area: replace or correctively prune if damaged during construction. Prune to the height at the beginning of construction. Weed or spray if weeds have grown up within the construction area or shrubbery.

B. Existing Trees: Existing trees: original grade maintained no top fill greater than 2" from the original grade out of the drip line; minimal to no grading under the drip line.

3.7 PROTECTION OF INSTALLED WORK

A. Section 01 70 00 - Execution Requirements: Requirements for protecting finished Work.

B. Prohibit construction traffic over topsoil.

C. Release of the restored area will be approved by the Owner's representative and Associate. The contractor will be recalled to provide a proper growing environment for the plant material.

3.8 SCHEDULES

A. Compacted topsoil thicknesses:
   1. Seeded Grass: 6 inches. 4” topsoil and 2” compost.
   2. Shrub Beds: 12 inches. 10” topsoil and 2” compost.

END OF SECTION

SECTION 32 92 19

SEEDING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Fertilizing.
   2. Seeding.
   3. Maintenance.

B. Related Sections:
   1. Section 32 91 19 – Site Protection and Restoration

1.2 REFERENCES

A. ASTM International:
   1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

1.3 DEFINITIONS

A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.4 SUBMITTALS

A. See General Division 1 specifications.

B. Product Data: Submit data for seed mix, fertilizer, and other accessories.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution Requirements: Requirements for submittals.

1.6 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

1.7 QUALIFICATIONS

A. Seed Supplier: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing work of this section with minimum three years documented experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

C. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.9 MAINTENANCE SERVICE

A. Section 01 70 00 - Execution Requirements: Requirements for maintenance service.

B. Maintain seeded areas (including watering, mowing and weed control) until acceptance by the Owner. Total cover of planting areas shall be guaranteed by the contractor.

PART 2 PRODUCTS

2.1 SEED MIXTURE

A. Seed Mixture: Green Velvet's Finest mixture.

2.2 ACCESSORIES

A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable. Evenly distribute at an approximate thickness of two straws with no plies of straw. Areas with too much straw must be redone with the removal of the straw, touch up grading, if necessary, and the proper depth of straw applied.

B. Fertilizer: Commercial grade; recommended for grass; 18-24-12 mix to be applied at a rate of 4 lbs. of fertilizer per 1000 SF or a similar analysis with one pound of phosphorous per 1,000 SF and low nitrogen. The fertilizer must be coded for slow release. Hand rake seed and fertilizer lightly into ½" of soil.

C. Water: Clean, fresh and free of substances or matter capable of inhibiting vigorous growth of grass.

2.3 SOURCE QUALITY CONTROL

A. Analyze to ascertain percentage of nitrogen, phosphorus, potash, soluble salt content, organic matter content, and pH value.

B. Provide recommendation for fertilizer rates for specified seed mix as result of testing.

C. Testing is not required when recent tests and certificates are available for imported topsoil. Submit these test results to testing laboratory. Indicate, by test results, information necessary to determine suitability.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify prepared soil base is ready to receive the Work of this section.

3.2 SEEDING

A. Apply seed at rate of 3.5 lbs per 1000 sq ft evenly in two intersecting directions. Rake in lightly.

B. Do not seed areas in excess of that which can be mulched on same day.

C. Planting Season: Seeding shall be done between the August 15 and October 15, or between March 15 and May 20. If seeding must take place after May 20 or October 15 and the lawn requires a perennial rye and bluegrass mix, the seeding will be split. The perennial rye seed will be sown at the time scheduled and the bluegrass seed will be split, seeded over the same area in September.

D. Do not sow immediately following rain, when ground is too dry, or when winds are over 12 mph (19 km/h).

E. Immediately following seeding, apply mulch. Maintain clear of shrubs and trees.

F. Apply water with fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

G. Clean all sidewalks of soil, sweep walks clean of straw, seed and fertilizer.

3.3 MAINTENANCE

A. Mow grass at regular intervals to maintain at maximum height of 2-1/2 inches. Do not cut more than 1/3 of grass blade at each mowing. Perform first mowing when seedlings are 40 percent higher than desired height. Continuing mowings until Certificate of Contract Completion is issued.

B. Neatly trim edges and hand clip where necessary.

C. Immediately remove clippings after mowing and trimming. Do not let clippings lay in clumps.

D. Water to prevent grass and soil from drying out.

E. Control growth of weeds. Apply herbicides. Remedy damage resulting from improper use of herbicides.

F. Immediately reseed areas showing bare spots.

G. Repair washouts or gullies.

H. Protect seeded areas with warning signs during maintenance period.

END OF SECTION