DUBLIN CITY SCHOOL DISTRICT BOARD OF EDUCATION
BUILDING ENVELOPE 2025 PI/BOND PROJECT
ROOF REPLACEMENT AT DANIEL WRIGHT ELEMTARY SCHOOL
DUBLIN, OHIO

ISSUED FOR:
CONSTRUCTION DOCUMENTS
11-21-25

PREPARED BY:
MAYS CONSULTING & EVALUATION SERVICES, INC.
201 PENNSYLVANIA AVENUE
P.O. BOX 1020
DELAWARE, OHIO 43015
PHONE: (740) 363-9511

MAYS PROJECT NO. DOH43-013

BUILDING ENVELOPE 2025 PI/BOND PROJECT -
ROOF REPLACEMENT AT DANIEL WRIGHT ELEMENTARY SCHOOL

OWNER:

DUBLIN CITY SCHOOL DISTRICT BOARD OF EDUCATION
6371a SHIER RINGS ROAD
DUBLIN, OHIO 43017

CONTACT:
JEFF STARK
CHIEF OPERATING OFFICER
PHONE: 614-760-4323
EMAIL: STARK_JEFF@DUBLINSCHOOLS.NET

PROJECT LOCATION:

2335 W. CASE ROAD
COLUMBUS, OHIO 43235

DESIGN PROFESSIONAL:

MAYS CONSULTING & EVALUATION SERVICES, INC.
201 PENNSYLVANIA AVE., P.O. BOX 1020
DELAWARE, OHIO 43015

CONTACT:
DAN LAWRENCE, P.E., R.B.E.C.
PROJECT ADMINISTRATOR
PHONE: (740) 363-9511
EMAIL: DLAWRENCE@MCES.COM

ASBESTOS CONSULTANT:

LAWHON & ASSOCIATES, INC.
1441 KING AVENUE
COLUMBUS, OHIO 43212

CONTACT:
DOMANIC MARTIN, APD #60900 (EXP 10-07-2025)
CONSULTANT
PHONE: (614) 203-3884
EMAIL: DMARTIN@LAWHON-ASSOC.COM

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Legal Notice

Sealed bids will be received by the Dublin City School District Board of Education (the "Owner"), as provided in this notice for the Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School (the "Project"). Contract documents, which include additional details of the Project, are on file and available at www.dublinschools.net, Departments, Operations, Bids and RFPs.

Bids shall be enclosed in a sealed envelope addressed to Dublin City School District Board of Education, ATTN: Jeff Stark, Chief Operating Officer, 6371a Shier Rings Road, Dublin, Ohio 43017 and plainly marked on the outside "DUBLIN CITY SCHOOL DISTRICT BOARD OF EDUCATION ROOF REPLACEMENT AT DANIEL WRIGHT ELEMENTARY SCHOOL BID." Bids will be received until 2:00 p.m., local time, December 18, 2025. Immediately after the time for their filing is expired, the bids shall be opened and read publicly.

Questions regarding plans and specifications should be addressed in writing to Dan Lawrence at dlawrence@mces.com.

All bids must include a Bid Guaranty, as described in the Instructions to Bidders. Prevailing wage rates do not apply. No bidder may withdraw its bid within 60 days after the opening; the Owner reserves the right to waive irregularities, reject any or all bids, and conduct necessary investigations to determine bidder responsibility.

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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 that each successful Bidder adhere to the highest ethical and performance standards. Each Bidder by submitting a bid pledges and agrees that (a) it will act at all times with absolute integrity and truthfulness in its dealings with the Owner 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.**

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 Change Order, additional compensation, or additional time on account of such conditions for any conflicts, inconsistencies, errors, or omissions that would have been discovered by such careful and diligent review, unless it has given prior written notice to the 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 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 identified in the Owner-Contractor Agreement (e.g., any soils exploration reports, soil boring logs, site survey, or abatement reports) in preparing its bid, but such technical data are not part of the Contract Documents. Except for the limited reliance described in the preceding sentence, Bidder may not, if awarded a contract for the Work, rely upon or make any Claim against the Owner or Design Professional, or any of their agents or employees, with respect to any of the following:

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

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

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

C. PROJECT

1. The Project and Work for the Project consists of all labor, materials, equipment, and services necessary for the construction of the project identified as the Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School ("the Project"), all in accordance with the Drawings and Specifications prepared by the Design Professional. The Project is anticipated to consist of replacement of all roof areas at Daniel Wright Elementary School.

2. The Design Professional for the Project is:

   Mays Consulting & Evaluation Services, Inc.
   201 Pennsylvanis Avenue
   Delaware, Ohio 43015
   Telephone Number: 740.363.9511
   Fax Number: 740.363.3050
   Design Professional's Representative: Dan Lawrence at dlawrence@mces.com

D. WORK

1. Only one contract will be issued by the Owner for constructing the Project, the General Contract, which will cover all scopes of work necessary to construct the Project.

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

3. Subject to a prior, written request from the Bidder and prior authorization from the Owner, Owner may provide Bidders access to the Project site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates. Bidders may visit the Project site following the pre-bid conference .

E. ESTIMATE OF COST

1. The total estimated construction cost for the base bid Work for the Project for which bids are being solicited at this time is **$1,975,000.00**, including the all allowances set forth in Section 01 21 00, and not including alternates.

2. The estimated construction cost of the Alternates for which Owner is seeking bids is as follows:

   Alternate #1 – Roof Areas H1 – H6, I1 – I3, J1, J2, K1 – K5, L1, L2, G1, G2, and M1 – M4: $625,000.00
   Sheet Metal Fascia and Soffit Replacement: $150,000.00

F. CONTRACT DOCUMENTS AND PRE-BID MEETING

The Contract Documents consist of the Contract Documents listed in Section 1 of the Owner-Contractor Agreement.

The Contract Documents will be available to be viewed at www.dublinschools.net, Departments, Operations, Bids and RFPs. Contractor is responsible for any printing required during the bidding process.

Bidders shall use complete sets of Contract Documents in preparing bids. Neither the Owner nor the Design Professional assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents.

The Owner or 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.

A pre-bid conference will be held at **6:30 a.m. on Thursday, December 4, 2025, at Daniel Wright Elementary School, 2335 West Case Road, Columbus, Ohio 43235.** Attendance is highly recommended. Attendees must follow COVID-19 safety protocols, including bringing/wearing masks and maintaining social distancing.

G. 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 materially affect the price, quantity or quality of the Work to be performed.

4. Each Bidder shall submit **2** identical copies of its bid to the Owner. The Bid Form shall be signed with the name typed or printed below the signature. A Bid shall not be submitted by facsimile transmission or any other electronic means. 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:

   Dublin City School District Board of Education
   ATTN: Jeff Stark, Chief Operating Officer
   6371a Shier Rings Road
   Dublin, OH 43017

Bids must be received at the designated location above before **2:00 p.m.**, local time, on **December 18, 2025.**

6. **The completed Bid Form shall be accompanied by the following completed documents:**
   a. **Bid Guaranty and if applicable, Contract Bond (See Paragraph G.8 below.)**
   b. **Contractor's Qualification Statement (See Paragraph H.4 below.)**

7. The Bidder shall take the following precautions in preparing its bid:
   a. Sign the bid and check to ensure all blank spaces have been filled in with requested information and that the specified accompanying documents (listed in Paragraph G.6 above) have been included in a sealed opaque envelope addressed as described in item Paragraph G.5 above.
   b. When the Bid Form provides for quoting either an addition or deduction for an Alternate item, indicate whether the sum named is an addition or deduction. If it is not indicated, it will be conclusively presumed that the amount is a deduction.
   c. When the Bid Form provides for quoting a unit price, the Bidder should quote the unit price as set forth in the Contract Documents and as described in Paragraph L.1 below.
   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 G.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 must equal the total of the base bid plus the amount of all add alternates included in the bid. If inserted, then the failure to state an amount equal to the total of the base bid and all add alternates shall make the bid non-responsive if the Owner selects alternates not included in the amount.
   f. Make sure that the appropriate bid package and scope of work is inserted in the correct space on the Bid Guaranty and Contract Bond Form. Failure to include work covered by the bid submitted may make the bid non-responsive.

8. Bonds and Guarantees
   a. Bid Guaranty: Bidder shall furnish a Bid Guaranty, in the form prescribed in Sections 153.54, 153.57, and 153.571 of the Ohio Revised Code, in the form of either: (1) a bond for the full amount of the Base Bid plus the amount of all Add Alternates included in the Bidder's 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. Bid amount shall be the total of all sums bid, including all add alternatives, but excluding all deduct alternatives. NOTE: AIA or EJCDC Bid Bond forms are not acceptable.
   b. Contract Bond: The successful Bidder, who, as a Bid Guaranty, submits a certified check, cashier's check, or irrevocable letter of credit in an amount equal to 10% of the bid, shall furnish a Contract Bond in the form Contract Bond included in the Contract Documents in an amount equal to 100% of the Contract Sum. NOTE: AIA or EJCDC Bond forms are not acceptable.

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

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

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

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

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

H. 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. Bidders must furnish all information requested on or accompanying the Bid Form. Any false representations or failure to provide information may result in disqualification of the bid.

3. Determination of the Lowest Responsible 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 responsible bid that is responsive to the bidding requirements, taking into consideration accepted alternates. In evaluating bids, the Owner may consider the qualifications of the Bidders, whether or not the bids comply with the prescribed requirements, and alternates and unit prices, if requested, on the Bid Form. The Owner may also consider the qualifications and experience of subcontractors and suppliers. The Owner may conduct such investigations as are deemed necessary to establish the qualifications and financial ability of the Bidder and its subcontractors and suppliers. The factors the Owner may consider in determining which bid is the lowest responsible include the factors set forth below. The Owner, in its discretion, may consider and give such weight to these criteria as it deems appropriate.

   a. The Bidder's work history. The Bidder should have a record of consistent customer satisfaction and of consistent completion of projects, including projects that are comparable to or larger and more complex than the Owner's Project, on time and in accordance with the applicable Contract Documents, and based upon 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 responsible bid.

      The Owner will consider the Bidder's prior experience on other projects of similar scope and/or complexity including prior projects with the Owner and/or Design Professional, including the Bidder's demonstrated ability to complete its work on these projects in accordance with the Contract Documents and on time, and will also consider its ability to

work with the Owner and Design Professional as a willing, cooperative, and successful team member. Bringing overstated claims, an excessive number of claims, acting uncooperatively, and filing lawsuits against project owners and/or their design professionals on prior projects of similar scope and/or complexity will be deemed evidence of a Bidder's inability to work with the Owner and Design Professional as a willing, cooperative, and successful team member.

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

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

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

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

e. The Bidder's equipment and facilities.

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

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

h. 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.

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

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

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

l. The number of years the Bidder has been actively engaged as a contractor in the construction industry.

m. Financial responsibility demonstrated by the Bidder and whether Bidder possesses adequate resources and availability of credit, the means and ability to procure insurance and acceptable performance bonds required for the Project and whether any claims have been made against performance bonds secured by the bidder on other construction projects.

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

4. **<u>Qualifications Statement</u>. Each Bidder will submit with its bid a completed Contractor Qualifications Statement, which is included with the Contract Documents, and thereafter provide the Design Professional promptly with such additional information as the Design Professional may request regarding the Bidder's qualifications. A Bidder shall submit any requested additional information within 24 hours of the date on the request.**

5. The failure to submit requested information on a timely basis may result in the determination that the Bidder has not submitted the lowest responsible bid.

6. By submitting its bid, the Bidder agrees that the Owner's determination of which bidder is the lowest responsible bidder shall be final and conclusive, and that if the Bidder or any person on its behalf challenges such determination in any legal proceeding, whether or not proven, 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. **After bid opening, within 24 hours of a request made by the Owner or Design Professional, the apparent low Bidder and any other Bidder so requested:**

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

   - Project Owner
   - Project Name
   - Subcontract Scope
   - Subcontract Value
   - Owner’s contact name and phone number.

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

   The above Subcontractor information, as well as the information pertaining to each proposed Subcontractor, shall be used in the Owner’s determination of the lowest responsible bid.

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

   b. FINANCING: The following additional financial information is not a public record under Ohio Revised Code Section 149.43 and will be kept confidential, except under proper order of a court, per Ohio Revised Code Section 9.312(A).

   i. Provide 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).

ii. Provide the name and address of firm preparing attached financial statement, and date thereof.

iii. If the attached financial statement is not for the identical organization named in the completed Contractor's Qualification Statement submitted with the bid, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).

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, when required, will only be made pursuant to a duly adopted resolution of the Owner.

I. EXECUTION OF CONTRACT

1. Within the time designated by the Owner or Design Professional after award of the Contract, the successful Bidder shall execute and deliver to the Owner or 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. The successful Bidder shall have no property interest or rights under the Owner-Contractor Agreement until the Agreement is executed by the Owner.

J. 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.

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 fifteen (15) working days before the bid date and hour. To facilitate the submission of requests, a Pre-Bid Substitution Form is included in the Contract Documents. The Bidder shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution, including the name of the proposed manufacturer and/or product and a complete description of the proposed product including manufacturer's name and model number or system proposed, drawings, product literature, performance and test data, color selections or limitations, and any other information necessary for evaluation. Include a statement including any changes in other materials, equipment, or other work that would be required if the proposed product is incorporated in the materials, equipment, or other work that would be required if the proposed product is incorporated in the work. The burden of proof of the merit of the proposed product is on the proposer. The Design Professional's decision on 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.

K. 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 on its Bid Form the cost of an alternate selected by the Owner and applicable to the Bidder's work shall render the bid non-responsive and be grounds for the rejection of the bid. Otherwise, the failure to include the cost of an alternate will not be deemed material.

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 responsible 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.

L. UNIT PRICES

1. Where unit prices are requested in the Bid Form the Bidder should quote a unit price. Unless otherwise expressly provided in the Contract 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.

M. 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 e-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. Copies of each Addendum will be sent only to the Bidders to whom Contract Documents have been issued and to Plan Rooms where copies of the Contract Documents are maintained. Addenda for projects for which the bidding documents are posted on the District's website shall also be posted on the website. All Bidders shall be solely responsible for monitoring the website and being aware of such Addenda prior to bidding. 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.

N. 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 Dan Lawrence at dlawrence@mces.com. Requests received fewer than 5 days prior to bid opening may not be answered. Any interpretation of the proposed documents will be made by Addendum only, duly signed by the 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 Owner and 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.

O. 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.

P. DATE FOR SUBSTANTIAL COMPLETION/ DATE FOR FINAL 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**.

Q. 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.

R. 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. The request to withdraw shall be made in writing to and received by the Owner 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 the awarding of the contract on another bid for the bid package from which the Bidder is withdrawing its bid to the same Bidder.

   c. If a bid is withdrawn under this provision, the Owner may award the Contract to another Bidder determined by the Owner to be the lowest responsible 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.

S. 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.

T. 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.

U. PREVAILING WAGES

1. Prevailing wage rates do not apply.

END OF INSTRUCTIONS TO BIDDERS

OWNER-CONTRACTOR AGREEMENT

Owner:
Dublin City School District Board of Education
6371a Shier Rings Road
Dublin, Ohio 43017
Telephone Number: 614.764.5913

Contract: General

Contractor:
_____
_____
_____
Telephone Number: _____

Project:
Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School

Daniel Wright Elementary School
2335 West Case Road
Dublin, Ohio 43017

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 defined above and is effective as of _____ (the "Effective Date"; provided however that if no date is inserted, the Effective Date shall be the date the Agreement is signed by the Owner).

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

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

A. Legal Notice;
B. Instructions to Bidders;
C. Bid Form and Contractor's Qualification Statement;
D. Owner-Contractor Agreement;
E. General Conditions of the Contract for Construction (AIA Document A201-2017), as modified;
F. Drawings dated November 21, 2025, prepared by Mays Consulting & Evaluation Services, Inc.;
G. Specifications dated November 21, 2025,prepared by Mays Consulting & Evaluation Services, Inc.;
H. Bid Guaranty and Contract Bond;
I. Addenda issued;
J. Contractor's Personal Property Tax Affidavit (O.R.C. 5719.042);
K. Statement of Claim Form; and
L. Modifications issued after the execution of the Agreement, including:
   i. A Change Order;
   ii. A Work Change Directive; or,
   iii. A written order for a minor change of the Work issued by the Design Professional in accordance with the General Conditions.

1.1. Notwithstanding anything in the Contract Documents to the contrary, in the event of any inconsistency, the provisions of this Agreement shall control over any other Contract Document, proposal, document, or other attachment. In the event inconsistencies, conflicts, or ambiguities between or among the Contract Documents are discovered after execution of the Agreement, Contractor shall provide the better quality or greater quantity of Work or comply with the more stringent requirements.

1.2. Contractor will use the State of Ohio Subcontract Form for all subcontracted Work, in accordance with ORC 153.503(C) and OAC 153:1-3-02.

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. Geotechnical data is not a warranty of subsurface conditions and is not to be relied upon as a complete representation of all possible soil conditions. Neither Owner nor its consultants warrant the accuracy of the geotechnical data. It is possible that there may be other reports, and/or tests of subsurface conditions at or contiguous to the Site not prepared by or on behalf of Owner. The Owner makes no representation about such reports and/or tests, assuming they exist. Additional information, if needed by Contractor for geotechnical data or site survey, shall be obtained by the Contractor at no additional cost to Owner. The General Conditions, as modified, contain additional terms related to these reports and tests.

Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings listed below, and except for such reliance on "technical data," Contractor shall not rely upon or make any claim against Owner or Design Professional with respect to: (1) the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or (2) other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or (3) any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information. For example, all interpolations and extrapolations of data performed by Contractor to estimate locations or quantities of subsurface strata are independent factual assumptions which Owner does not warrant. (Not applicable, if none are listed).

None.

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).

Asbestos Roof Sampling Report, Dublin City School District, Roof Replacement Project, Daniel Wright Elementary School, 2335 West Case Road, Dublin, Ohio 43017 (L&A Project 25-0161) prepared by Lawhon & Associates, Inc. dated May 27, 2025.

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 its benefit and to enforcement of such obligations, but nothing contained herein shall be deemed to give the Contractor or any third party any claim or right of action against the Design Professional that does not otherwise exist without regard to this Contract. The Contractor and its Subcontractors shall not be deemed to be beneficiaries of any of the acts or services of the Design Professional that are performed for the sole benefit of the Owner. Except as otherwise set forth herein, the Contractor shall communicate with the Owner through the Design Professional. Contractor shall copy Owner on all communications that may result in a request for an adjustment to the Contract Time or Contract Sum.

2.1. The Design Professional is:

Mays Consulting & Evaluation Services, Inc.
201 Pennsylvania Avenue
Delaware, Ohio 43015
Telephone Number: 740.363.9511
Fax Number: 740.363.3050

Any references to the "Architect" or the "Engineer" in the Contract Documents are deemed to refer to the Design Professional identified herein.

3. TIME FOR COMPLETION ("CONTRACT TIME") AND PROJECT COORDINATION.

3.1. DATE OF COMMENCEMENT. The date of commencement of the Work shall be the date identified as the "Date of Commencement" in the Notice to Proceed issued by the Owner, or by the Owner through the Design Professional, to the Contractor, or if there is no Notice to Proceed, the Effective Date of this Agreement.

3.2. DATE OF SUBSTANTIAL COMPLETION. The Project and Work for the Project consists of all labor, materials, equipment, and services necessary for construction of the Project, all in accordance with the Drawings and Specifications prepared by the Design Professional. The Contractor shall achieve Substantial Completion of its Work on the Project, as defined in the General Conditions, no later than **August 1, 2026** ("Date of Substantial Completion").

3.2.1. DATE OF FINAL COMPLETION. The Contractor shall achieve Final Completion of its Work on the Project, as defined in the General Conditions, no later than **August 15, 2026** ("Date of Final Completion").

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. 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. The Contractor will coordinate any system interruptions with the Owner and the Design Professional and all system interruptions are subject to Owner's prior written approval.

3.2.3. UTILITIES AND OPERATIONS. Contractor shall not interrupt utilities to facilities or existing operations without prior written notice and approval by Owner.

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

3.4. LIQUIDATED DAMAGES. If the Contractor does not have its Work on the Project Substantially Complete by the specified Date for Substantial Completion or if the Contractor does not have its Work on the Project Finally Complete by the specified Date for 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 amount(s) identified in the chart below:

Contract Sum	Liquidated Damages Per Day for Failure to Timely Achieve:	
	Substantial Completion	Final Completion
$1,000,000.00 or less	$500	$125
$1,000,000.01 to $2,000,000.00	$700	$250
$2,000,000.01 to $5,000,000.00	$1,000	$500
$5,000,000.01 to $10,000,000.00	$2,000	$1,000
$10,000,000.01 to $20,000,000.00	$4,000	$1,250
$20,000,000.01 to $50,000,000.00	$5,000	$1,500
$50,000,000.01 or more	$7,000	$2,000

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, or both. Any waiver of consequential damages shall not preclude the Owner from recovering Liquidated Damages.

3.4.1. Nothing in this Section shall be construed to diminish Owner's indemnity rights pursuant to this Agreement nor shall it preclude the Owner from recovering its actual damages from the Contractor for third-party claims against the Owner or for damages not attributable to delay.

3.5. INITIAL DECISION MAKER. The Initial Decision Maker renders initial decisions on Claims in accordance with the claims process set forth in the General Conditions. The Initial Decision Maker shall be the Design Professional, unless a different Initial Decision Maker is identified below:

3.6. Time is of the Essence for the Contractor's performance of the Work.

4. CONTRACT SUM (also called Contract Price). The 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 **$**_____, subject to adjustment as set forth in the Contract Documents. The Contract Sum includes Allowances, Accepted Alternates, and 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:

4.1 Base Bid Amount: **$**_____ (Lump Sum Bid);

4.2 Accepted Alternates, included in the Contract Sum:

Alternate No.	Description	Amount
1	Roof Areas H1 - H6, I1 - I3, J1, J2, K1 – K5, L1, L2, G1, G2, M1 – M4	$____
2	Sheet Metal Fascia and Soffit Replacement	$____

4.3 Allowances included in the Contract Sum:

Allowance No.	Allowance Description	Amount
1	Base Bid – Remove and replacement of deteriorated wood blocking.	$5,000.00
2	Base Bid – 1,500 square feet of the removal and replacement of deteriorated steel roof decking.	$____
3	Base Bid – 3,000 square feet of corrosion removal and painting of deteriorated steel roof decking.	$____
4	Base Bid – 20 hours of preparing and painting corroded light gauge steel attic framing (at plywood wall sheathing replacement areas).	$____
5	Base Bid – 96 square feet for the labor to remove and replace areas of deteriorated Tectum roof decking.	$____
6	Alternate 1 – Remove and replacement of deteriorated wood blocking.	$5,000.00

7	Alternate 1 – 40 hours of preparing and painting corroded light gauge steel roof joists (at plywood deck replacement areas).	$____

4.4 Unit Prices. If directed by the Design Professional, such Work will be paid for in accordance with the Unit Prices proposed and identified below:

Item	Unit	Price per Unit
Labor to remove and replace deteriorated areas of Tectum Roof Decking. Labor Only.	Square feet	$_____
Prepare the existing steel roof decking by removing corrosion and painting the existing roof decking.	Square feet	$_____
Removal and replacement of areas of deteriorated steel roof decking.	Square feet	$_____
Prepare existing light gauge steel roof framing by removing corrosion and painting	Hour	$_____
Remove and replace 5/8" FRT treated plywood sheathing (roof or wall)	Per Sheet	$_____
Roofing Foreman	Hour	$_____
Roofing Mechanic	Hour	$_____
Sheet Metal Foreman	Hour	$_____
Sheet Metal Mechanic	Hour	$_____
Plastering Foreman	Hour	$_____
Plastering Mechanic	Hour	$_____
Laborer	Hour	$_____

4.5 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 Contract will be withheld in accordance with Ohio Revised Code Sections 153.12, .13, and .14 and the Modified General Conditions.

5.1. RETAINAGE FOR LABOR. Payments for labor incorporated into the Work will be at the rate of 96% of the amount set forth in Contractor's payment application and approved by, unless the parties agree otherwise.

5.2. RETAINAGE FOR MATERIALS AND EQUIPMENT. Payments for materials and equipment will be at the rate of 92% of the invoice cost of materials and equipment delivered to the Project site or other storage site approved by Owner. The balance of the invoice cost will be payable when the materials or equipment are incorporated into the Work. Incorporated into the Work means such materials and equipment are installed and conform to the requirements of the Contract Documents. When payment is made on account of materials or equipment not yet incorporated into the Project, such materials and equipment will become the property of Owner; provided that if such materials or equipment are stolen, destroyed, or damaged before being fully incorporated into the Project, Contractor shall be required to replace them at its expense.

5.3. No Subcontractor shall be paid at a lower rate than the rate being paid to the Contractor by the Owner.

6. [NOT USED.]

7. GENERAL.

7.1. MODIFICATION. No modification or waiver of any of the terms of this Agreement or of any other Contract Documents shall 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 be duly authorized by action of the Owner's governing body. 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 and agree that it may not rely upon common law waiver or estoppel principles to establish an alleged waiver or modification of this Agreement or the Contract Documents and rather that this Agreement and the Contract Documents can only be waived or modified pursuant to this paragraph. 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 section.

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. THIRD PARTIES. Nothing contained in the Contract Documents shall create a contractual relationship with or a cause of action in favor of a third party against either Owner of Contractor. However, it is understood that the Owner is an intended third-party beneficiary of Contractor's agreements with its Suppliers, and Subcontractors, and Suppliers' and Subcontractors' agreements with their Sub-Suppliers, and Sub-Subcontractors. Contractor shall incorporate the obligations of this Agreement into its respective agreements and subcontracts.

7.4. LAW AND JURISDICTION. All questions regarding the validity, intention, or meaning of this Agreement or any modifications of it relating to the rights and obligations of the parties shall 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 Franklin County Court of Common Pleas and each party hereby expressly consents to the exclusive jurisdiction of such court to the exclusion of any other court. Each party waives its right to remove any such suit to federal court.

7.5. STATUTE OF LIMITATIONS. Regardless of any provision to the contrary, the statute of limitations with respect to defective or non-conforming Work shall not commence until Substantial Completion or until the discovery of the defective or non-conforming Work by the Owner, whichever is later.

7.6. CONSTRUCTION. The parties acknowledge that each party has reviewed this Agreement and the other Contract Documents and has voluntarily 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 shall not be employed in the interpretation of this Agreement, the other Contract Documents, or any amendments or exhibits to it or them.

7.7. 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 will 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 bears the burden of proving by clear and convincing evidence that it was not made in good faith.

7.8. 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.

7.9. COMPLIANCE WITH LAWS AND REGULATIONS. The Contractor, at its expense, will comply with all applicable federal, state, and local laws, rules, and regulations applicable to the Work,

including but not limited to Chapter 4115 of the Ohio Revised Code and Sections 153.59 and 153.60 of the Ohio Revised Code, which prohibit discrimination in the hiring and treatment of employees, with respect to which the Contractor agrees to comply and to require its subcontractors to comply.

7.10. PROJECT SAFETY. Contractor must follow all applicable safety and health regulations during the progress of the Project and monitor all of its employees and its subcontractors for compliance with such safety and health regulations. In undertaking the responsibilities set forth in this section, Contractor does not assume any duty of responsibility to the employees of any Subcontractor or supplier, regardless of tier. Owner assumes no responsibility for the development, review, or implementation of any project safety plan or for Project safety and has no authority to direct the means and methods of Contractor.

7.11. EQUAL OPPORTUNITY. Contractor will not, and it will ensure that its Subcontractors, regardless of tier, do not, discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin. Such action includes but is not limited to the following: employment, upgrading, demotion, transfer, recruitment or recruiting advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of nondiscrimination. Contractor is responsible to ensure that each of its Subcontractors, regardless of tier, states in all solicitations or advertisements for employees placed by them or on their behalf that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, or national origin.

7.12. NO FINDINGS FOR RECOVERY. The Contractor represents that the Contractor is not subject to a finding for recovery under Section 9.24, Ohio Revised Code, or that the Contractor has taken the appropriate remedial steps required under Section 9.24, Ohio Revised Code, or otherwise qualifies under this section. If this representation and warranty is found to be false, the Contract is void, and Contractor will immediately repay Owner any funds paid to Contractor under this Contract.

7.13. NON-DISCRIMINATION. Contractor agrees:

.1 Per Section 153.59 of the Ohio Revised Code 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, military status as defined in Section 4112.01 of the Revised Code, or color 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, military status as defined in Section 4112.01 of the 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.

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

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

7.16. PROPERTY TAX AFFIDAVIT. The Contractor's affidavit given under Section 5719.024, Ohio Revised Code, is incorporated herein.

7.17. WARRANTIES. Notwithstanding anything to the contrary in the Contract Documents, including the Project Manual, Drawings, and Specifications, no warranties by Contractor shall be limited to any time shorter than the statute of limitations for written contracts in Ohio.

7.18. 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.

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:	Contractor:
Dublin City School District Board of Education	
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

CERTIFICATE

(Section 5705.41, R.C.)

The undersigned, fiscal officer of the Owner, certifies that the moneys required to pay that part of the Contract Sum coming due during the current fiscal year, under the Agreement to which this Certificate is attached have been lawfully appropriated for such purpose and are in the appropriate account of the Owner, or in the process of collection to the credit of the appropriate account or fund, free from any previous encumbrances. Moneys due in excess of the Contract Sum shall require an additional and separate Fiscal Officer's Certificate.

DATED: _____

_____
Fiscal Officer

(ORC Section 5705.412)

The undersigned Treasurer and President of the Board of Education of the Dublin City School District, and the Superintendent of Schools of the Dublin City School District, hereby certify that the District has in effect for the term of the contract the authorization to levy taxes including the renewal or replacement of existing levies which, when combined with the estimated revenue from all other sources available to the District at the time of this certification, are sufficient to provide the operating revenues necessary to enable the district to maintain all personnel and programs for all the days set forth in its adopted school calendars for the current fiscal year and for a number of days in succeeding fiscal years equal to the number of days instruction was held or is scheduled for the current fiscal year.

Dated: _____

By: _____
Brian Kern, Treasurer
Dublin City School District Board of Education

By: _____
Dr. John Marschhausen, Superintendent
Dublin City School District

By: _____
Diana Rigby, President
Dublin City School District Board of Education

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General Conditions of the Contract for Construction

THIS DOCUMENT HAS BEEN MODIFIED FROM ITS ORIGINAL FORM.

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

Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School
Daniel Wright Elementary School
2335 West Case Road
Dublin, Ohio 43017

THE OWNER:
(Name, legal status and address)

Dublin City School District Board of Education 6371a Shier Rings Road
Dublin, OH 43017

THE DESIGN PROFESSIONAL:
(Name, legal status and address)

Mays Consulting & Evaluation Services, Inc.
201 Pennsylvania Avenue
Delaware, Ohio 43015
Telephone Number: 740.363.9511
Fax Number: 740.363.3050

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10 PROTECTION OF PERSONS AND PROPERTY

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions The definitions in this Section 1.1 shall apply throughout the Contract Documents.

§ 1.1.1 The Contract Documents

The Contract Documents are the Contract Documents identified in the Owner-Contractor Agreement ("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, paperwork, reports, documentation, other requirements, 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 unless another person is identified in writing.

§ 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.

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§ 1.1.12 Separate Contractor
Separate Contractor is defined in Section 6.1.1 of these General Conditions.

§ 1.1.13 Standard of Care The Contractor shall perform its services consistent with the professional skill and care ordinarily provided by experienced contractors and working in the same or similar locality under the same or similar circumstances. Contractor shall perform its services as expeditiously as is consistent with such professional skill and care and the orderly progress of
the Project.

§ 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.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.1.2 In the event of inconsistencies within or between the Contract Documents, the Contractor must provide the better quality or greater quantity of Work and must comply with the stricter requirements.

§ 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 Ownership of the respective Instruments of Service, including the Drawings and Specifications, shall be as provided in the Owner-Design Professional Agreement. 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 the Project is not to be construed as publication in derogation of the ownership of the Instruments of Service.

§ 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, subject to any protocols established pursuant to Sections 1.7 and 1.8, 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 the Project outside the scope of the Work without the specific written consent of the Owner, Design Professional, and the Design Professional's consultants.

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§ 1.6 Notice

§ 1.6.1 Notices, Requests, or demands by either party shall be in writing, unless otherwise expressly authorized, and shall be personally served; forwarded by expedited messenger service; sent by facsimile transmission; sent by electronic mail with delivery confirmation; or be given by registered or certified mail, return receipt requested, postage prepaid, and address by given written notice hereunder. All notices, requests, and demands shall be deemed received upon receipt in the case of personal delivery or delivery by expedited messenger service, including leaving the notice at the address provided herein during normal business hours; upon the expiration of forty-eight (48) hours from the time of deposit in the United States mail; or, in the case of a notice given by electronic mail or facsimile transmission, upon the expiration of 24 hours after the transmission is sent.

§ 1.7 Digital Data Use and Transmission

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless already provided in the Agreement or the Contract Documents.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™-2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

§ 1.9 Preconstruction Conference

Before any Work at the Site is started, a conference attended by the Owner, Contractor, Design Professional, and others as appropriate may be held to establish a working understanding among the parties as to the Work and to discuss the Submittal Schedule, Construction Schedule, and Schedule of Values, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

§ 1.10 Initial Acceptance of Schedules

At least 10 days before submission of the first Application for Payment a conference attended by a Contractor, Design Professional, and others as appropriate will be held to review for acceptability to the Design Professional the schedules submitted in accordance with the Contract Documents, including a Submittal Schedule, Construction Schedule, and Schedule of Values. The Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to the Contractor until acceptable schedules are submitted to the Design Professional and Owner.

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 may designate in writing a representative. The Owner's representative shall have such authority only as is expressly authorized by the Owner's legislative body and as is permitted under the law of the State of Ohio. The Contractor is responsible for determining the limits of that authority.

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

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 The Owner shall complete the certificate(s) of available resources required by the Ohio Revised Code as evidence of available funds to fulfill the Owner's obligations under the Contract.

§ 2.2.2 [Not Used.]

§ 2.2.3 [Not Used.]

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§ 2.2.4 Where the Owner has designated information furnished to the Contractor as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information. All security related information shall be automatically deemed confidential.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 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, or assessments.

§ 2.3.2 The Owner may retain a design professional lawfully licensed to practice architecture and/or engineering, or an entity lawfully practicing architecture and/or engineering, in the jurisdiction where the Project is located. That person or entity is identified as the Design Professional in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner may employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Design Professional.

§ 2.3.4 To the extent necessary for the Work and as requested by the Contractor, the Owner may 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. The Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, and except for such reliance on "technical data," the Contractor shall not rely upon or make any claim against the Owner or Design Professional with respect to: (1) the completeness of such reports and drawings for the Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by the Contractor, and safety precautions and programs incident thereto; or (2) other data, interpretation, opinions, and information contained in such reports or shown or indicated in such drawings; or (3) any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information. For example, all interpolations and extrapolations of data performed by the Contractor to estimate locations or quantities of subsurface strata are independent factual assumptions which the Owner does not warrant.

§ 2.3.5 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.

§ 2.3.6 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.

§ 2.4 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 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.

§ 2.5 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 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

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to its other remedies, may correct such deficiencies. 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 Owner's attorneys' and consultants' fees and expenses and other expenses and compensation for the Design Professional's additional services made necessary by such default, neglect, or failure. If current and future payments due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Design Professional, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

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(s) 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 (available upon request) 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 its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Design Professional in the Design Professional'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 surrounding area, including existing buildings, if any, 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 the Instructions to Bidders and 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 2.3.4. 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. The obligations of this Section 3.2.2 are for the purposes of facilitating construction by the Contractor, determining that the Work is constructible, determining if the Work of the Contractor is coordinated in the Contract Documents with the work of any other contractors, and for verifying that field conditions, including the work of other contractors, are consistent with the information in the Contract Documents and ready for the Work. Contractor shall promptly report to the Design Professional and Owner any errors, inconsistencies, or omissions discovered by or made known to the Contractor as a request for information in such form as the Design Professional may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 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 the Contractor shall immediately report to the Architect and Owner any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

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§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Design Professional 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, subject to Section 15.1.7, if applicable, 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 necessary skill and attention to complete the Work in accordance with the Contract Documents. 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 Documents. 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 Design Professional, and shall not proceed with that portion of the Work without further written instructions from the Design Professional. The Contractor shall propose alternative means, methods, techniques, sequences, or procedures. The Design Professional shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Design Professional objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures. The Contractor shall immediately upon entering the Project for the purpose of beginning work, locate all general reference points and take such action as necessary to prevent their destruction. The Contractor shall lay out its own work and be responsible for all lines, elevations, and measurements of the building, demolition work, utilities, and any other Work to be executed by Contractor under the Contract Documents. The Contractor shall verify grades, lines, levels, and dimensions indicated on the drawings to confirm that the Project will be constructed in accordance with the Contract Documents and shall notify the Design Professional and Owner of errors or inconsistencies before commencing Work. The Contractor shall establish and maintain a permanent benchmark, batter boards, level, and grades and shall lay out the exact location of all walls, partitions, openings, etc. The Contractor shall employ experienced and competent personnel and exercise proper precautions to verify the figures shown on the drawings for laying out Work, and will be held responsible for any error resulting from a failure to exercise such precautions.

§ 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 Design Professional and 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 Specifications, as approved by the appropriate Authority Having Jurisdiction.

.2 A neat and legible set of As-Built Drawings and Project Manuals on which:

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; and

The Contractor shall also keep record of all changes to the Specifications. When Shop Drawings are used, the Contractor shall cross-reference the corresponding sheet numbers on the As-Built Drawings and sections of the Specification.

1. 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;

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1. As applicable to its Work, all Bulletins, Addenda, approved Shop Drawings, Product Data, Samples, manufacturers' installation, operating and/or maintenance instructions or requirements, certificates, warranties, Change Orders, Change Directives, other Modifications, and complete back-up data for all Change Orders, Change Directives, and other Modifications;

1. 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 Design Professional, Owner, and/or its subcontractors, materialmen, and/or employees;

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

1. If the Contractor fails to comply with the Ohio Public Records Act, the Owner shall be entitled to indemnification under Section 3.18.1; and

1. Any other forms required under the terms of the Agreement.

§ 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 approved by the Design Professional in accordance with Section 3.12.8 or ordered by the Design Professional in accordance with Section 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 Design Professional 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 Design Professional 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. The Owner, however, shall be under no obligation to do so.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Design Professional 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. Work, materials, or equipment not conforming to these requirements may be considered defective. If required by the Design Professional, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4. If the Contractor breaches any of its obligations under Section 3.5.1, 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 Except to the extent that the Contractor has notified the Design Professional in writing at least ten (10) days prior to the bid opening of specific problems with specified equipment or materials, the Contractor warrants that any equipment or materials used by the Contractor, including any equipment or materials selected 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. Such notice shall be conspicuously labeled at the top of the first page in not less than

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twelve point type as follows: **"NOTICE OF PROBLEMS WITH SPECIFIED EQUIPMENT OR MATERIALS."**

§ 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, and use 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 Except for the permits identified in 3.7.1.1, and unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, inspections, tap fees, and capacity charges 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 the Agreement is executed. The Contractor or Subcontractor shall obtain, maintain, and pay for any license applicable to the Contractor's or Subcontractor's particular trade.

§ 3.7.1.1 The Owner or Owner's representative shall secure the required structural, plumbing, HVAC, electrical plan approvals, and the National Pollutant Discharge Elimination System ("NPDES") Storm Water general permit.

§ 3.7.1.2 The Contractor shall schedule and attend all intermediate and final inspections required for any permit applicable to the Work. The Contractor shall schedule the State Fire Marshal or local fire authority for the life safety inspection for occupancy permits. The Contractor shall pay for any reinspection required as a result of the Contractor's failure to receive approval of its work. The Contractor shall give the Design Professional and Owner reasonable notice of the dates and times for all inspections.

§ 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

Subject to Section 2.3.4 of these General Conditions, and 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 Design Professional before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Design Professional will promptly investigate such conditions and, if the Design Professional 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 that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Design Professional 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 Design Professional shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Design Professional's determination or recommendation, that party may submit a Claim 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 Design Professional. 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

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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.

§ 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 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 which shall be retained by the Owner. The Contractor shall timely seek and obtain a 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 & 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 and the Design Professional of the name and qualifications of a proposed superintendent in writing. Within 14 days of receipt of the information, the Design Professional may notify the Contractor, stating (1) whether the Owner or the Design Professional has reasonable objection to the proposed superintendent or (2) that the Design Professional requires additional time for review. Failure of the Design Professional to provide notice 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 Design Professional has made reasonable and timely objection. The Contractor shall not replace the assigned Superintendent without the Owner's consent, except with another Superintendent who is satisfactory to the Owner. If the Contractor proposes to change the Superintendent, the Contractor must submit to the Design Professional 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 Design Professional or Owner requests.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, within five (5) days of the date of any request from the Design Professional or the Owner to submit scheduling information, shall submit the scheduling information for its Work to the Design Professional and to the Owner in such form and in such detail as requested. The Contractor shall prepare the Construction Schedule within ten (10) days after the date of the Effective Date. The Construction Schedule shall include and be consistent with any applicable Milestone Dates in the Contract Documents or otherwise provided by the Owner. The Contractor shall prepare all Construction Schedules in CPM format unless provided otherwise in the Contract Documents or otherwise agreed in writing by the Owner. Each major category of work shall be shown separately in the Construction Schedule with all the significant activities involved, showing durations of time, manpower requirements, and restraints. The Construction Schedule is for the purpose of coordinating the timing, phasing, and sequence of the Work of the Contractor and shall not change or modify the Date for Substantial Completion or the Date for Final Completion. The Date for Substantial Completion or the Date for Final Completion shall only be changed or modified by Change Order, other Modification, or a Claim that is Finally Resolved, regardless of the dates in the Construction Schedule.

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.1 The Contractor shall update the Construction Schedule each month;

.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 Design Professional and Owner 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;

.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 submit requested scheduling information is a material term of its Contract. If the Contractor fails to submit requested scheduling information in writing within five (5) days of a request for such information from the Design Professional 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 submit the requested information.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall prepare and submit the submittal schedule(s) for the Design Professional's approval. The Design Professional's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Design Professional reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved 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 submitted to the Owner and Design Professional, provided that the Contractor shall comply with any orders under Section 3.10.4. However, preparation of such schedule shall not constitute a waiver of the Owner's rights under the Contract to have the Work completed by the contractual dates of Substantial and Final Completion.

.1 **Notice of Delays.** The Contractor shall give the Owner and the Design Professional verbal notice of any delay affecting the Work within two (2) business days of the commencement of the delay. In addition, the Contractor shall give the Owner and Design Professional written notice of the delay within ten (10) business days of the commencement of the delay with specific recommendations about how to minimize the effect of the delay. The written notice of the delay shall conspicuously state at the top of the first page of the notice in twelve point type or larger that it is a **"NOTICE OF DELAY."** A notice of delay shall not constitute the submission of a Claim. The Contractor acknowledges and agrees that these notice provisions are material terms of the Contract Documents and give the Owner the opportunity to take action to minimize the cost and/or effect of delays.

§ 3.10.4 If the Design Professional 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 of 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, supervision, 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.

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§ 3.11 Documents and Samples at the Site

The Contractor shall maintain at the Project site for the Owner and the Design Professional the documents required by Section 3.3.4. These shall be in electronic form or paper copy, available to the Design Professional and Owner, and shall be delivered to the Design Professional in the form requested by the Owner 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. Shop Drawings shall also include but are not limited to, fabrication, erection and setting Drawings, scheduled Drawings, manufacturer's scale Drawings, wiring and control diagrams, cuts or entire catalogs, pamphlets, descriptive literature, performance, and technical data.

§ 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 how 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 Design Professional is subject to the limitations of Section 4.2.7. Informational submittals upon which the Design Professional 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 Design Professional without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Design Professional, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Design Professional 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 Design Professional 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 Design Professional 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 Design Professional, and the Owner may withhold from sums due or coming due the Contractor amounts to cover such additional costs and expenses.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Design Professional 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 Design Professional.

§ 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 the requirements of the Contract Documents by the Design Professional's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Design Professional in writing of such deviation at the time of submittal and (1) the Design Professional

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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 Design Professional'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 Design Professional on previous submittals. In the absence of such written notice, the Design Professional'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 provide professional services in violation of applicable law.

§ 3.12.10.1 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 Design Professional 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 Design Professional. The Owner and the Design Professional 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 Design Professional will review and 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.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Design Professional.

§ 3.12.11 Instructions. Unless otherwise expressly provided in the Contract Documents, the Contractor shall provide typed or printed instructions covering the operation and maintenance of each item of equipment furnished in a notebook submitted to the Design Professional for review and transmittal to the Owner. The instructions, as applicable, shall include, but may not be limited to, 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 parts list;
.7 Operating and maintenance instructions for all equipment;
.8 Manufacturer's data on all equipment;
.9 Any testing procedures for operating tests; and
.10 Other instructions and materials as required by the Contract Documents.

The Contractor shall provide two bound copies of the above instruction books as well as electronic copies in PDF or other format acceptable to the Owner, 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 Design Professional and the Owner.

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§ 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, and 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.

§ 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 and requirements. Prior to installation, the Contractor shall review the manufacturer's instructions or 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 Design Professional prior to commencing the Work.

§ 3.12.14 The Contractor shall furnish for each submission of Shop Drawings, one (1) transparency reproduction and sufficient number of prints so the Design Professional can retain four (4) copies. Where the nature of the material being submitted is such that letter size sheets are a convenient method of presentation, such sheets shall be assembled in the form of booklets with covers showing the name of the job, the names of the Contractor and subcontractor or vendor, the location on the job and a list of the sheets contained. Such booklets need not be in the form of transparencies. Do not submit complete catalogues with items checked for use as shop drawings.

§ 3.12.15 After review of the submittal, the Design Professional will return the transparency to the Contractor marked "approved" or "not approved" and shall furnish promptly one copy in either case to the Owner for information and reference purposes on the job. If marked "not approved," the Contractor shall resubmit showing corrections made. After the transparency has been stamped "approved," the Contractor shall distribute all necessary prints to trades involved. No Shop Drawings shall be used if not stamped "approved" by the Design Professional. All work shall be done in accordance with approved Shop Drawings.

§ 3.12.16 Schedules, diagrams, cuts, catalogues, data, etc., as mentioned in this Section 3.12, shall be furnished in sufficient numbers so the Design Professional can retain four (4) copies and the Contractor will have the necessary number for its distribution. One copy of each of these shall be furnished to the Owner by the Design Professional for reference on the job and for its permanent records.

§ 3.12.17 All Contractors furnishing material or equipment where shop or setting drawings are required shall obtain measurements and observe conditions at the job and indicate on their drawings that such dimensions have been field measured. The Contractor shall affix its stamp of approval on the drawings as evidence they have been checked before submitting them to the Design Professional for approval. Where information from one Contractor is required by another before drawings can be made, that information shall be given in sufficient time to cause no delay on the part of either party.

§ 3.12.18 The Contractor shall maintain a separate complete clean set of all shop drawings, data, and correspondence pertinent to maintenance requirement. This complete file shall be submitted to the Owner upon Substantial Completion. Drawings shall contain all changes made during construction.

§ 3.12.19 The Contractor shall keep a complete record of all drawings including dates of issuance, receipt, and approval. A second set shall be maintained at the Project job site.

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§ 3.12.20 When the Contractor requests a change in any item which will involve a change in related items or components, the Contractor requesting the change shall be responsible for, and pay all costs in connection with such changes. Changes shall be recorded on shop drawings.

§ 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, lawful orders and all other requirements of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.1.1 Damage to road, features, or the grounds, resulting from hauling, storage of materials, or other activities connected with the Work, will be repaired by the Contractor at its expense to the satisfaction of the Design Professional.

§ 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, toilets, entrances, and parking areas, 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 headphones, radios, tape, or music players, or sound amplification equipment at or near the Project site.

§ 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, or patching shall be restored to the condition existing prior to the cutting, fitting, or 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 construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.14.3 Patching resulting from operations of any Contractor shall be performed by workers skilled in the trade being patched, and paid for by the Contractor causing such patching.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and 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. At weekly intervals and as directed by the Owner, the Contractor shall clean up the job. The Contractor shall remove all discarded materials, rubbish, and debris from the premises, taking care to avoid scattering debris along the path of travel. The Contractor shall have a dumpster on the site so as to maintain clean and safe conditions throughout the duration of the Project.

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§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor. The Design Professional'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 Design Professional with access to the Work in preparation and progress wherever located. The Contractor is responsible to provide necessary and proper facilities for such access and observation and to provide access to the Work in preparation and progress for special inspections required by the building department or authority having jurisdiction.

§ 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 Design Professional 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 Design Professional. However, if the Contractor has reason to believe that the required design, process, or product is an infringement of a copyright or patent, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Design Professional.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Owner, Design Professional, Design Professional's consultants, and the officers, directors, partners, consultants, subcontractors, agents, and employees of any of them from and against claims (whether alleged or proven), demands, costs, losses, and/or damages, including but not limited to all fees and charges of architects, engineers, attorneys, and other professionals and all court, arbitration, or other dispute resolution costs, arising out of or relating to any claim or action, legal or equitable, caused or alleged to have been caused by the Contractor's performance of the Work, including but not limited to the Contractor's negligent performance of the Work, or any breach of the 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.

§ 3.20 Underground Utility Facilities

§ 3.20.1 The Contractor, at least two (2) working days prior to commencing any construction in an area that may involve underground utility facilities, shall give notice to the Design Professional 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 Design Professional, 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 Design Professional 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 [Not Used].

§ 3.21.1 [Not Used].

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§ 3.22 Records and Audits

The Contractor shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management under the Agreement; the accounting and control systems shall be satisfactory to the Owner. The Owner and the Owner's accountants shall be afforded access to review and audit the Contractor's records, books, correspondence, instructions, drawings, receipts, subcontracts, purchase orders, vouchers, memoranda, timesheets, payroll, and other data relating to this Project, records of time spent by each person performing work on the Project, and time spent on all other projects; such time and payroll records shall include the location of services, detailed description of time and work on this Project and any other projects (redacting the client name or description to the extent necessary) and the Contractor shall preserve these for a period of four (4) years after final payment, or for such longer period as may be required by law.

The Contractor shall make all such records, books, correspondence, instructions, drawings, receipts, subcontracts, purchase orders, vouchers, memoranda, timesheets, payroll, and other data relating to this Project, available to the Owner and the Owner's accountants in a location designated by the Owner at the time of the Owner's request. In the event that the Contractor's records are not available at the agreed upon time or place, or in the event that the Owner finds incomplete records or inaccurate accounting of paid expenses, the Contractor shall reimburse the Owner for its time, travel, and related expenses, and the Contractor shall reimburse the Owner the full amount of any discrepancies or overages.

ARTICLE 4 DESIGN PROFESSIONAL

§ 4.1 General

§ 4.1.1 The Design Professional is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

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

§ 4.2 Administration of the Contract

§ 4.2.1 The Design Professional will provide administration of the Contract as described in the Contract Documents and the Owner's agreement with the Design Professional and will be an Owner's representative during construction until the date the Design Professional issues the final Certificate for Payment and for such additional periods as the Owner and Design Professional may agree. The Design Professional will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents and as authorized by the Owner.

§ 4.2.2 The Design Professional 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 Design Professional will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Design Professional 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.

§ 4.2.3 If required in the Owner's agreement with the Design Professional, 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 promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Design Professional will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Design Professional 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 Design Professional about matters arising out of or relating to the Contract. Communications by and with the Design Professional's consultants shall be through the Design Professional. Communications by and with Subcontractors

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and material suppliers shall be through the Contractor. Communications by and with Separate Contractors under contract directly with the Owner shall be through the Owner.

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

§ 4.2.6 The Design Professional has authority to reject Work that does not conform to the Contract Documents. Whenever the Design Professional considers it necessary or advisable, the Design Professional will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Design Professional 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 Design Professional 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 If required in the Owner's agreement with the Design Professional, the Design Professional 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 Design Professional's action will be taken in accordance with the submittal schedule approved by the Design Professional or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Design Professional'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 Design Professional'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 Design Professional's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Design Professional, of any construction means, methods, techniques, sequences, or procedures. The Design Professional's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

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

§ 4.2.9 The Design Professional 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 execute and distribute a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Design Professional agree, the Design Professional will provide one or more Project representatives to assist in carrying out the Design Professional'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 Design Professional will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Design Professional's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. Copies of all Requests for Information shall be copied to the Owner by the Contractor at the time they are submitted to the Design Professional.

§ 4.2.12 Interpretations and decisions of the Design Professional 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 Design Professional 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.

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

§ 4.2.14 The Design Professional will review and respond to requests for information about the Contract Documents. The Design Professional's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Design Professional will prepare and issue supplemental Drawings and Specifications in response to the requests for information. If no agreement is made concerning the time within which interpretations required of the Design Professional shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Design Professional to furnish such interpretations until 15 days after written request is made for them and the Contractor establishes the Design Professional's delay in responding delayed the critical path of the Work. In its requests for information, the Contractor shall clearly identify the number of business days for the Architect to review and respond without any potential impact to the critical path or potential delay.

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 the 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 Contractor shall bid the Subcontracts in accordance with the Ohio law. Unless otherwise stated in the Contract Documents or bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and the Design Professional of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within fourteen (14) days of receipt of the information, the Design Professional may notify the Contractor whether the Owner or the Design Professional (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Design Professional to provide notice within the fourteen (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 Design Professional, be submitted to the Owner and the Design Professional.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Design Professional 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 Design Professional 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 Design Professional 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 for one previously selected if the Owner or Design Professional objects to such substitute. The Owner, through the Design Professional, 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.

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§ 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 that the Contractor, by these Contract Documents, assumes toward the Owner and Design Professional. Each subcontract agreement shall preserve and protect the rights of the Owner and Design Professional 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, 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.

(Paragraph Deleted)

§ 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 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 term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, andwith Separate Contractors retained by Owner. 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 Owner shall coordinate the activities of the Owner's own forces and of each Separate Contractor, if any, with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and approval by Owner. The construction schedules shall then constitute the schedules to be used by the Contractor. However, the Date of Substantial Completion or Date of Final Completion shall only be changed or modified by written, executed Modifications to the Contract Time, as provided in the Contract Documents, regardless of the dates in the Construction Schedule.

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§ 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 or with Separate Contractors, the Owner or its Separate Contractors 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 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 Design Professional apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for such proper execution and results of the Contractor's Work. Failure of the Contractor to so 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 [Not Used.]

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

§ 6.2.5 The Owner and each Separate Contractor, if any, 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 Design Professional will allocate the cost among those responsible. The Design Professional'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. To be valid, all changes involving an increase in the Contract Sum must have any required funding certificates attached to them.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Design Professional. A Construction Change Directive requires agreement by the Owner and Design Professional 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 Design Professional alone.

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

§ 7.1.4 All such Changes in the Work shall be submitted with any required backup documentation to the Owner and Design Professional in writing in advance of performance of the Work and must be approved by the Owner in writing prior to commencement of the Work.

§ 7.2 Change Orders

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

.1 The change in the Work;

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.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 Methods used in determining adjustments to the Contract Sum may include those listed in Section 7.3.3. Notwithstanding the method used to determine the adjustment to the Contract Sum, the Contractor must provide documentation to support any cost included in the request. Documentation may include invoices and time records related to the costs, but must be in a form acceptable to the Design Professional and Owner. Costs included in any Change Order request must be limited to those in Section 7.3.7, unless provided elsewhere in the Contract Documents or agreed to by the Owner and Design Professional.

§ 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 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 timely seek and obtain such authorization as specified herein, shall constitute an 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 Design Professional and signed by the Owner and Design Professional, 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; or
.5 Except where unit prices are applicable, that the Contractor agrees and represents to the Owner for the Owner's reliance that all Change Order or Change Directive pricing submitted by the Contractor shall be based on the Contractor's actual costs or the Contractor's reasonable estimate of what would be its actual costs plus permitted overhead and profit.

§ 7.3.4 [Not Used.]

§ 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 Design Professional 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 Design Professional 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

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a true and accurate itemized accounting of all labor and material with appropriate supporting data. If the Design Professional 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, applicable payroll taxes, fringe benefits required by agreement or custom, and workers' compensation insurance, and other employee costs approved by the Design Professional. Contractor pricing information shall include the number of hours and rate of pay for each classification of worker;

.2 Costs of materials (including any and all discounts, rebates, or related credits), supplies, and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, minor equipment, simple scaffolds, etc. whether rented from the Contractor or others. Charges for certain non-owned heavy or specialized equipment may be invoiced at up to 100% of the documented rental cost. The Contractor shall submit copies of actual paid invoices to substantiate rental costs; Charges for certain Contractor-owned, heavy or specialized equipment may be invoiced at up to 100% of the cost listed by the current edition of the Associated Equipment Dealers Green Book rental rates and specifications for construction equipment. No recovery will be allowed for hand tools, minor equipment, simple scaffolds, etc. The longest period of time that the equipment is to be required for the Work shall be the basis for the pricing. Downtime due to repairs, maintenance and weather delays should not be allowed;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the Work/change;

.5 Additional reasonable costs of supervision and field office personnel directly attributable to the change; and

.6 Total cumulative overhead and profit for all Subcontractors and Contractor on any add or deduct Change Order shall not exceed 15% of the total cost of labor and material.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change order that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Design Professional 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 Design Professional will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Design Professional determines, in the Design Professional's professional judgment, to be reasonably justified. The Design Professional'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 Design Professional 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 Design Professional will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.3.11 The Contractor shall not assign any portion of the Work to another contractor whereby the Contractor would benefit directly or indirectly from the double application of charges for overhead and profit.

§ 7.3.12 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.13 The Contractor shall not be reimbursed for the following costs:

.1 Employee Profit Sharing Plans regardless of how defined or described, the Contractor will pay these charges from Contractor profit and will not be reimbursed

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,2 Voluntary Employee Deductions (e.g., United Way Contributions, U.S. Savings Bonds, etc.)

§ 7.4 Minor Changes in the Work

The Design Professional may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Design Professional's order for minor changes shall be in writing conspicuously marked at the top of the order as a **"MINOR CHANGE IN THE WORK"** and signed by the Design Professional and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Design Professional and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Design Professional's order for a minor change without prior notice to the Design Professional that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

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 Design Professional 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 set forth in Section 15.1.6.3, then subject to the agreement of the Owner, then the Contract Time shall be extended by Change Order for such reasonable time as the Design Professional 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

§ 9.1.1 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.

§ 9.1.2 [Not Used.]

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§ 9.2 Schedule of Values

Within 10 days of the Effective Date, the Contractor shall submit a schedule of values to the Design Professional for the Design Professional's review and approval, allocating the entire Contract Sum to the various portions of the Work. The Schedule of Values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Design Professional. By submitting such Schedule of Values, the Contractor represents for the reliance of the Design Professional 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 Design Professional's further approval. The Design Professional may from time to time require the Contractor to adjust such schedule if the Design Professional determines it to be in any way unreasonable or inaccurate. The Contractor then shall adjust the Schedule of Values as required by the Design Professional within ten (10) days. This schedule, with any adjustments approved by the Design Professional shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the Schedule of Values shall be submitted to the Design Professional and supported by such data to substantiate its accuracy as the Design Professional may require, and unless objected to by the Design Professional, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment. The Contractor shall include a separate line item in its Schedule of Values for its Project Superintendent.

§ 9.2.1 The Contractor will identify in its Schedule of Values a line item entitled "As-Built Drawings and Record Documents." The Scheduled Value for this item will be one and one-half percent (1.5%) of the Contract Sum for contracts with a Contract Sum of $1,000,000 or less, and one percent (1%) of the Contract Sum for contracts with a Contract Sum greater than $1,000,000. When As-Built Drawings and Record Documents are received and reviewed by the Design Professional, and a letter is forwarded to the Owner affirming the completeness of these documents, these costs may be released. At the Owner's discretion, the costs dedicated to this Scheduled Value may be adjusted to reflect adjustments to the Contract Sum due to approved change orders. Unless specifically approved in writing by the Owner, retained funds will not be released until As-Built Drawings and Record Drawings are received, reviewed, and deemed complete by the Design Professional.

§ 9.3 Applications for Payment

§ 9.3.1 At least three days before the date established in Section 9.3.1.3 for each progress payment, the Contractor shall submit to the Owner and Design Professional a draft Application for Payment prepared in accordance with the Schedule of Values, if required under Section 9.2, for completed portions of the Work. The draft Application for Payment shall be reviewed and adjusted, if necessary, by the Design Professional and returned to the Contractor. The Application for Payment, as reviewed and adjusted by the Design Professional, shall be notarized, if required, and be re-submitted with all the documentation required to be submitted with such Application for Payment, and any other supporting documentation required by the Contract Documents, Contractor's Payment Application Checklist, and by the Design Professional. The percentage completion of each portion of the Work shall be consistent with the then current Construction Schedule for the Project. The Application for Payment will be in the form and submitted with the number of copies and all related documents as required by the Contract Documents. The Contractor also shall submit with its Application for Payment and such other documents and/or data substantiating the Contractor's right to payment as the Owner or Design Professional may require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents. The Contractor shall also provide its monthly report detailing the Project's progress to date, projected progress for the next thirty (30) days and current project financial summary, including but not limited to:

.1 The balance of any construction allowances and summary list of how the allowances have been expended to date.

.2 A change order log showing any proposed, pending, and approved change order expenses to date.

.3 Complete breakout showing the total completed and/or stored materials, labor, and equipment on the Project as of the date of the payment application, and anticipated schedule of payment applications detailing projections for the value of completed and/or stored materials, labor, and equipment, month by month, through the end of the Project.

§ 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 Design Professional, but not yet included in Change Orders.

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§ 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 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 Design Professional on AIA Documents G-702 and G-703 and Certification or such other format as the Owner specifies, 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 Design Professional and in compliance with all of the Owner's policies, procedures, and documentation requirements.

§ 9.3.1.4 Waivers of Claims. Beginning with the second Application for Payment, the Contractor will submit (a) a release and/or waiver of claims, including a waiver of all lien rights, in the form included in the Contract Documents or required by the Owner for itself and each of its Subcontractors and Suppliers, regardless of tier, for the work performed to date on the Project and for the value of the work performed during the current billing period (b) a complete list of its Subcontractors and Suppliers in the form included in the Contract Documents or as required by the Owner, and (c) a completed Application for Payment Checklist in the form required by the Owner. The Owner shall not have an obligation to pay the Contractor pursuant to an Application for Payment without the corresponding releases and/or waivers of claims and the complete list of the Contractor's Subcontractors and Suppliers. A final waiver of lien in the form included in the bid package, for the total value of each subcontract shall be included with the final Application for Payment for each subcontract and with the Contractor's final pay application for the Project. The total of the lien waivers shall match the total amount paid to the Contractor, inclusive of all approved change orders.

§ 9.3.1.5 Partial payments to the Contractor for labor performed shall be made at the rate of 96 percent of the amount invoiced through the Application for Payment. For materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work partial payments to the Contractor shall be made at the rate of 92 percent of the amount invoiced, in accordance with the Ohio Revised Code. The Owner will withhold retainage from the amount set forth in the Application for Payment approved by the Design Professional, as provided in the Contract Documents.

§ 9.3.1.6 Documentation. Upon request, the Contractor immediately will supply the Owner and the Design Professional with such information as may be requested 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.

§ 9.3.1.7 Retainage or Other Escrow Account. The Contractor consents to the following: (a) the Owner may deposit retained and detained funds into a savings or checking account established by the Owner (which may also contain other funds); (b) Owner will not be serving in a fiduciary capacity while holding the funds; (c) Owner is not required to deposit the funds into a separate escrow account governed by an escrow agent; and (d) the foregoing satisfies the Owner's obligations under R.C. 153.63 as it pertains to both retained funds and 1311.28 (detained funds).

§ 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.

§ 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

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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 the real property on which the Project is located, the Owner's interest in such real property, and/or the remaining balance of the Contract Sum by providing a bond meeting the requirements of the 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 Design Professional will, within seven days after receipt of the Contractor's properly completed Application for Payment and Contractor's Payment Application Checklist (if required) and Certification, the documentation described in the Contractor's Payment Application Checklist and Certification, and such other documents and/or data substantiating the Contractor's right to payment as the Owner or Design Professional may require, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Design Professional determines is properly due, or notify the Contractor and Owner in writing of the Design Professional'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 Design Professional to the Owner, based on the Design Professional's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Design Professional'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, and that the Contractor is entitled to payment in the amount certified. 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 Design Professional. 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 Design Professional 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 Design Professional may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Design Professional's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Design Professional is unable to certify payment in the amount of the Application, the Design Professional will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Design Professional cannot agree on a revised amount, the Design Professional will promptly issue a Certificate for Payment for the amount for which the Design Professional is able to make such representations to the Owner. The Design Professional 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 Design Professional'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 Construction Schedule, and/or failure to coordinate its Work with the work of other contractors, if any;
- **.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;
- **.3** failure of the Contractor to make payments properly to Subcontractors or suppliers 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;

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.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 [Not Used.]

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

§ 9.5.4 If the Design Professional 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 Design Professional and the Design Professional shall reflect such payment on the next Certificate for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Design Professional has issued a Certificate for Payment, the Owner shall issue payment to the Contractor as set forth herein and shall so notify the Design Professional.

§ 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 Design Professional 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 Design Professional 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 and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Design Professional shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's 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 or provided by 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.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

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§ 9.7 Failure of Payment

If the Owner does not pay the Contractor the amount certified by the Design Professional within thirty (30) days after receipt of the certified Application for Payment for the Design Professional and the Owner has no other basis to withhold payment pursuant to the Contract Documents, then the Contractor may, upon seven additional days' notice to the Owner and Design Professional, 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 shutdown, 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 is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy and utilize the Work for its intended use. Notwithstanding anything in the Contract Documents to the contrary, this shall include, but is not limited to, start up and successful testing of all systems and equipment..

§ 9.8.1.1 Date for Substantial Completion

The Date for Substantial Completion is the Date for Substantial Completion as set forth in the Owner-Contractor Agreement. 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 the Construction Schedule.

§ 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 Design Professional 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 Design Professional that all the manufacturer's requirements for the issuance of the warranty has been completed and that the Work is ready for the Design Professional'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 Design Professional.

§ 9.8.3 Upon receipt of the Contractor's list and the documents required by Section 3.12.11 neatly bound and indexed, the Design Professional will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Design Professional'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 Owner can occupy or utilize the Work, and 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 Design Professional. In such case, the Contractor shall then submit a request for another inspection by the Design Professional 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 Design Professional's Certificate of Substantial Completion by the Date of Final Completion set forth in the Owner-Contractor Agreement for the Project. 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 will pay the Owner the balance on demand. The Contractor's warranties and obligations 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 Design Professional 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 Design Professional, and the Owner may withhold from sums due or coming due the Contractor amounts to cover such additional costs and expenses.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Design Professional 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

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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 Design Professional and consent of the Contractor's surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof interest thereon accrued, within thirty days of receipt of Contractor's certified payment application for such retainage. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents and Owner may withhold any amounts reasonably necessary to assure Final Completion.

§ 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 Design Professional's approval, provided 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 Design Professional will resolve the disagreement, and the Design Professional'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 Design Professional 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 Design Professional, which shall be final and binding.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Design Professional 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 (if required), all the documentation required to be submitted with such Checklist, and any other supporting documentation required by the Contract Documents or by the Design Professional, the Design Professional will promptly make such inspection. When the Design Professional finds the Work acceptable under the Contract Documents and the Contract fully performed, including all required documents submitted, the Design Professional will promptly issue a final Certificate for Payment stating that to the best of the Design Professional's knowledge, information and belief, and on the basis of the Design Professional's on-site visits and inspections, the Work has been completed in accordance with 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 Design Professional'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.

§ 9.10.1.1 Final Completion Defined

Final Completion shall mean that the Work is complete in all respects 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.

§ 9.10.1.2 Date for Final Completion

The Date for Final Completion is the Date for Final Completion as set forth in the Owner-Contractor Agreement. The Date for Final Completion shall only be changed or modified by Change Order, other Modification, or a Claim that is Finally Resolved, regardless of any dates in the Construction Schedule.

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§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Design Professional (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, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and 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, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance 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 the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

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 Design Professional also is accompanied by the following additional documents, if not previously delivered to the Design Professional:

.1 Evidence that all Completion/Punchlist 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 in both hard copy and electronic file (in the format requested by the Owner) not 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 Design Professional so confirms, the Owner shall, upon application by the Contractor and certification by the Design Professional, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, 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 the 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 Design Professional 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;
.3 terms of special warranties required by the Contract Documents;
.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment; or
.5 **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 Design Professional accept any responsibility or

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liability for the safety of the Contractor's employees or for enforcing the Contractor's safety program. Additionally, the Contractor shall comply with the Owner's rules, regulations, and policies.

§ 10.2 Safety and Health 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, a Subcontractor, or a Sub-subcontractor 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 implement, 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 the owners and users of adjacent sites and utilities of the safeguards. 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.

§ 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 Design Professional 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 Design Professional and the Design Professional'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 Design Professional.

§ 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.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not

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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 Design Professional 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 Design Professional 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 the 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; (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 by the amount of the Contractor's reasonable additional costs of shutdown, 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 [Not Used.]

§ 10.3.4 The Owner shall not be responsible for hazardous materials or substances the Contractor brings to the site unless such materials or substances are expressly required by the Contract Documents. Hazardous materials shall be identified by a Material Safety Data Sheet (MSDS). These MSDS's shall be submitted by the Contractor to the Owner prior to that material being used on the Project. The Owner shall be responsible for hazardous 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.

§ 10.3.5 In addition to the Contractor's obligations in Section 3.18 and elsewhere in the Contract Documents, the Contractor shall indemnify and reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances 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 [Not Used.]

§ 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. Nothing in this section will be construed as relieving Contractor from the cost and responsibility for emergencies covered hereby, which with normal diligence, planning, and the close supervision of the Work as required under the Contract, could have been foreseen or prevented. Contractor will provide Owner a list of names and telephone numbers of the designated employees for each Subcontractor to be contacted in case of emergency during non-working hours. A copy of the list will also be displayed on the jobsite.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Liability Insurance and Bonds

§ 11.1.1 The Contractor shall purchase from and maintain in an insurance company or insurance companies approved by 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.

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.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 five (5) years following final payment; and

.8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall include at least the specific coverages and be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, 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.

§ 11.1.2.1 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 emotional distress) and property damage with limits of $ 1,000,000 each occurrence and $ 2,000,000 aggregate. 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, (viii) Personal Injury, (ix) Stopgap liability; (x) per project aggregate endorsement ; and (xi) an endorsement redefining "occurrence" to include property damage arising from the faulty workmanship performed by the Contractor or on the Contractors' behalf by Subcontractors.

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

.3 Workers' compensation with policy limits as established by Ohio law.

§ 11.1.2.2 Such policies shall be supplemented by an umbrella policy in the amount of $5,000,000 each occurrence and $5,000,000 aggregate.

§ 11.1.2.3 The Contractor shall maintain Pollution Liability insurance with a limit for any one incident of not less than $1,000,000 and an aggregate limit of not less than $2,000,000.

§ 11.1.2.4 By requiring such insurance and insurance limits herein, the Owner does not represent that coverage and limits will necessarily be adequate to protect the Contractor, and such coverage and limits shall not be deemed as a limitation on the Contractor's liability under the indemnities granted to the Owner.

§ 11.1.2.5 [Not Used.]

§ 11.1.2.6 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 the applicable Statute of Repose.

§ 11.1.2.7 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.

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§ 11.1.2.8 All liability policies required in Section 11.1 shall include an additional insured endorsement naming the Owner and Design Professional, and any other individuals or entities identified in these General Conditions, all of whom shall be listed as additional insured, and include coverage for the respective officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insured. The additional insured endorsement shall be ISO 20 10 11 85 or its equivalent so that Completed Operations liability extends to the additional insureds.

§ 11.1.2.9 All liability policies required in Section 11.1 shall be primary and non-contributory.

§ 11.1.3 Certificates of insurance acceptable to the Owner, copies of endorsements, and other evidence of insurance requested by the Owner or any other additional insured, prior to commencement of the Work, shall be delivered to the Owner with copies to each additional insured identified in these General Conditions, when the Contractor delivers the executed counterparts of the Agreement to the Owner 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, materially changed with respect to coverage for the Project, or allowed to expire until at least 30 days' prior written notice has been given to the Owner and Contractor and to each other additional insured identified in the General Conditions to whom a certificate of insurance has been issued. 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. Prior to commencing the Work, the Contractor shall provide the Owner with the specific additional insured endorsement that names the Owner as well as copies of the waiver of subrogation and primary and contributory endorsements.

§ 11.1.3.1 Prior to commencing the Work, the Contractor shall furnish to the Owner, through the Design Professional, one copy of each of the Certificates of Insurance required herein. The Certificates of Insurance shall specifically set forth evidence of all coverage required by Section 11.1. The form of certificate shall be the form prescribed by the Owner, which shall be the ACORD Form 25 (2009/09 or more recent). The Contractor shall furnish to the Owner copies of any endorsement that is subsequently issued by amending coverage or limits.

§ 11.1.4 In no event will any failure of the Owner to receive certified copies or certificates of policies required under Section 11.1 or to demand receipt of such certified copies or certificates prior to the Contractor's commencing the Work be construed as a waiver by the Owner or the Design Professional of the Contractor's obligations to obtain insurance pursuant to this Article 11. The obligation to procure and maintain any insurance required by this Article 11 is a separate responsibility of the Contractor and independent of the duty to furnish a certified copy or certificate of such insurance policies.

§ 11.1.5 If the Contractor fails to purchase and maintain, or require to be purchased and maintained, any insurance required under Section 11.1, the Owner may but shall not be obligated to, upon five (5) days written notice to the Contractor, purchase such insurance on behalf of the Contractor and shall be entitled to be reimbursed by the Contractor upon demand.

§ 11.1.6 When any required insurance, due to the attainment of a normal expiration date or renewal date expires, the Contractor shall supply the Owner with Certificates of Insurance and amendatory riders or endorsements that clearly evidence the continuation of all coverage in the same manner, limits of protection, and scope of coverage as was provided by the previous policy. In the event any renewal or replacement policy, for whatever reason obtained or required, is written by a carrier other than that with whom the coverage was previously placed, or the subsequent policy differs in any way from the previous policy, the Contractor shall also furnish the Owner with a certified copy of the renewal or replacement policy unless the Owner provides the Contractor with prior written consent to submit only a Certificate of Insurance for such policy. All renewal and replacement policies shall be in form and substance satisfactory to the Owner and written by carriers acceptable to the Owner.

§ 11.1.7 Any aggregate limit under the Contractor's liability insurance shall, by endorsement, apply to the Project separately.

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§ 11.1.8 The Contractor shall require each of its Subcontractors to (i) procure insurance reasonably satisfactory to the Owner and (ii) name the Owner and Design Professional, and any of their employees and agents, as additional insured under the Subcontractor's CGL policy. The additional insured endorsement included on the Subcontractor's CGL policy shall state that coverage is afforded the additional insureds with respect to claims arising out of operations performed by or on behalf of the Contractor. If the additional insured have other insurance that is applicable to the loss, such other insurance shall be on an excess or contingent basis. The amount of the insurer's liability under this insurance policy shall not be reduced by the existence of such other insurance.

§ 11.1.9 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Liability Insurance

§ 11.2.1 The Owner, at the Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance.

§ 11.2.2 [Not Used.]

§ 11.2.3 [Not Used.]

§ 11.3 Property Insurance

§ 11.3.1 Builder's Risk Insurance. 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 for the Project 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 without optional deductibles. Such builder's risk 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.

§ 11.3.1.1 The builder's risk insurance obtained 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 the Design Professional's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.1.1 If applicable, property insurance provided by the Owner 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 11.3.8. 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.

§ 11.3.1.2 When it is available, the party providing the builder's risk insurance shall provide to the other party with written proof of the builder's risk insurance, upon written request.

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§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay such deductibles, however, that if the cause of any loss payment under such insurance or self-insurance is the fault of Contractor, the Contractor shall pay such deductible.

§ 11.3.1.4 The builder's risk insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 This property insurance must allow for partial utilization of the Work by the Owner and shall contain no partial occupancy restriction for the Project by the Owner. Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurers providing the property insurance pursuant to Section 11.4 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurance company or companies providing property insurance shall consent to such partial occupancy or use by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any partial use or occupancy.

§ 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 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.

§ 11.3.1.7 This property insurance must include testing and startup.

§ 11.3.2 Boiler and Machinery Insurance. The Owner, at the Owner's option, may 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 and any other individuals or entities identified in the Contract Documents and the officers, directors, partners, employees, agents, and consultants of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

§ 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 11.3.8 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 Design Professional or the Contractor to inspect the policies during normal business hours and upon reasonable advance written notice.

§ 11.3.7 All policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Section 11.3 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to the Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with these General Conditions.

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§ 11.3.8 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; (2) the Design Professional and Design Professional's consultants; and (3) Separate Contractors, 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 and builder's risk 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, by appropriate agreements, similar written waivers each in favor of the individuals and entities identified above from the Design Professional, Design Professional's consultants, Separate Contractors, if any, and the subcontractors, sub-subcontractors, agents, and employees of any of them. 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 damaged property.

§
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11.3.9 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.

§ 11.3.10 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 fifteen 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.

§ 11.3.11 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.

§ 11.4. Performance Bond and Payment Bond
§ 11.4.1 The Contractor shall provide a contract bond to guaranty payment and performance of the Work, as required by Ohio law. When the Contractor delivers the executed counterparts of the Agreement to the Owner, the Contractor shall deliver such bond to the Owner, along with other documents as may be required.

§ 11.4.1.1. If the surety on any bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet with the requirements of the Agreement or Ohio law, the Contractor shall promptly notify the Owner and the Design Professional and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of the Contract Documents and Ohio law.

§ 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 within 21 days investigate the claimed

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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, Design Professional, 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 Design Professional's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Design Professional, be uncovered for the Design Professional'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 Design Professional has not specifically requested to examine prior to its being covered, the Design Professional may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the 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 2.5, the Contractor shall promptly correct Work rejected by the Design Professional or Owner for 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 Design Professional'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 any 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 begin to correct it within 2 business days after receipt of written notice from the Owner to do so and complete such correction within 30 days after receipt of notice from the Owner or Design Professional to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such 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 Design Professional, the Owner may correct it in accordance with Section 2.5.

§ 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.

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§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, 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 does not limit any warranty period under these Contract Documents, 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 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 the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 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.

§ 13.3.2 Except as otherwise provided in the Contract Documents, no action or failure to act by the Owner, Design Professional, 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 thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 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 provide proper facilities at all times for inspections and tests of work by the Owner and other authorities having jurisdiction over the Project. The Contractor shall remove any water used in conducting such tests and inspections in a manner so as not to discharge the water on any portions of the Work or damage any portion of the Work. The Contractor shall give the Design Professional timely notice of when and where tests and inspections are to be made so that the Design Professional may be present for such procedures. The Owner shall bear costs of (1) tests, inspections, or approvals

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that do not become requirements until after the Agreement is executed, and (2) tests, inspections, or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.4.1.1 If Laws and Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, the Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish the Design Professional the required certificates of inspection or approval. The Contractor shall give the Design Professional timely notice of when and where tests and inspections are to be made so that the Design Professional may be present for such procedures.

§ 13.4.1.2 The Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for the Owner's and Design Professional's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to the Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to the Owner and Design Professional. Tests required by the Contract Documents to be performed by the Contractor that require test certificates to be submitted to the Owner or Design Professional for acceptance shall be made by an independent testing laboratory or agency licensed or certified in accordance with Laws and Regulations and applicable state and local statutes. In the event state license or certification is not required, testing laboratories or agencies shall meet the following applicable requirements:

.1 "Recommended Requirements for Independent Laboratory Qualification," published by the American Council of Independent Laboratories.

.2 Basic requirements of ASTM E329, "Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction" as applicable.

.3 Calibrate testing equipment at reasonable intervals by devices of accuracy traceable to either the National Institute of Standards and Technology or accepted values of natural physical constants.

§ 13.4.2 If the Design Professional, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Design Professional 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 Design Professional of when and where tests and inspections are to be made so that the Design Professional may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 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 Design Professional's services and expenses, shall be at the Contractor's expense. Neither the observations by the Owner or its designated representative, nor inspections, tests, or approvals by persons other than the Contractor, shall relieve the Contractor from its obligations to perform the Work in accordance with the Contract Documents.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered in duplicate to the Owner and the Design Professional.

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

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

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at zero percent (0%).

§ 13.6 Time Limits on Claims. As between the Owner and Contractor, the statute of limitations shall commence as provided in current Ohio law.

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§ 13.7 Attorney-Client Confidential and Privileged Communications. 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 Design Professional. 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.

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 90 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any 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;
- **.3** Because the Design Professional 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; or
- **.4** The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, 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 Design Professional, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit on Work executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities 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 Design Professional, 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** refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to Subcontractors for materials or labor or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- **.3** 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 reasons described in Section 14.2.1 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:

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.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 Document 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 Design Professional's services and expenses made necessary thereby, and other costs or damages incurred by the Owner and not expressly waived, including but not limited to the Owner's attorneys' and consultants' fees and expenses, arising out 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 under 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 Upon three business days written notice to the Contractor and Design Professional, the Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of 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 properly executed.

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, a change in the Contract Time, 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 Design Professional and the Owner, properly completed in accordance with the

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instructions accompanying the Form and submitted within the time period under Section 15.1.3.1. 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 the 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. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

(Paragraph Deleted)

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 do 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 15.1.4.

§ 15.1.2 [Not Used.]

§ 15.1.3 Notice of Claims

§ 15.1.3.1 As a condition precedent to a change in the Contract Sum or the Contract Times, for each Claim the Contractor shall deliver a fully completed Statement of Claim Form, a copy of which form is a Contract Document, to the Initial Decision Maker with a copy sent to the Owner and the Design Professional, if the Design Professional is not serving as the Initial Decision Maker, within 10 days of the start of the event giving rise to the Claim. The Contractor shall be responsible for substantiating its Claim. The Contractor's failure to deliver a fully completed Statement of Claim form shall be an irrevocable waiver of the Contractor's right to any form of additional compensation, be it in time or money, arising out of the Claim or the circumstances underlying the Claim. Further, the Contractor's obligation to deliver a fully completed Statement of Claim form within such 10 day period is a material term of the Contract Documents and provides the Owner with the opportunity to mitigate its damages.

§ 15.1.3.2 Claims by the Owner, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 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 Design Professional will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4.2 [Not Used.]

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, the Contractor shall submit a Statement of Claim Form as required by Section 15.1.3.1. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time following proper Notice of Delay as required under Section 3.10.3.1 of these General Conditions, the Contractor shall submit a Statement of Claim Form as required by Section 15.1.3.1.

§ 15.1.6.2 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

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Claim by submission of the Statement of Claim Form in accordance with Section 15.1.3.1. The Contractor's entitlement to additional time shall be evaluated and substantiated as provided in Section 15.1.6.2.1.

§ 15.1.6.2.1 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

§ 15.1.6.3 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) physical damage to the Project over which the Contractor has no control, (c) labor disputes beyond the control of the Contractor, (d) work days lost due to weather conditions as provided under Section 15.1.6.2, (e) concealed or unknown conditions under Section 3.7.4, and (f) other unforeseeable delays beyond the control of the Contractor and its subcontractors and suppliers of any tier.

The delays for which the Contractor is entitled to additional time and money are "Compensable Delays." The only Compensable Delays are Excusable Delays which the Contractor establishes were proximately caused by an improper action or failure to act by the Owner.

§ 15.1.7 Waiver of 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

(Paragraph Deleted)

damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This waiver is applicable without limitation, to all consequential damages due to the Owner's termination of the Agreement in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.1.8 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, and arising out of or related to such Claim since the date of such last settlement offer.

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§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or 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 Design Professional 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 without a 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.

§ 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, 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 the Contractor shall indemnify the Owner for all of the 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 the 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 the 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 a party and the party fails to provide it, the party 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 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 Design Professional, if the Design Professional 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 parties but subject to mediation if both parties agreed in writing to mediate and, if mediation

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is not successful in resolving the matter, or the parties do not agree to mediate, litigation in accordance with Section 15.4.1.

§ 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 request mediation of a written decision of the Initial Decision Maker , within 30 days from the date of receipt of an initial decision, then the Initial Decision Maker's decision becomes 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 If both Parties agree to mediate, in writing, then 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 15.1.7, may, after initial decision by the Initial Decision Maker or 30 days after submission of the Claim to the Initial Decision Maker, be subject to mediation, pursuant to mediation procedures mutually agreed-upon by the Parties.

§ 15.3.2 [Not Used.]

§ 15.3.3 [Not Used.]

§ 15.3.4 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 Litigation

§ 15.4.1 Any Claim subject to, but not resolved by mediation or any Claim that is not subject to mediation, shall be subject to litigation unless both parties mutually agree in writing to arbitrate the Claims. Venue for such litigation shall be exclusive in the state court of competent jurisdiction in the Court of Common Pleas, Franklin County, Ohio. The parties expressly waive the right to remove any litigation to federal court. 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.

§ 15.4.1.1 [Not Used.]

§ 15.4.2 [Not Used.]

§ 15.4.3 [Not Used.]

§ 15.4.4 Consolidation or Joinder [This Section is deleted in its entirety.]

§ 15.4.4.1 [Not Used.]

§ 15.4.4.2 [Not Used.]

§ 15.4.4.3 [Not Used.]

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BID FORM

1.01 BID SUBMITTED BY:

_____
(Contractor)

Date bid submitted: _____

1.02 DELIVER TO:

Dublin City School District Board of Education
ATTN: Jeff Stark, Chief Operating Officer
6371a Shier Rings Road
Dublin, OH 43017

1.03 Having carefully reviewed the Instructions to Bidders, Drawings, Specifications and other Contract Documents for the Project titled **Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School** including having also received, read, and taken into account the following Addenda:

Addendum No.	Dated

and likewise having inspected the site and the conditions affecting and governing the Project, 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 Request for Bids, 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 A201-2017) (as modified for the Project), Drawings, 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 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 contract 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 deduction from the base bid amount (if there is no indication whether the amount for an alternate is an addition or a deduction, the amount shall be a deduction).

2.02 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Lump Sum – All Work, including Allowances but not including unit price work or alternates.

_____ Dollars $_____

(Words) (Figures)

2.03 Alternates per Section 012300:

Alternate Description		Add or Deduct	Cost in Words	Cost in Figures
1	Roof Areas H1 - H6, I1 - I3, J1, J2, K1 – K5, L1, L2, G1, G2, M1 – M4			$
2	Sheet Metal Fascia and Soffit Replacement			$

2.04 Unit Prices per Section 012200:

Unit Price Description		Unit Price in Words	Unit Price in Figures
No. UP-1	Labor to remove and replace deteriorated areas of Tectum Roof Decking. Labor Only.	_____ [per sq. ft.]	$_____ [per sq. ft.]
No. UP-2	Prepare the existing steel roof decking by removing corrosion and painting the existing roof decking.	_____ [per sq. ft.]	$_____ [per sq. ft.]
No. UP-3	Removal and replacement of areas of deteriorated steel roof decking.	_____ [per sq. ft.]	$_____ [per sq. ft.]
No. UP-4	Prepare existing light gauge steel roof framing by removing corrosion and painting	_____ [per hour]	$_____ [per hour]
No. UP-5	Remove and replace 5/8" FRT treated plywood sheathing (roof or wall)	_____ [per sheet]	$_____ [per sheet]
No. UP-6	Roofing Foreman	_____ [per hour]	$_____ [per hour]
No. UP-7	Roofing Mechanic	_____ [per hour]	$_____ [per hour]
No. UP-8	Sheet Metal Foreman	_____ [per hour]	$_____ [per hour]
No. UP-9	Sheet Metal Mechanic	_____ [per hour]	$_____ [per hour]
No. UP-10	Plastering Foreman	_____ [per hour]	$_____ [per hour]
No. UP-11	Plastering Mechanic	_____ [per hour]	$_____ [per hour]
No. UP-12	Laborer	_____ [per hour]	$_____ [per hour]

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 any 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, and carefully correlate the results of the inspection with the requirements of the Contract Documents. The Bidder agrees that its bid shall include all costs attributable to site and surrounding area conditions that would have been discovered by such careful and diligent inspection and examination of the site and the surrounding area, and the Bidder shall not be entitled to any Change Order, additional compensation, or additional time on account of conditions that could have been discovered by such an investigation.

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

5. The Bidder represents that the bid contains the name of every person interested therein and is based upon the Standards specified 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 has submitted the lowest responsible bid 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.

12. The Bidder further states that it is a duly licensed contractor, for the type of work proposed, in accordance with local requirements, and that all fees, permits, etc., pursuant to submitting this Bid have been paid in full.

LEGAL NAME OF BIDDER: _____

BIDDER IS (check one): __ sole proprietor __ partnership __ corporation __ other legal entity

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

_____
Name Title

DATE SIGNED: _____ SIGNATURE: _____

ADDRESS: _____

_____

TELEPHONE: _____

EMAIL: _____

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

DUBLIN CITY SCHOOL DISTRICT BOARD OF EDUCATION

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)
Delaware	$_____
Franklin	$_____
Union	$_____

( ) is not charged with delinquent personal property taxes on the general list of personal property in Delaware, Franklin, or Union Counties.

_____

_____
(Affiant)

Sworn to and subscribed before me by the above-named affiant this _____ day of _____, 20__.
The notarial act certified is hereby a jurat. An oath or affirmation was administered to the signer with regard to the notarial act certified to hereby.

_____
(Notary Public)

My commission expires

_____, 20__

CONTRACTOR'S QUALIFICATION STATEMENT

SUBMITTED TO: _____
_____
_____
_____

NAME OF PROJECT: _____

SUBMITTED BY: _____

CONTRACTOR PROJECT CONTACT NAME: _____

ADDRESS: _____

EMAIL: _____

PHONE: _____

PRINCIPAL OFFICE: _____

☐ Corporation
☐ Partnership
☐ Individual
☐ Joint Venture
☐ Other

#	Question	Response
1 - Organization		
1.1	How many years has your organization been in business as a Contractor in the construction industry?	
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	Is your organization a corporation? If yes, answer #1.3.1 – 1.3.6	
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	Is your organization a partnership? If yes, answer #1.4.1 – 1.4.3	
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	Is your organization individually owned? If yes, answer #1.5.1 – 1.5.2	
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.	
2.3	List any suspension or revocations of any professional license of any director, officer, owner, or managerial employees of your organization, to the extent that any work to be performed on this Project is within the field of such licensed profession.	
3 - Financing		
3.1	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).	
3.2	Name and address of firm preparing attached financial statement, and date thereof.	
3.3	Is the attached financial statement for the identical organization named on page one?	

3.4	If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).	
3.5	Will the organization whose financial statement is attached act as guarantor of the contract for construction?	
3.6 - Financing: After bid opening, within 24 hours of a request made by the Owner or Design Professional, the apparent low Bidder and any other Bidder must submit additional financial information as requested.		
4 - References		
4.1	Trade References	
4.2	Bank References	
4.3	Surety – name of bonding company	
4.4	Surety – name and address of agent	
5 – Claims and Organization History		

5.1	Attach your organization's record for both resolved and unresolved findings of the Auditor of the State of Ohio for recovery as defined in Section 9.24 of the Ohio Revised Code. If none, state "none".	
5.2	Does your organization participate in a drug-free workplace program?	
5.3	Has your organization ever failed to complete any work or failed to complete any work by the substantial completion date, final completion date, or in a timely manner? If yes, attach details.	
5.4	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 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 or relating to the Work for a project, including Claims made against performance bonds secured by the Contractor on other construction projects.	
5.5	Has your organization ever failed to comply 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? If yes, please attach details and reason(s) for each instance and the outcome including any fines or penalties imposed.	
5.6	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 attach 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.	
5.7	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.	

5.8	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."	
5.9	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."	
5.10	List any projects within the previous five years where a public entity determined that your organization was not a responsible bidder, including the name of the public entity, the reasons given by the public entity, and an explanation thereof.	
6 - Experience		
6.1	List the categories of work that your organization normally performs with its own forces	
6.2	State average annual amount of construction work your organization has performed during the last five years	
6.3	State total amount of work in progress and under contract	
6.4	Describe the size and experience of your organization's work force and your equipment and facilities, in relation to your organization's ability to complete the Project successfully and on time.	

6.5	In the chart below, provide the following information for each contract your organization has had during the last 5 years, including current contracts, where the Contract Sum is/was 50% or more of the bid amount for this Project, including add alternates. Include details regarding timeliness of performance and quality of work. List the original contract price for each project, the amount of any change orders or cost overruns on each, and the reasons for the change orders or cost overruns, and your organization's record for complying with and meeting completion deadlines on construction projects. If there are more than 10 of these contracts only provide information on the most recent 10 contracts, including current contracts.

Project/Scope of Work	Original Contract Sum	Amount of any change orders or cost overruns and reasons	Completion deadlines met?	Owner's Contact & Telephone Number	Engineer's or Architect's Representative Name & Telephone Number

Project/Scope of Work	Original Contract Sum	Amount of any change orders or cost overruns and reasons	Completion deadlines met?	Owner's Contact & Telephone Number	Engineer's or Architect's Representative Name & Telephone Number

6.6	In the chart below, provide the following information for each project your organization has had during the last 5 years, which your organization believes is of comparable or greater size and complexity than the Owner's project. If there are more than 5 of these projects, only provide information on the most recent 5 projects, including current projects.

Project and Scope of Work	Contract Sum	Owner's Contact & Telephone Number	Engineer's or Architect's Representative Name & Telephone Number

6.7 In the chart below, 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 Engineer, 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. Attach a separate sheet if necessary, identifying the question number.

Name/Role	Education and Training	Project #1, Owner & A/E Contact, Telephone Number	Project #2, Owner & A/E Contact, Telephone Number	Project #3, Owner & A/E Contact, Telephone Number

Name/Role	Education and Training	Project #1, Owner & A/E Contact, Telephone Number	Project #2, Owner & A/E Contact, Telephone Number	Project #3, Owner & A/E Contact, Telephone Number

6.8 In the chart below, 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. Attach a separate sheet if necessary, identifying the question number.

Project/Scope of Work	Contract Sum	Scheduled Completion Date	% Complete	Owner's Contact & Telephone Number	Engineer's or Architect's Representative Name & Telephone Number

Project/Scope of Work	Contract Sum	Scheduled Completion Date	% Complete	Owner's Contact & Telephone Number	Engineer's or Architect's Representative Name & Telephone Number

Additional Criteria. The Owner, in its discretion, reserves the right to request additional information and documentation relating to the foregoing and related to any of the criteria listed in the Bidding and Contract Documents after the bid opening. The Owner may consider such information and documentation in determining which bidder is the lowest responsible. The Owner, in its discretion, may consider and give such weight to any and all criteria as it deems appropriate.

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. The notarial act certified hereby is a jurat. An oath or affirmation was administered to the signer with regard to the notarial act certified to hereby.

Subscribed and sworn before me this _____ day of _____ 20__.

_____
Notary Public

My Commission Expires: _____

SEAL

BID GUARANTY AND CONTRACT BOND

(O.R.C. § 153.571)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned _____ _____ ("Contractor") as principal and _____ _____ as surety are hereby held and firmly bound unto the **Dublin City School District Board of Education**, as obligee in the penal sum of the dollar amount of the bid submitted by the principal to the obligee on _____, 20__, to undertake the construction of the **Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School** ("Project"). The penal sum referred to herein shall be the dollar amount of the principal's bid to the obligee, incorporating any additive or deductive Alternates made by the principal on the date referred to above to the obligee, which are accepted by the obligee. In no case shall the penal sum exceed the amount of _____ _____ Dollars ($_____). (If the foregoing blank is not filled in, the penal sum will be the full amount of the principal's bid, including add Alternates. Alternatively, if the blank is filled in the amount stated must not be less than the full amount of the bid including add Alternates, in dollars and cents. A percentage is not acceptable.) For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

Signed this _____ day of _____, 20__.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the above named principal has submitted a bid for work on the Project.

Now, therefore, if the obligee accepts the bid of the principal and the principal fails to enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material; and in the event the principal pays to the obligee the difference not to exceed ten percent (10%) of the penalty hereof between the amount specified in the bid and such larger amount for which the obligee may in good faith contract with the next lowest bidder to perform the work covered by the bid; or in the event the obligee does not award the contract to the next lowest bidder and resubmits the project for bidding, the principal pays to the obligee the difference not-to-exceed ten percent (10%) of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission, of printing new contract documents, required advertising, and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be 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 in accordance with the bid, plans, details, specifications, and bills of material, which said contract is made a part of this bond the same as though set forth herein.

Now also, if the said principal shall well and faithfully do and perform the things agreed by said principal to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, materialmen, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any materialman or laborer having a just claim, as well as for the obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; and surety shall indemnify the obligee against all damage suffered by failure of the principal to perform the contract according to its provisions and in accordance with the plans, details, specifications, and bills of material therefor and to pay all lawful claims of subcontractors, materialmen, and laborers for labor performed or material furnished in carrying forward, performing, or completing the contract and surety further agrees and assents that this undertaking is for the benefit of any subcontractor, materialman, or laborer having a just claim, as well as for the obligee; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said surety hereby stipulates and agrees that no modifications, omissions, or additions in or to the terms of the said contract or in or to the plans 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

By: _____

Printed Name & Title: _____

_____
SURETY

By: _____

Printed Name & Title: _____

_____

Surety's Address: _____

_____

Surety's Telephone Number: _____

Surety's Fax Number: _____

_____
SURETY'S AGENT

Surety's Agent's Address: _____

_____

Surety's Agent's Telephone Number: _____

Surety's Agent's Fax Number: _____

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

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

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 **Dublin City School District Board of Education** ("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 construction of the **Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School** ("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)

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: _____

DUBLIN CITY SCHOOL DISTRICT BOARD OF EDUCATION

Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School

PRE-BID SUBSTITUTION FORM
(attached)

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

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

Specification Section	Brand or Name Specified	Proposed Substitution

Department of Taxation
tax.ohio.gov

Sales and Use Tax
Construction Contract Exemption Certificate

STEC CC
Rev. 04/24

Identification of Contract:

Contractee's (owner's) name: Dublin City School District Board of Education

Exact location of job/project: 2335 West Case Road, Columbus, Ohio 43235

Name of job/project as it appears on contract documentation: Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School

The undersigned hereby certifies that the tangible personal property purchased under this exemption certificate is purchased exempt of the tax for incorporation into:

☐	A building used exclusively for charitable purposes by a nonprofit organization operated exclusively for charitable purposes as defined in Ohio Revised Code (R.C.) section 5739.02(B)(12);	☐	Real property that is owned, or will be accepted for ownership at the time of completion, by the United States government, its agencies, the state of Ohio or an Ohio political subdivision;
☐	A horticulture structure or livestock structure for a person engaged in the business of horticulture or producing livestock;	☑	Real property under a construction contract with the United States government, its agencies, the state of Ohio, or an Ohio political subdivision;
☐	The original construction of a sports facility under R.C. section 307.696;	☐	A building under a construction contract with an organization exempt from taxation under section 501(c)(3) of the Internal Revenue Code of 1986 when the building is to be used exclusively for the organization's exempt purposes;
☐	A hospital facility entitled to exemption under R.C. section 140.08;	☐	A house of public worship or religious education;
☐	A computer data center entitled to exemption under R.C. 122.175; ____% exempt per OH Dept. of Development	☐	Building and construction materials and services sold for incorporation into real property comprising a convention center that qualifies for property tax exemption under R.C. 5709.084 (until one calendar year after the construction is completed).
☐	A megaproject entitled to exemption as described in R.C. 5739.02(B)(13).		
☐	Real property outside this state if such materials and services, when sold to a construction contractor in the state in which the real property is located for incorporation into real property in that state, would be exempt from a tax on sales levied by that state;		

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

Prime Contractor
Name
Signed by
Title
Street address
City, state, ZIP code
Date

Owner/Contractee
Name: Dublin City School District Board of Education
Signed by
Title
Street address: 6371a Shier Rings Road
City, state, ZIP code: Dublin, Ohio 43017
Date

Subcontractor
Name
Signed by
Title
Street address
City, state, ZIP code
Date

Political Subdivision
Name: Same as Owner/Contractee
Signed by
Title
Street address
City, state, ZIP code
Date

STATEMENT OF CLAIM FORM

Claim No. ___ for Contractor

1. Name of Contractor: _____

2. Date written claim given: _____.

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

   Name: _____ Title: _____
   Telephone No. _____ (office) FAX No. _____

   E-mail: _____

4. General description of claim:

_____
_____
_____

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

_____
_____
_____

6. Delay claims:

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

_____
_____
_____

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

_____
_____
_____

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

_____
_____
_____

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

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

CONTRACTOR: _____

By: _____

Name and Title: _____

Date: _____

CONTRACTOR'S ACKNOWLEDGMENT

State of _____,

County of _____, ss:

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

_____

Sworn to before me a notary public by _____ on _____ __, 20__. The notarial act certified hereby is a jurat. An oath or affirmation was administered to the signer with regard to the notarial act certified to hereby.

_____
Notary Public

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

INSTRUCTIONS FOR COMPLETING THE STATEMENT OF CLAIM FORM

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

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

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

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

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

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

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

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

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

End of Instructions

DESIGN PROFESSIONAL'S
CERTIFICATE OF SUBSTANTIAL COMPLETION

Project: Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School	Contract For: General Contract
Owner: Dublin City School District Board of Education	CONTRACTOR: [insert name and address] _____

The Design Professional hereby certifies that the Date for Substantial Completion of the Contractor's Work as set forth in the Owner-Contractor Agreement is:

_____
(Insert Date for Substantial Completion of the Work)

The Design Professional hereby certifies that the Date for Substantial Completion in the Contractor's Agreement with the Owner (the "Agreement"), as extended by Change Orders and Claims submitted by the Contractor that have been Finally Resolved, as defined below, is:

1. Date for Substantial Completion in the Agreement (above): _____
2. Additional days added to Date for Substantial Completion by Change Order: _____
3. Additional days added by Claims that have been Finally Resolved: _____
4. Date for Substantial Completion in the Contract Adjusted by days under No. 2 and No. 3 _____

"Finally Resolved" means that the Design Professional has made a decision (or declined to make a decision) on the Claim under the General Conditions and that any litigation regarding the Claim has been concluded.

The Design Professional certifies that the Contractor's Work to the best of the Design Professional's knowledge, information, and belief was Substantially Complete, as Substantial Completion is defined in the Contract Documents, on _____.

The Design Professional hereby certifies that the difference between (a) the Date for Substantial Completion adjusted by the days under No. 2 and No. 3 above and (b) the date the Contractor's Work was Substantially Complete is _____ days.

NOTICES OF DELAY. The Design Professional hereby certifies that all "NOTICES OF DELAY" submitted by the Contractor and described in the General Conditions are attached to this Certificate. This certification is solely for the purpose of identifying all "NOTICES OF DELAY" submitted by the Contractor and is not intended to imply that any of these NOTICES OF DELAY were properly submitted in accordance with Contract Documents or are valid.

STATEMENT OF CLAIM FORMS. The Design Professional hereby certifies that all Statement of Claim Forms described in the General Conditions and submitted by the Contractor are attached to this Certificate. This certification is solely for the purpose of identifying all Statement of Claim Forms submitted by the

Contractor and is not intended to imply that any of these Statement of Claim Forms were properly submitted in accordance with Contract Documents or are valid.

PUNCHLIST ITEMS. A list of items to be completed by the Contractor is attached to this Certificate. The failure to include items on this list does not change the responsibility of the Contractor to complete its Work in accordance with the Contract Documents. The Contractor shall complete all items on the Punchlist in accordance with the Contract Documents.

Security, maintenance, utilities, damage to the Work and insurance are the responsibility of the Owner and the Contractor based on their operations pursuant to final completion of the Work.

Copies of this Certificate were provided to the Contractor and the Owner on _____

Design Professional: _____

Signature: _____

Date: _____

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

PROJECT: Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School

CONTRACTOR: _____

In Support of PAYMENT APPLICATION No.: _____

For the Period Through: _____

STATE OF _____:
: SS,
COUNTY OF _____:

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

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

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

WITHHOLDINGS FROM SUBCONTRACTORS AND/OR SUPPLIERS:

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

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

CONTRACTOR: [insert name]

_____

BY: _____
(Signature of authorized representative

NOTARY PUBLIC

Subscribed and sworn to before me on this date by _____ on behalf of _____. The notarial act certified hereby is a jurat. An oath or affirmation was administered to the signer with regard to the notarial act certified to hereby.

_____
Signature of Notary Public

Notary Public: _____

My Commission Expires: _____

CONTRACTOR'S WAIVER & RELEASE AFFIDAVIT
("AFFIDAVIT")

Project: Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School

The undersigned hereby acknowledges receipt of payment for all Work on the Project through the date of the prior Application for Payment by the Dublin City School District Board of Education (the "Owner") with which it has a contract for the Project.

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

This Affidavit is for the benefit of, and may be relied upon by the Owner. The undersigned hereby agrees to indemnify, defend and hold harmless each of the foregoing, the Project, work of improvement, and real property from any and all claims, or liens that are or should have been released in accordance with this Affidavit.

_____
Company Name

_____
Authorized Signature (Company Officer)

_____
Title

_____
Date

State of: _____ County of _____

Subscribed and sworn to before me this _____

day of _____. The notarial act certified hereby is a jurat. An oath or affirmation was administered to the signer with regard to the notarial act certified to hereby.

Notary Public: _____

My Commission Expires: _____

SUBCONTRACTORS, SUPPLIERS
WAIVER & RELEASE AFFIDAVIT
("AFFIDAVIT")

Project: Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School

The undersigned hereby acknowledges receipt of payment for all Work on the Project through the date of the prior Application for Payment by the Contractor ("Contractor") with which it has a contract.

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

The undersigned agrees that upon receipt of the payment from the Contractor with respect to the Contractor's current Application for Payment, it shall, if applicable, immediately execute and cause to be filed or recorded a legally effective Satisfaction of Lien, Release of Lien, or any other legal instrument necessary to cause prejudicial dismissal and release of any lien, encumbrance, lawsuit, or other claim against the Contractor, the Contractor's surety and the Owner, the property where the Project is located, and/or any surety bond posted by the Contractor or the Owner to the extent of the foresaid payment. Upon request of the Contractor, the undersigned shall provide proof of having complied with this obligation.

This Affidavit is for the benefit of, and may be relied upon by, the Contractor, the Contractor's surety and the Owner. The undersigned hereby agrees to indemnify, defend and hold harmless each of the foregoing, the Project, its Work, and real property from any and all claims, or liens that are or should have been released in accordance with this Affidavit and from any liability, cost, or expense incurred as a result of any breach of this Affidavit by the undersigned.

_____
Company Name

_____
Authorized Signature (Company Officer)

_____
Title

_____
Date

State of: _____ County of _____

Subscribed and sworn to before me this _____

day of _____. The notarial act certified hereby is a jurat. An oath or affirmation was administered to the signer with regard to the notarial act certified to hereby.

Notary Public: _____

My Commission Expires: _____

CONTRACTOR'S FINAL WAIVER & RELEASE AFFIDAVIT
("AFFIDAVIT")

Project: Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School

In consideration for payment received from the Dublin City School District Board of Education (the "Owner") in the amount requested in Contractor's Final Application for Payment to the Owner, the receipt of which is hereby acknowledged, the undersigned Contractor hereby waives and releases any rights it has or may have to any and all types of claims relating to the Project, including without limitation claims of payment, Mechanic's Lien, stop notice, equitable lien, labor and material bond, breach of contract or unjust enrichment, or any other claim against the Owner, for any labor, materials, or equipment the undersigned may have delivered or provided to the Project, except for any Claims the undersigned has made by properly and timely submitting a Statement of Claim form. The undersigned further certifies that this Affidavit covers claims by all contractors, subcontractors, and suppliers who may have provided any labor, material, or equipment to the Project through the undersigned or at the undersigned's request. The undersigned acknowledges that all such contractors, subcontractors, sub-subcontractors and suppliers have signed an affidavit in the form of this Affidavit releasing any and all claims against the Owner, except for any Claims the undersigned has made by properly and timely submitting a Statement of Claim form. The undersigned hereby represents and warrants that it has paid any and all welfare, pension, vacation or other contributions required to be paid on account of the employment by the undersigned of any laborers on the Project.

This Affidavit is for the benefit of, and may be relied upon by the Owner. The undersigned hereby agrees to indemnify, defend and hold harmless each of the foregoing, the Project, work of improvement, and real property from any and all claims, or liens that are or should have been released in accordance with this Affidavit.

_____
Company Name

_____
Authorized Signature (Company Officer)

_____
Title

_____
Date

State of: _____ County of _____

Subscribed and sworn to before me this _____

day of _____. The notarial act certified hereby is a jurat. An oath or affirmation was administered to the signer with regard to the notarial act certified to hereby.

Notary Public: _____

My Commission Expires: _____

SUBCONTRACTORS, SUPPLIERS
FINAL WAIVER & RELEASE AFFIDAVIT
("AFFIDAVIT")

Project: Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School

Upon receipt of payment in the amount of $_____ received from _____ ("Prime Contractor") the undersigned Subcontractor or Supplier waives and relinquishes all rights of lien or claim that it may have either in law or equity (including but not limited to rights under Ohio Mechanics' Lien Laws, O.R.C. 1311.01 *et seq*.) with respect to the construction project known as the Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School ("the Project"), for all labor, all equipment, and/or materials provided to or on behalf of the Project throughout its entirety, except for claims previously made pursuant to the agreement in place between Subcontractor or Supplier and Prime Contractor, and any lien previously perfected and remaining unreleased.

The undersigned Subcontractor or Supplier acknowledges and agrees that such payment represents final payment in full for all such labor, equipment and/or materials including retainage, if any, and that the Subcontractor or Supplier has completed its work on the Project. The undersigned Subcontractor or Supplier certifies that all amounts have been paid by the Subcontractor or Supplier for all work or materials furnished by others to the Subcontractor or Supplier for which the Subcontractor or Supplier has received previous payments from Prime Contractor, and Subcontractor or Supplier acknowledges that Prime Contractor is now making payment to the Subcontractor or Supplier in reliance upon such certification. The undersigned Subcontractor or Supplier further certifies that it will pay all amounts lawfully owing for all work or materials furnished by others to the Subcontractor or Supplier with the payment received from Contractor referenced herein.

This Affidavit is for the benefit of, and may be relied upon by, the Contractor, the Contractor's surety and the Owner. The undersigned hereby agrees to indemnify, defend and hold harmless each of the foregoing, the Project, its Work, and real property from any and all claims, or liens that are or should have been released in accordance with this Affidavit and from any liability, cost, or expense incurred as a result of any breach of this Affidavit by the undersigned.

IN WITNESS WHEREOF, the undersigned has caused this Affidavit to be executed by its authorized representative as of the date indicated below.

THE INDIVIDUAL SIGNING THIS AFFIDAVIT REPRESENTS THAT HE/SHE IS AUTHORIZED TO DO SO.

SUBCONTRACTOR OR SUPPLIER:

_____
Company Name

_____
Authorized Signature (Company Officer)

_____
Title

_____
Date

State of: _____ County of _____

Subscribed and sworn to before me this_____ day of _____. The notarial act certified hereby is a jurat. An oath or affirmation was administered to the signer with regard to the notarial act certified to hereby.

Notary Public: _____

My Commission Expires: _____

DUBLIN CITY SCHOOLS

VENDOR CRIMINAL HISTORY RECORD CHECK

In adherence with the District's ongoing and continuous pursuit to ensure a safe environment for all students, staff and guests, the following procedure applies to all individuals employed by a private company engaged in services provided to the District (a "vendor").

No such individual/vendor shall be permitted to work within the District unless the vendor provides proof of the following to the Chief Operating Officer or their designee:

1. *that the individual has been the subject of a criminal records check in accordance with R.C. 3319.39 within the last 365 days immediately prior to the date on which the person will begin working in the District; and*
2. *that the criminal records check indicates that the individuals has not been convicted of or pleaded guilty to any offense described in R.C. 3319.39(B)(1); and*
3. *that, if requested by the District, the criminal record has been submitted for District review and approval/denial if it indicates that the individual has been convicted of or pleaded guilty to any felony or other offence described in R.C. 2923.01-03; and*
4. *all convictions noted on the background check will be subject to review. The Operations department has the right to request and collaboratively review all vendor background checks with the Human Resource Department. In addition to the mandatory exclusions listed above, other convictions may result in exclusion.*

Vendors shall be responsible for obtaining all criminal record checks which must be performed by an authorized/accredited agent and conducted by both the Bureau of Criminal Identification/Investigation and Federal Bureau of Investigation. A full list of locations can be found on the Ohio Attorney General's web page. Vendors shall certify in writing on company letterhead the names of all individuals who will be working on District property who meet the requirements outlined above. The District reserves the right to audit background check reports to confirm legitimacy. Cleared reports need not be delivered to the District beyond aforementioned certification unless requested by the District.

The certification template provided should be sent electronically to District Operations c/o: background_check@dublinschools.net. Once the certification has been accepted, the District will notify the vendor that they have been approved to collect an identification badge from the Operations department.

Emergency work performed by a vendor who has not yet completed the criminal record check and certification process must be escorted by a Dublin City Schools employee at all times.

Additional information related to the criminal history record procedure can be found on the District website.

VENDOR LOGO HERE

Vendor Name: _____

Vendor Address: _____

Vendor Contact Phone Number: _____

Vendor Contact Email: _____

Project Name: _____

Project Location(s): _____

Project DCSD Contact: _____

Estimated Project End Date: _____

VENDOR CRIMINAL HISTORY RECORD CHECK

The following employees have obtained a criminal record check in accordance with R.C 3319.39 within the last 365 days and the criminal record check indicates that the individual(s) have not been convicted of or pleaded guilty to any offense described in R.C 3319.39(B)(1) or other offence described in R.C. 2923.01-03;

Name	***Date of Clearance***

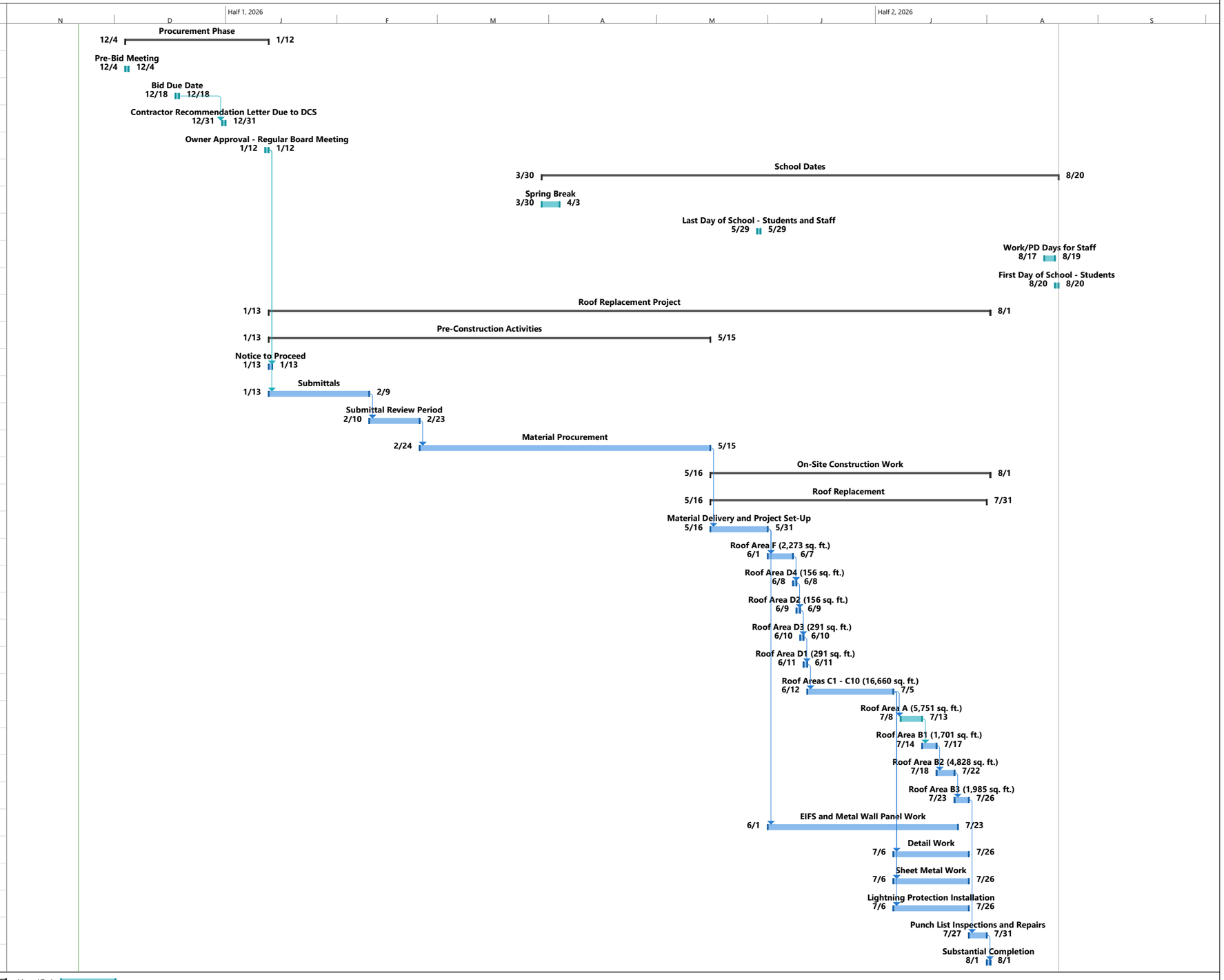
We understand that the District reserves the right to request and audit criminal history record check reports to confirm legitimacy.

Printed Name: _____ Date: _____

Signature: _____

00 31 16 PRELIMINARY SCHEDULE

ID	Task Mode	Task Name	Duration	Start	Finish
1		**Procurement Phase**	**40 days**	**Thu 12/4/25**	**Mon 1/12/26**
2		Pre-Bid Meeting	1 day	Thu 12/4/25	Thu 12/4/25
3		Bid Due Date	1 day	Thu 12/18/25	Thu 12/18/25
4		Contractor Recommendation Letter Due to DCS	1 day	Wed 12/31/25	Wed 12/31/25
5		Owner Approval - Regular Board Meeting	1 day	Mon 1/12/26	Mon 1/12/26
6		**School Dates**	**144 days**	**Mon 3/30/26**	**Thu 8/20/26**
7		Spring Break	5 days	Mon 3/30/26	Fri 4/3/26
8		Last Day of School - Students and Staff	1 day	Fri 5/29/26	Fri 5/29/26
9		Work/PD Days for Staff	3 days	Mon 8/17/26	Wed 8/19/26
10		First Day of School - Students	1 day	Thu 8/20/26	Thu 8/20/26
11		**Roof Replacement Project**	**201 days**	**Tue 1/13/26**	**Sat 8/1/26**
12		**Pre-Construction Activities**	**123 days**	**Tue 1/13/26**	**Fri 5/15/26**
13		Notice to Proceed	1 day	Tue 1/13/26	Tue 1/13/26
14		Submittals	28 days	Tue 1/13/26	Mon 2/9/26
15		Submittal Review Period	14 days	Tue 2/10/26	Mon 2/23/26
16		Material Procurement	81 days	Tue 2/24/26	Fri 5/15/26
17		**On-Site Construction Work**	**78 days**	**Sat 5/16/26**	**Sat 8/1/26**
18		**Roof Replacement**	**77 days**	**Sat 5/16/26**	**Fri 7/31/26**
19		Material Delivery and Project Set-Up	16 days	Sat 5/16/26	Sun 5/31/26
20		Roof Area F (2,273 sq. ft.)	7 days	Mon 6/1/26	Sun 6/7/26
21		Roof Area D4 (156 sq. ft.)	1 day	Mon 6/8/26	Mon 6/8/26
22		Roof Area D2 (156 sq. ft.)	1 day	Tue 6/9/26	Tue 6/9/26
23		Roof Area D3 (291 sq. ft.)	1 day	Wed 6/10/26	Wed 6/10/26
24		Roof Area D1 (291 sq. ft.)	1 day	Thu 6/11/26	Thu 6/11/26
25		Roof Areas C1 - C10 (16,660 sq. ft.)	24 days	Fri 6/12/26	Sun 7/5/26
26		Roof Area A (5,751 sq. ft.)	6 days	Wed 7/8/26	Mon 7/13/26
27		Roof Area B1 (1,701 sq. ft.)	4 days	Tue 7/14/26	Fri 7/17/26
28		Roof Area B2 (4,828 sq. ft.)	5 days	Sat 7/18/26	Wed 7/22/26
29		Roof Area B3 (1,985 sq. ft.)	4 days	Thu 7/23/26	Sun 7/26/26
30		EIFS and Metal Wall Panel Work	53 days	Mon 6/1/26	Thu 7/23/26
31		Detail Work	21 days	Mon 7/6/26	Sun 7/26/26
32		Sheet Metal Work	21 days	Mon 7/6/26	Sun 7/26/26
33		Lightning Protection Installation	21 days	Mon 7/6/26	Sun 7/26/26
34		Punch List Inspections and Repairs	5 days	Mon 7/27/26	Fri 7/31/26
35		Substantial Completion	1 day	Sat 8/1/26	Sat 8/1/26



Client: Dublin City Schools
Project: Daniel Wright ES Roof Replacement
Date: November 21, 2025

Task | Summary | Manual Task

ASBESTOS ROOF SAMPLING REPORT

Dublin City School District
Roof Replacement Project
Daniel Wright Elementary School
2335 West Case Road
Dublin, Ohio 43017

(L&A Project 25-0161)



Prepared for:

Mr. Jim Mays
Operations Manager
Mays Consulting & Evaluation Services, Inc.
201 Pennsylvania Avenue P.O Box 1020
Delaware, Ohio 43015
(740) 363-9511

Prepared by:

Lawhon & Associates, Inc.
1441 King Ave
Columbus, Ohio 43212
(614) 481-8600

May 27, 2025

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Section 3.3 Non-Asbestos Containing Materials

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Section 4.1 Lead Wrapped Roof Vents/Pipes

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Section 5.1 Asbestos Containing Material Summary

Schedule of Appendices

A. Inspector‘s Certifications
B. Asbestos Bulk Sample Location Diagram
C. Asbestos Bulk Sample Summary
D. Inventory of Asbestos Containing Materials
E. Asbestos Laboratory Analysis Certificates and Chain of Custody

Asbestos Roof Sampling Report
Dublin City School District, Daniel Wright Elementary School
Roof Replacement Project
Dublin, Ohio 43235
(L&A Project 25-0161)

1.0 Introduction

Lawhon & Associates, Inc. (L&A) conducted an asbestos containing roofing materials assessment at the Dublin City School District Daniel Wright Elementary School located at 2335 West Case Road Dublin, Ohio 43235. The inspection was conducted on May 08, 2025, by Mr. Domanic Martin, Ohio Environmental Protection Agency (OEPA) Certified Asbestos Hazard Evaluation Specialist (CAHES) [AHES #ES35856] of L&A. The consultant's certifications are attached in **Appendix A**.

The inspection was limited to roofing and other materials which may be impacted by the roof replacement project. L&A inspected all accessible materials (for the presence of asbestos containing materials) throughout the specified roofing areas. Roof sample locations were cored and patched by a qualified roofing contractor secured by Mays Consulting & Evaluation Services, Inc. This report should not be utilized as a full building report or for remediation/bidding purposes. This report conforms to the requirements of EPA NESHAPs prior to renovation for this project.

2.0 Asbestos Containing Material Summaries

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

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

NESHAP also requires owners and operators subject to the asbestos rules to notify delegated state and local agencies and/or the regional EPA offices before demolition or renovation activities begin. In addition, NESHAP requires the removal of all regulated asbestos containing materials (RACM) prior to demolition. Regulated Asbestos-Containing Materials (RACM) are (a) friable asbestos material, which are materials easily reduced to powder with hand pressure (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation

operations. (Category I non-friable materials consist of materials such as resilient floor covering products, roofing products, gaskets, and packing. Category II non-friable materials consist of all other non-friable materials such as transite.). NESHAP also requires all ACM (including Category I and II) be removed prior to intentional burning, such as for a fire department training exercise.

The Ohio Environmental Protection Agency (OEPA) regulates asbestos activities within the state. Professionals performing asbestos related activities must be certified/ licensed by OEPA. The OEPA must be notified prior to asbestos removal activities.

2.1 Methodology

A list of suspect ACMs was compiled from the investigation of the roof(s). Materials were categorized into RACM, Category I, and Category II materials. L&A inventoried and procured confirmatory samples of suspect asbestos containing materials.

Materials suspected of containing asbestos were grouped into homogeneous areas for bulk sampling purposes. A homogeneous area is composed of specific material that appears to be the same in color, texture, date of installation or location (e.g., grey spray-applied fireproofing in a specific construction unit).

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

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

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

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

3.0 Asbestos Containing Materials Summaries

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

3.1 Confirmed Asbestos Containing Materials

As a result of the inspection, the materials below projected to be impacted during renovations were found to contain asbestos. Materials uncovered during renovations that are not listed in the table(s) below should be assumed to contain asbestos until further analysis proves otherwise.

Confirmed Asbestos Containing Material
Transite on Faux Slate Roofs

3.2 Assumed Asbestos Containing Materials

As a result of the inspection, all suspect materials were bulk sampled as a part of this effort. Therefore, no materials projected to be impacted by the roof replacement project are assumed to contain asbestos.

3.3 Non-Asbestos Containing Materials

The following table lists materials sampled with laboratory analysis revealing no asbestos detected. If any additional suspect materials are uncovered during renovations, those materials must be assumed to contain asbestos until further analysis proves otherwise.

Non-Asbestos Containing Material	
Roofing Materials - Field	Roofing Materials - Flashing
Coating on Styrofoam Wall	Various Sealants
Louver Caulking	Roofing Materials - Shingle and Felt
Lead Vent Undercoating	

4.0 Other Hazardous Materials

4.1 Lead Wrapped Roof Vents / Pipes

L&A observed bulk lead wrapped vent/pipe covers. Contractors working with lead products will need to conform to the OSHA Lead in Construction Standard 1926.62. Should these materials be removed and replaced, the bulk lead should be properly handled and recycled.

5.0 Conclusions

Lawhon & Associates, Inc. (L&A) conducted an asbestos containing roofing materials assessment at the Dublin City School District Daniel Wright Elementary School located at 2335 West Case Road Dublin, Ohio 43235. The inspection was conducted on May 08, 2025, by Mr. Domanic Martin

The inspection was limited to roofing and other materials which may be impacted by the roof replacement project. L&A inspected all accessible materials (for the presence of asbestos containing materials) throughout the specified roofing areas. Roof sample locations were cored and patched by a qualified roofing contractor secured by Mays Consulting & Evaluation Services, Inc. This report conforms to the requirements of EPA NESHAPs prior to renovation for this project.

5.1 Asbestos Containing Materials Summary

As a result of the inspection, the materials below, identified and projected to be impacted by the roof replacement project contain asbestos. If materials are uncovered during renovations that are not listed in this report, those materials should be assumed to contain asbestos until further analysis proves otherwise.

- Transite on Faux Slate Roofs (Category II Non-Friable)

This report conforms to the requirements of the Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) prior to renovations for this project. This document is not to be construed as a remediation design or used for bidding purposes. If you have any further questions, please contact Jordan Mederer at (614) 481-8600.

Sincerely,

Domanic Martin
Asbestos and Lead Specialist
AHES #ES35856

Jordan Mederer
Practice Leader, HBM
AHES #ES35005

APPENDIX A

Inspector’s Certifications

Ohio Environmental Protection Agency

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

12/13/2024

Domanic Martin
Lawhon & Associates, Inc.
1441 King Avenue
Columbus, OH 43212

RE: Evaluation Specialist
Certification Number: ES35856
Expiration Date: 1/13/2026

Dear Domanic Martin:

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



700 • P.O. Box 1049 • Columbus, OH 43216-1049
514) 644-3020 • (614) 644-3184 (fax)

The InService Training Network

Asbestos Building Inspector and Management Planner Refresher Courses



Domanic Martin

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

Course Dates: May 7, 2025

Course Director: Kurt Varga

Expiration Date: May 7, 2026

Examination Date: May 7, 2025

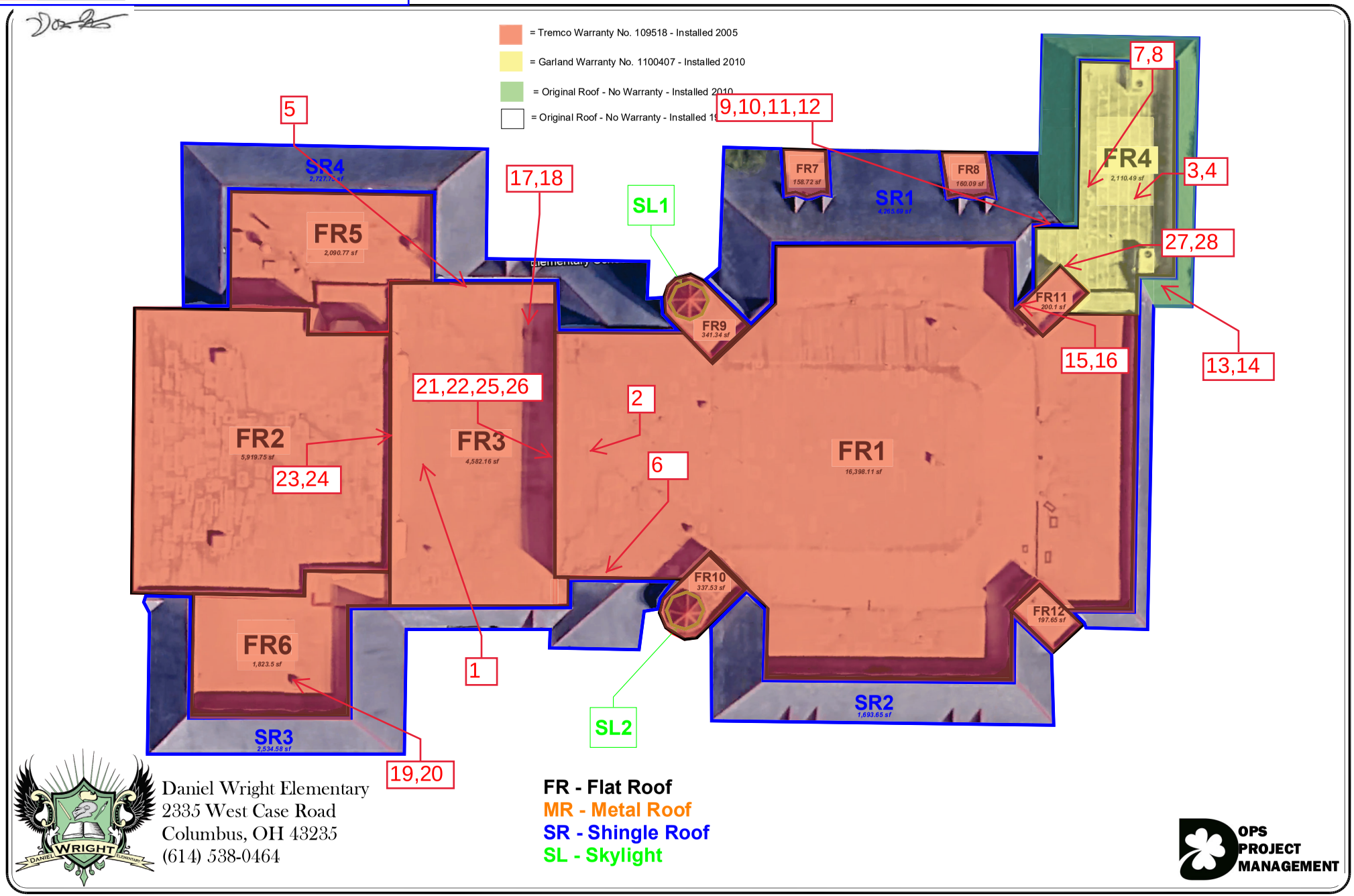
Course Location: Worthington, Ohio

Certificate Numbers: ITNIR7781 & ITNMPR7781

APPENDIX B

Asbestos Bulk Sample Location Diagram

Asbestos Bulk Sample Location Diagram
Collected on: 5/8/25
Collected by: Domanic Martin
AHES: ES35856



Daniel Wright Elementary
2335 West Case Road
Columbus, OH 43235
(614) 538-0464

FR - Flat Roof
MR - Metal Roof
SR - Shingle Roof
SL - Skylight

OPS PROJECT MANAGEMENT

APPENDIX C

Asbestos Bulk Sample Summary

BULK SAMPLE SUMMARY
Dublin City School District – Daniel Wright Elementary School
2335 West Case Road, Dublin, OH 43235
Roof Sampling Survey

Sample Number	Hom. Area #	Material Sampled	Sample Location	Percent Asbestos
250508 - 1	1a	Coating	FR3 – Field	NAD
	1b	Shingle		NAD
	1c	Felt I		NAD
	1d	Tar		NAD
	1e	Felt II		NAD
	1f	Foam		NAD
	1g	Insulation		NAD
250508 – 2	1a	Coating	FR1 – Field	NAD
	1b	Shingle		NAD
	1h	Felt III		NAD
	1d	Tar		NAD
	1e	Felt II		NAD
	1f	Foam		NAD
	1g	Insulation		NAD
250508 – 3	1c	Felt	FR4 – Field	NAD
	1d	Tar		NAD
	1f	Foam		NAD
	1i	Fiberboard		NAD
250508 – 4	1c	Felt	FR4 – Field	NAD
	1d	Tar		NAD
	1f	Foam		NAD
	1i	Fiberboard		NAD
250508 – 5	2a	Felt	FR3 - Flashing	NAD
	2b	Tar		NAD
	2c	Insulation		NAD

Bold text denotes an Asbestos Containing Material; as defined by EPA and OSHA.

Italics text denotes an Asbestos Containing Material; as defined by OSHA only.

Legend

Abbreviation:	**Definition:**
NAD	No Asbestos Detected
NA	Not Analyzed

BULK SAMPLE SUMMARY
Dublin City School District – Daniel Wright Elementary School
2335 West Case Road, Dublin, OH 43235
Roof Sampling Survey

Sample Number	Hom. Area #	Material Sampled	Sample Location	Percent Asbestos
250508 – 6	2d	Coating	FR1 - Flashing	NAD
	2e	Shingle I		NAD
	2a	Felt		NAD
	2b	Tar		NAD
	2c	insulation		NAD
250508 – 7	2f	Shingle	FR4 - Flashing	NAD
	2b	Tar		NAD
	2a	Felt		NAD
	2g	Membrane		NAD
	2c	Insulation		NAD
250508 – 8	2f	Shingle	FR4 - Flashing	NAD
	2b	Tar		NAD
	2a	Felt		NAD
	2g	Membrane		NAD
	2c	Insulation		NAD
250508 – 9	**3**	**Faux Slate**	**SR1**	**10% Chrysotile**
250508 – 10	**3**	**Faux Slate**	**SR1**	**NA**
250508 – 11	4	Faux Slate Underlay	SR1	NAD
250508 – 12	4	Faux Slate Underlay	SR1	NAD
250508 – 13	5a	Shingle	FR4 Sloped Roof	NAD
	5b	Tar		NAD
	5c	Felt		NAD

Bold text denotes an Asbestos Containing Material; as defined by EPA and OSHA.

Italics text denotes an Asbestos Containing Material; as defined by OSHA only.

Legend

Abbreviation:	**Definition:**
NAD	No Asbestos Detected
NA	Not Analyzed

BULK SAMPLE SUMMARY
Dublin City School District – Daniel Wright Elementary School
2335 West Case Road, Dublin, OH 43235
Roof Sampling Survey

Sample Number	Hom. Area #	Material Sampled	Sample Location	Percent Asbestos
250508 – 14	5a 5b 5c	Shingle Tar Felt	FR4 Sloped Roof	NAD NAD NAD
250508 – 15	6a 6b	Coating Foam	FR1	NAD NAD
250508 – 16	6a	Coating	FR1	NAD
250508 – 17	7	Sealant I	FR3 - Electrical	NAD
250508 - 18	7	Sealant I	FR3 - Electrical	NAD
250508 – 19	8	Sealant II	FR6 - Vent Stack	NAD
250508 – 20	8	Sealant II	FR6 - Vent Stack	NAD
250508 – 21	9	Sealant III	FR3 – Counter Flashing	NAD
250508 – 22	9	Sealant III	FR3 – Counter Flashing	NAD
250508 – 23	10	Caulking	FR3 – Louver	NAD
250508 – 24	10	Caulking	FR3 – Louver	NAD
250508 – 25	11	Sealant IV	FR3 – Counter Flashing Under Windows	NAD
250508 – 26	11	Sealant IV	FR3 – Counter Flashing Under Windows	NAD
250508 – 27	12	Sealant V	FR4	NAD
250508 – 28	12	Sealant V	FR4	NAD

Bold text denotes an Asbestos Containing Material; as defined by EPA and OSHA.

Italics text denotes an Asbestos Containing Material; as defined by OSHA only.

Legend

Abbreviation:	**Definition:**
NAD	No Asbestos Detected
NA	Not Analyzed

APPENDIX D

Inventory of Asbestos Containing Material

INVENTORY OF ASBESTOS CONTAINING MATERIALS
Dublin City School District – Daniel Wright Elementary School
2335 West Case Road, Dublin, OH 43235
Roof Sampling Survey

ACM	Location	Approximate Quantity	Condition	EPA NESHAP Classification & Comments
Transite	All Faux Slate Roofs	12,110 SF	Intact	Category II Non-Friable

APPENDIX E

Asbestos Laboratory Analysis Certificates

& Chain of Custody

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for Lawhon & Associates, Inc.

Report Date: 5/16/2025

Project Name: Mays Dublin CSD Wright Roof

Project #: 25-0161

SanAir ID#: 25031482

NVLAP TESTING

NVLAP LAB CODE 600227-0

11709 Chesterdale Road, Cincinnati, Ohio 45246
888.895.1177 | 513.438.6066 | LabReports@SanAir.com | SanAir.com

SanAir ID Number
25031482
FINAL REPORT
5/16/2025 6:08:47 PM

Name: Lawhon & Associates, Inc.
Address: 1441 King Ave
Columbus, OH 43212
Phone: 614-481-8600 ext. 142

Project Number: 25-0161
P.O. Number:
Project Name: Mays Dublin CSD Wright Roof
Collected Date: 5/8/2025
Received Date: 5/15/2025 10:00:00 AM

Dear Domanic Martin,

We at SanAir would like to thank you for the work you recently submitted. The 28 sample(s) were received on Thursday, May 15, 2025 via UPS. The final report(s) is enclosed for the following sample(s): 250508-1, 250508-2, 250508-3, 250508-4, 250508-5, 250508-6, 250508-7, 250508-8, 250508-9, 250508-10, 250508-11, 250508-12, 250508-13, 250508-14, 250508-15, 250508-16, 250508-17, 250508-18, 250508-19, 250508-20, 250508-21, 250508-22, 250508-23, 250508-24, 250508-25, 250508-26, 250508-27, 250508-28.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Maureen Y. Haley
Asbestos Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:
- 28 samples in Good condition.

SanAir Technologies Laboratory

SanAir ID Number
25031482
FINAL REPORT
5/16/2025 6:08:47 PM

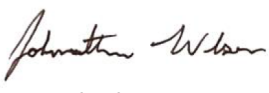
Name: Lawhon & Associates, Inc.
Address: 1441 King Ave
Columbus, OH 43212
Phone: 614-481-8600 ext. 142

Project Number: 25-0161
P.O. Number:
Project Name: Mays Dublin CSD Wright Roof
Collected Date: 5/8/2025
Received Date: 5/15/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
250508-1 / 25031482-001 Roof Material-Field, FR3, Coating	Silver Non-Fibrous Homogeneous		100% Other	None Detected
250508-1 / 25031482-001 Roof Material-Field, FR3, Shingle	Black Non-Fibrous Homogeneous	20% Glass	80% Other	None Detected
250508-1 / 25031482-001 Roof Material-Field, FR3, Felt	Black Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
250508-1 / 25031482-001 Roof Material-Field, FR3, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-1 / 25031482-001 Roof Material-Field, FR3, Felt	Grey Fibrous Homogeneous	80% Cellulose	20% Other	None Detected
250508-1 / 25031482-001 Roof Material-Field, FR3, Foam	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
250508-1 / 25031482-001 Roof Material-Field, FR3, Insulation	Brown Fibrous Homogeneous	100% Cellulose		None Detected
250508-2 / 25031482-002 Roof Material-Field, FR1, Coating	Silver Non-Fibrous Homogeneous		100% Other	None Detected
250508-2 / 25031482-002 Roof Material-Field, FR1, Shingle	Black Non-Fibrous Homogeneous	20% Glass	80% Other	None Detected
250508-2 / 25031482-002 Roof Material-Field, FR1, Felt	Black Non-Fibrous Homogeneous	30% Cellulose	70% Other	None Detected

Analyst:  Approved Signatory: 

Analysis Date: 5/16/2025 Date: 5/16/2025

SanAir Technologies Laboratory

SanAir ID Number
25031482
FINAL REPORT
5/16/2025 6:08:47 PM

Name: Lawhon & Associates, Inc.
Address: 1441 King Ave
Columbus, OH 43212
Phone: 614-481-8600 ext. 142

Project Number: 25-0161
P.O. Number:
Project Name: Mays Dublin CSD Wright Roof
Collected Date: 5/8/2025
Received Date: 5/15/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
250508-2 / 25031482-002 Roof Material-Field, FR1, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-2 / 25031482-002 Roof Material-Field, FR1, Felt	Grey Fibrous Homogeneous	80% Cellulose	20% Other	None Detected
250508-2 / 25031482-002 Roof Material-Field, FR1, Foam	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
250508-2 / 25031482-002 Roof Material-Field, FR1, Insulation	Brown Fibrous Homogeneous	100% Cellulose		None Detected
250508-3 / 25031482-003 Roof Material-Field, FR4, Felt	Black Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
250508-3 / 25031482-003 Roof Material-Field, FR4, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-3 / 25031482-003 Roof Material-Field, FR4, Foam	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
250508-3 / 25031482-003 Roof Material-Field, FR4, Fiberboard	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
250508-4 / 25031482-004 Roof Material-Field, FR4, Felt	Black Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
250508-4 / 25031482-004 Roof Material-Field, FR4, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Sidney Pinkerton
Analysis Date: 5/16/2025

Approved Signatory: Johnathan Wilson
Date: 5/16/2025

SanAir Technologies Laboratory

SanAir ID Number
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Project Number: 25-0161
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Project Name: Mays Dublin CSD Wright Roof
Collected Date: 5/8/2025
Received Date: 5/15/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
250508-4 / 25031482-004 Roof Material-Field, FR4, Foam	Yellow Non-Fibrous Homogeneous		100% Other	None Detected
250508-4 / 25031482-004 Roof Material-Field, FR4, Fiberboard	White Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
250508-5 / 25031482-005 Roof Material-Flashing, FR3, Felt	Black Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
250508-5 / 25031482-005 Roof Material-Flashing, FR3, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-5 / 25031482-005 Roof Material-Flashing, FR3, Insulation	Brown Fibrous Homogeneous	100% Cellulose		None Detected
250508-6 / 25031482-006 Roof Material-Flashing, FR1, Coating	Silver Non-Fibrous Homogeneous		100% Other	None Detected
250508-6 / 25031482-006 Roof Material-Flashing, FR1, Shingle	Black Non-Fibrous Homogeneous	20% Glass	80% Other	None Detected
250508-6 / 25031482-006 Roof Material-Flashing, FR1, Felt	Black Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
250508-6 / 25031482-006 Roof Material-Flashing, FR1, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-6 / 25031482-006 Roof Material-Flashing, FR1, Insulation	Brown Fibrous Homogeneous	100% Cellulose		None Detected

Analyst: Sidney Pinkerton Approved Signatory: Johnathan Wilson

Analysis Date: 5/16/2025 Date: 5/16/2025

SanAir Technologies Laboratory

SanAir ID Number
25031482
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5/16/2025 6:08:47 PM

Name: Lawhon & Associates, Inc.
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Columbus, OH 43212
Phone: 614-481-8600 ext. 142

Project Number: 25-0161
P.O. Number:
Project Name: Mays Dublin CSD Wright Roof
Collected Date: 5/8/2025
Received Date: 5/15/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
250508-7 / 25031482-007 Roof Material-Flashing, FR4, Shingle	Black Non-Fibrous Homogeneous	10% Synthetic	90% Other	None Detected
250508-7 / 25031482-007 Roof Material-Flashing, FR4, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-7 / 25031482-007 Roof Material-Flashing, FR4, Felt	Black Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
250508-7 / 25031482-007 Roof Material-Flashing, FR4, Membrane	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-7 / 25031482-007 Roof Material-Flashing, FR4, Insulation	Brown Fibrous Homogeneous	100% Cellulose		None Detected
250508-8 / 25031482-008 Roof Material-Flashing, FR4, Shingle	Black Non-Fibrous Homogeneous	10% Synthetic	90% Other	None Detected
250508-8 / 25031482-008 Roof Material-Flashing, FR4, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-8 / 25031482-008 Roof Material-Flashing, FR4, Felt	Black Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
250508-8 / 25031482-008 Roof Material-Flashing, FR4, Membrane	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-8 / 25031482-008 Roof Material-Flashing, FR4, Insulation	Brown Fibrous Homogeneous	100% Cellulose		None Detected

Analyst: Sidney Pinkerton
Analysis Date: 5/16/2025

Approved Signatory: Johnathan Wilson
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Collected Date: 5/8/2025
Received Date: 5/15/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
250508-9 / 25031482-009 Faux Slate Roof, SR1	Grey Non-Fibrous Homogeneous		90% Other	10% Chrysotile
250508-10 / 25031482-010 Faux Slate Roof, SR1				Not Analyzed
250508-11 / 25031482-011 Faux Slate Roof Underlay, SR1	Black Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
250508-12 / 25031482-012 Faux Slate Roof Underlay, SR1	Black Fibrous Homogeneous	50% Cellulose	50% Other	None Detected
250508-13 / 25031482-013 Shingle & Felt, FR4 Sloped Roof, Shingle	Black Non-Fibrous Homogeneous	10% Synthetic	90% Other	None Detected
250508-13 / 25031482-013 Shingle & Felt, FR4 Sloped Roof, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-13 / 25031482-013 Shingle & Felt, FR4 Sloped Roof, Felt	Black Non-Fibrous Homogeneous	30% Glass	70% Other	None Detected
250508-14 / 25031482-014 Shingle & Felt, FR4 Sloped Roof, Shingle	Black Non-Fibrous Homogeneous	10% Synthetic	90% Other	None Detected
250508-14 / 25031482-014 Shingle & Felt, FR4 Sloped Roof, Tar	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-14 / 25031482-014 Shingle & Felt, FR4 Sloped Roof, Felt	Black Non-Fibrous Homogeneous	30% Glass	70% Other	None Detected

Analyst: Sidney Pinkerton
Analysis Date: 5/16/2025

Approved Signatory: Johnathan Wilson
Date: 5/16/2025

SanAir Technologies Laboratory

SanAir ID Number
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Project Name: Mays Dublin CSD Wright Roof
Collected Date: 5/8/2025
Received Date: 5/15/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
250508-15 / 25031482-015 Wall Coating, FR1, Coating	Various Non-Fibrous Heterogeneous		100% Other	None Detected
250508-15 / 25031482-015 Wall Coating, FR1, Foam	White Non-Fibrous Homogeneous		100% Other	None Detected
250508-16 / 25031482-016 Wall Coating, FR1	Various Non-Fibrous Heterogeneous		100% Other	None Detected
250508-17 / 25031482-017 Sealant I, Electrical FR3	Grey Non-Fibrous Homogeneous		100% Other	None Detected
250508-18 / 25031482-018 Sealant I, Electrical FR3	Grey Non-Fibrous Homogeneous		100% Other	None Detected
250508-19 / 25031482-019 Sealant II, Vent Stack FR6	Beige Non-Fibrous Homogeneous		100% Other	None Detected
250508-20 / 25031482-020 Sealant II, Vent Stack FR6	Beige Non-Fibrous Homogeneous		100% Other	None Detected
250508-21 / 25031482-021 Sealant III, Counter Flash FR3	Beige Non-Fibrous Homogeneous		100% Other	None Detected
250508-22 / 25031482-022 Sealant III, Counter Flash FR3	Beige Non-Fibrous Homogeneous		100% Other	None Detected
250508-23 / 25031482-023 Caulking, Louver FR3	White Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Sidney Pinkerton
Analysis Date: 5/16/2025

Approved Signatory: Jonathan Wilson
Date: 5/16/2025

SanAir Technologies Laboratory

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Project Number: 25-0161
P.O. Number:
Project Name: Mays Dublin CSD Wright Roof
Collected Date: 5/8/2025
Received Date: 5/15/2025 10:00:00 AM

Analyst: Pinkerton, Sid

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
250508-24 / 25031482-024 Caulking, Louver FR3	White Non-Fibrous Homogeneous		100% Other	None Detected
250508-25 / 25031482-025 Sealant IV, Counter Flash Under Window FR3	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-26 / 25031482-026 Sealant IV, Counter Flash Under Window FR3	Black Non-Fibrous Homogeneous		100% Other	None Detected
250508-27 / 25031482-027 Sealant V, FR4	Tan Non-Fibrous Homogeneous		100% Other	None Detected
250508-28 / 25031482-028 Sealant V, FR4	Tan Non-Fibrous Homogeneous		100% Other	None Detected

Analyst: Sidney Pinkerton Approved Signatory: Johnathan Wilson

Analysis Date: 5/16/2025 Date: 5/16/2025

Disclaimer and Additional Information

This report is the sole property of the client named on the SanAir Technologies Laboratory, Inc. (SanAir) chain-of-custody (COC). Results in the report are confidential information intended only for the use by the client named on the COC. Neither results nor reports will be discussed with or released to any third party without our client's written permission to maintain client confidentiality. The final report cannot be reproduced, except in full, without written authorization from SanAir to assure that parts of the report are not taken out of context. This report and any information contained within shall not be edited, altered, or modified in any way by any persons or agencies receiving, viewing, distributing, or otherwise possessing a copy of this final report. The laboratory reserves the right to perform amendments to any finalized report, of which shall supersede and make obsolete any previous editions. Such changes, modifications, additions, or deletions shall be effective immediately upon notice thereof, which may be given by means including, but not limited to, posting on the SanAir client portal website, electronic or conventional mail, or by any other means. The information provided in this report applies only to the samples submitted in the condition they were received at the laboratory and is relevant only for the date, time, and location of sampling. Samples were received in good condition unless otherwise noted on the report. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client on the COC, which includes the project name, project number, P.O. number, sample collection dates, special instructions, samples collected by, sample numbers, sample identifications/location, sample type, selected analysis type, and total area or volume that may affect the validity of the results. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample and information provided by the client. SanAir assumes no responsibility or liability for the manner in which results are used or interpreted. This report does not constitute and shall not be used to claim product, process, system, or person certification, approval, or endorsement by NVLAP, NIST, NELAC, AIHA LAP, LLC or any other agency of the U.S. government; all or some tests contained in this report may not be accredited by every local, state, and federal regulatory agency. Refer to the SanAir website at www.sanair.com for copies of current certificates and scopes of various accreditations, certifications, and licenses or contact the laboratory at iaq@sanair.com for inquiries regarding the status or scope of an accreditation or certification.

Fibers smaller than 5-microns cannot be seen with this method due to scope limitations. Polarized- light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing. Samples are held for a period of 60 days.

Asbestos Accreditations, Certifications, and Licenses
National Voluntary Laboratory Accreditation Program (NVLAP) Lab Code 600227-0
State of Connecticut Department of Public Health Registration Number: PH-0817
State of Rhode Island Department of Health, Certification Number: PLM00144, TEM00144
State of West Virginia Bureau for Public Health, Analytical Laboratory Number: LT000637
Texas Department of State Health Services License Number: 300510

Lawhon & Associates, Inc.

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

2503/482

Sent To: SanAir

VIA: UPS

Date: 5-8-25

No. 5840

Page 1 of 12

Turn around: 5 Day

ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

Project Name:	Project No.:	Project Contact:	Sampler (print):	Signature
Mays Dublin CSD Wright roof	25-0161	Domanic Martin	Domanic Martin	

Sample I.D. No.	Homog. Area No.	Sample /Homogeneous Area Description	Sample Location	Remarks
250508-1	1	roof Material - Field	FR 3	
-2	1	"	FR 1	
-3	1	"	FR 4	
-4	1	"	"	
-5	2	roof Material - Flashing	FR 3	
-6	2	"	FR 1	
-7	2	"	FR 4	
-8	2	"	"	
-9	3	Faux Slate roof	SR 1	
-10	3	"	"	
-11	4	Faux Slate roof underlay	"	
-12	4	"	"	
-13	5	Shingle & Felt	FR 4 sloped roof	
-14	5	"	"	
-15	6	Wall Coating	FR 1	
-16	6	"	"	
-17	7	Sealant F	Electrical FR 3	
-18	7	"	"	

SAMPLE ANALYSIS BY EPA METHOD 600/R-93/116 UNLESS OTHERWISE NOTED.
POINT COUNT FRIABLES AND NOB'S 3% OR LESS ASBESTOS.

☒ Stop 1st Positive ☐ Analyze All Samples

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time	Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
	5-14-25 16:00	RMB	5/15/25 10:00 am				

Distributor: White - Lab; Yellow - File

Lawhon & Associates, Inc.

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

25031482

Sent To: SanAir

VIA: UPS

No. 5841

Page 2 of 2

Date: 5-8-25

Turn around: 5 Day

ASBESTOS BULK SAMPLE CHAIN-OF-CUSTODY RECORD

Project Name:	Project No.:	Project Contact:	Sampler (print):	Signature
Mays Dublin CSP Wright roof	25-0161	Domanic Martin	Domanic Martin	

Sample I.D. No.	Homog. Area No.	Sample /Homogeneous Area Description	Sample Location	Remarks
250508-19	8	Sealent II	Vent stack FR6	
-20	8	〃	〃	
-21	9	Sealent III	Counter Flash FR3	
-22	9	〃	〃	
-23	10	Caulking	Louver FR3	
-24	10	〃	〃	
-25	11	Sealent IV	Counter Flash under window FR3	
-26	11	〃	〃	
-27	12	Sealent IV	FR4	
-38	12	〃	〃	

SAMPLE ANALYSIS BY EPA METHOD 600/R-93/116 UNLESS OTHERWISE NOTED.
POINT COUNT FRIABLES AND NOB'S 3% OR LESS ASBESTOS.

☑ Stop 1st Positive ☐ Analyze All Samples

Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time	Relinquished by: (signature)	Date / Time	Received by: (signature)	Date / Time
	5-14-25 16:00	RMB	5/15/25 10:00 am				

Distributor: White - Lab; Yellow - File

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ilac-MRA

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 600227-0

SanAir Technologies Laboratory, Inc.

Cincinnati, OH

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).

2025-01-01 through 2025-12-31

Effective Dates

DEPARTMENT OF COMMERCE · UNITED STATES OF AMERICA ·

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

SanAir Technologies Laboratory, Inc.
11709 Chesterdale Road
Cincinnati, OH 45246
Maureen Haley
Phone: 513-438-6006 X301
Email: mhaley@sanair.com
www.sanair.com

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 600227-0

Bulk Asbestos Analysis

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

Airborne Asbestos Analysis

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

For the National Voluntary Laboratory Accreditation Program

Effective 2025-01-01 through 2025-12-31

00 43 36
LIST OF SUBCONTRACTORS

Project:

Roof Replacement at Daneil Wright ES
2335 W. Case Road
Columbus, Ohio 43235

Date:

(Date)

To Design Professional:

Mays Consulting & Evaluation Services, Inc.
PO Box 1020
Delaware, Ohio 43015

Design Professional's Project Number:

DOH43-013

From Contractor:

(Name and Address)

Contractor's Project Number:

(Number)

(List Subcontractors and others proposed to be employed on the above Project as required by the bidding documents)

Work/Firm Name	Address/Phone	Superintendent

END OF SECTION 00 43 36 – LIST OF SUBCONTRACTORS

00 62 11
SUBMITTAL TRANSMITTAL FORM

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. All submittals are to be submitted electronically utilizing the following Submittal Transmittal Form. Refer to Section 01 33 00 Submittals for submittal requirements.

1.02 SUBMITTAL COVER PAGE INSTRUCTIONS

The information below shall be inserted into the Submittal Transmittal Form for each submittal. The sample Submittal Transmittal Form has been annotated to indicate where the following information is to be inserted.

A. Project: Fill in project information.
B. Contractor: Fill in contractor information.
C. Description: Fill in a description of the item being submitted.
D. Submittal: Select the type of submittal from the drop-down list.
E. Spec. Section: Fill in specification section this submittal applies to. Reference submittal checklist first column.
F. Submittal Item #: Select a number from the drop-down list that corresponds with the number, second column, on the submittal checklist.
G. Revision #: Select a number from the drop-down list. The first submission will be Revision # 00. If a submittal is reviewed and returned for revisions, the next submission will be # 01, etc.
H. Contractor Comments: This area is for additional information that is relevant to the submittal.
I. Contractor Approval Stamp: The contractor stamp should go in this location. Stamp should indicate that the contractor has reviewed the submittal. The stamp should indicate if the submittal meets the specified requirements.
J. Date Forwarded: Fill in the date this submittal is being delivered to Mays.
K. Items to be filled-in by Design Professional.

1.03 FILE FORMAT AND NAMES

A. Combine cover page with all relevant documents in a PDF binder. Do not create a PDF Portfolio.

B. When saving submittals the file names shall be as follows: Submittal number and then a brief description

Example: **002113-08-00_List of Subcontractors**

002113 Specification Section

08 Submittal Item #

00 Revision #

C. PDF binders shall not have any document restrictions applied that would limit the Design Professional from reviewing and/or annotating the documents within the binders.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION 00 62 11 – SUBMITTAL TRANSMITTAL FORM

00 62 11
Submittal Transmittal Templete

Mays Consulting & Evaluation Services, Inc.

A Professional Consulting & Evaluation Organization

Project:
Mays Consulting Office Roof
A 201 Pennsylvania Avenue
Delaware, Ohio 43015

Contractor:
B ABC Roofing
102 Spring Street
Delaware, Ohio 43015

SUBMITTAL #: 072216 – 01 – 00

C **Description:** Hunter Panels H-Shield CG Roof Insulation
Spec. Section: 072216 E
Submittal Item #: 01 F
D **Submittal:** Product Data
Revision #: 00 G

H **Contractor Comments:**
This product will be used on Roof Areas A, L, and O.

Contractor Approval Stamp	Mays Review Summary
By submitting these documents, the contractor indicates that he approves and has verified the submittal for compliance with the contract documents. I	☐ Approved ☐ Approved As Noted ☐ Additional Items Required ☐ Rejected ☐ Returned for Revisions - Resubmit ☐ Submit New Documents K
J Date Forwarded 1/8/2014	By: K

Mays Comments:

K

Submittal # 072216 – 01 – 00 **Complete:** K ☐ Yes ☐ No

P.O. Box 1020 • Delaware, Ohio 43015 • (740)363-9511 • Fax (740)363-3050
E-Mail: info@mces.com
www.mces.com

00 62 11
Submittal Transmittal Templete

Submittal Cover Page Instructions

A. Fill in project information.
B. Fill in contractor information.
C. Fill in a description of the item being submitted.
D. Select the type of submittal from the drop-down list.
E. Fill in specification section this submittal applies to. Reference submittal checklist first column.
F. Select a number from the drop-down list that corresponds with the number, second column, on the submittal checklist.
G. Select a number from the drop-down list. The first submission will be Revision # 00. If a submittal is reviewed and returned for revisions, the next submission will be # 01, etc.
H. This area is for additional information that is relevant to the submittal. If a submittal isn't in conformance with the contract documents it should be noted here.
I. The contractor stamp should go in this location. Stamp indicates that the primary contractor has reviewed the submittal and it is in conformance with contract documents unless it is noted in the contractor comments area. Stamp shall be digitally applied and include reviewer, time and date stamp was applied.
J. Fill in the date this submittal is being delivered to Mays.
K. To be filled-in by Mays.

File Format & Names

1. Combine cover page with all relevant documents in a PDF binder. Do not create a PDF Portfolio.
2. When saving submittals the file names shall be as follows:

   Submittal number and then a brief description

   Example: **002113-08-00 List of Subcontractors**

   002113 Specification Section

   08 Submittal Item #

   00 Revision #

3. PDF binders shall not have any document restrictions applied that would limit the consultant from reviewing and/or annotating the documents within the binders.

REQUEST FOR INTERPRETATION

FROM: RFI NUMBER: _____

TO:

Project Name: Dublin City Schools - Roof Replacement at Daniel Wright Elementary School

Project Number: DOH43-013

In reference to the above contract, we are hereby requesting a clarification, determination and/or information concerning the following:

Specification Section No(s): _____

Drawing No(s): Drawings. _____And _____

Request:

Recommendations:

Impact:

Attachment(s):

Requested by: Date of Request: _____

Title: Date Reply Required: _____

In reply to your request, be advised:

Reply by: _____ Date of Reply: _____

Title: _____ Date reply returned to originator: _____

Note: This reply is not an authorization to proceed with work involving additional cost, time, or both. If any reply requires a change to the Contract Documents, a Change Order, Construction Change Directive or Minor Change in the work must be executed in accordance with the Contract Documents.

END OF SECTION 00 63 13 – REQUEST FOR INTERPRETATION

Change Order Request Form Instructions

Introduction

Generally, the Design Professional will issue a Construction Change Directive, Bulletin, or otherwise request a proposal from the Contractor. The Contractor shall submit this completed Change Order Request Form and supporting documentation so that the Design Professional can evaluate the Change Order Request/Proposal.

This Change Order Order procedure is outlined in the General Conditions of the Contract for Construction. A Change Order form will be prepared by the Design Professional and circulated to the Owner and the Contractor for review and signature. The Change Order is not effective until it has been signed by all parties.

Legend

Dark Red	Instructions Tab - Contains instructions on completing the Change Order Cost Breakdown.
Green	Contractor Tabs - These are tabs where the Contractor is required to insert information.
Blue	Subcontractor 1 Tabs - These are tabs where information from Subcontractor 1 is required to insert information.
Light Blue	Subcontractor 2 Tabs - These are tabs where information from Subcontractor 1 is required to insert information.
Yellow	Normal entry information (unlocked fields)
Red	Automated Cell (locked field)

Step by Step Instructions

Change Order Summary Form - Contractor

1. Fill in all project information in yellow shaded boxes.
2. A: Labor Unit Prices
   a. Fill in "Labor Type" column for each type of labor required for the work. These "Labor Types" must match the labor categories listed on the Bid Form.
   b. Fill in "Quantity of Hours" column for each "Labor Type" that is estimated necessary to complete the work.
   c. Fill in "Labor Unit Price" column for each "Labor Type". This unit price must match the labor categories listed on the Bid Form. If a different "Labor Type" is required to complete the work, insert the required "Labor Type" and "Labor Unit Price" and this will also be reviewed during the review process.
   d. The "Labor Subtotals" will automatically calculate.
3. B. Equipment - This total will be automatically populated from the "B. Equipment" tab.
   a. B. Equipment Tab - Fill in each piece of equipment that is required to complete the work in the "Equipment" column.
   b. B. Equipment Tab - Fill in the cost of each piece of equipment in the "Total Cost"

column.

c. B. Equipment Tab - Insert a copy of quotes (or other documentation acceptable to the Design Professional for the reasonable equipment cost) for each piece of equipment required to complete the work.

4. C. Materials This total will be automatically populated from the C. Materials" tab.
   a. C. Materials Tab - Fill in each type of material that is required to complete the work in the "Material Description" column.
   b. C. Materials Tab - Fill in the unit cost for each type of materials in the "Unit Cost" column.
   c. C. Materials Tab - The "Total Cost" for each material will be automatically calculated in the "Total Cost" column.
5. Subcontractor 1 - This will be automatically populated from the "Subcontractor 1 Summary Form"
6. Subcontractor 2 - This will be automatically populated from the "Subcontractor 1 Summary Form"
7. F. Labor, Material, and Subcontract Subtotal - This will be automatically populated.
8. G. Overhead & Profit - This will be automatically populated. The maximum allowable overhead and profit is limited to 15% in the General Conditions.
9. H. Bonds - Enter the additional cost for the bonds for the work included in this proposal request. Include documentation of this cost in "Contractor - Additional Doc" tab.
10. I. Insurance - Enter the additional cost, if any, for the specified insurance for the work included in this proposal request. Include documentation of this cost in "Contractor - Additional Doc" tab.
11. J. Permits - Enter the additional cost, if any, for permits required for the work included in this proposal request. Include documentation of this cost in "Contractor Additional Doc" tab.
12. Subcontractor 1 and 2 Forms - The subcontractor shall complete (or provide information to the Contractor for completion) the forms utilizing the procedure outlined above.

Change Order Request Form

Change Order Request# 1

Project Information:

Project:	[Project Name]	**Date:**	[Date]
Contractor:	[Contractor]	**Original Contract Sum:**	[Contract Sum]
Design Professional:	Mays Consulting & Evaluation Services, Inc.		
Owner:	[Client]	**Original Contract Date:**	[Contract Date]
Project No.:	AAA##-###		
DESCRIPTION:	[Description]		

Cost Breakdown:

A. LABOR UNIT PRICES (including payroll taxes, fringe benefits, workers' compensation insurance, overhead, and profit):
Unit Prices from Bid Form or Subsequently Agreed Upon

Labor Type	Quantity of Hours		Labor Unit Price		Labor Subtotals
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -

A. LABOR UNIT PRICES:			$ -
B. EQUIPMENT (attach quotes/invoices):	Total B:	$ -	
C. MATERIALS (attach supporting documentation):	Total C:	$ -	
D. SUBCONTRACTOR 1 (subcontractor break down to be completed):	Total D:	$ -	
E. SUBCONTRACTOR 2 (subcontractor break down to be completed):	Total E:	$ -	
F. EQUIPMENT, MATERIAL, AND SUBCONTRACT SUBTOTAL (B+C+D+E)	Total F:		$ -
G. OVERHEAD & PROFIT (F x 15%): Overhead and Profit Limit: 15%	Total G:		$ -
H. BONDS (attach supporting documentation):	Total H:		$ -
I. INSURANCE (attach supporting documentation):	Total I:		$ -
J. PERMITS (attach supporting documentation):	Total J:		$ -
	GRAND TOTAL (A+F+G+H+I+J):		$ -

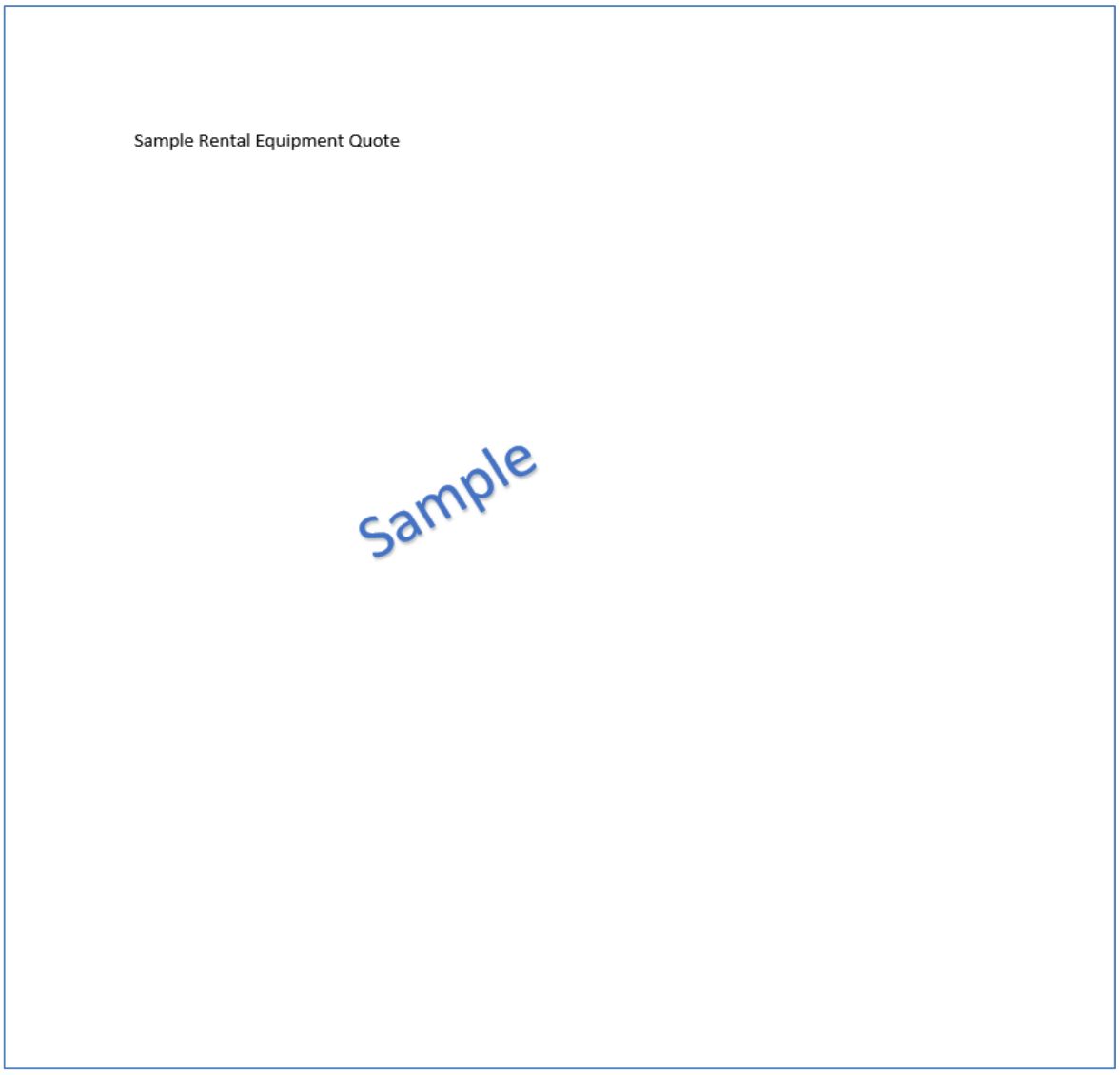
Contractor - Equipment Costs

Project: [Project Name]
Project No.: AAA##-###

Equipment	Total Cost
	$ -
	$ -
	$ -
	$ -
	$ -
	$ -
	$ -

Grand Total of Equipment = $ -

**Attach or Insert screenshot of the quote



Contractor - Materials

Project: [Project Name]
Project No.: AAA##-###

Material Description	Quantity	Unit Cost	Total Cost
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -

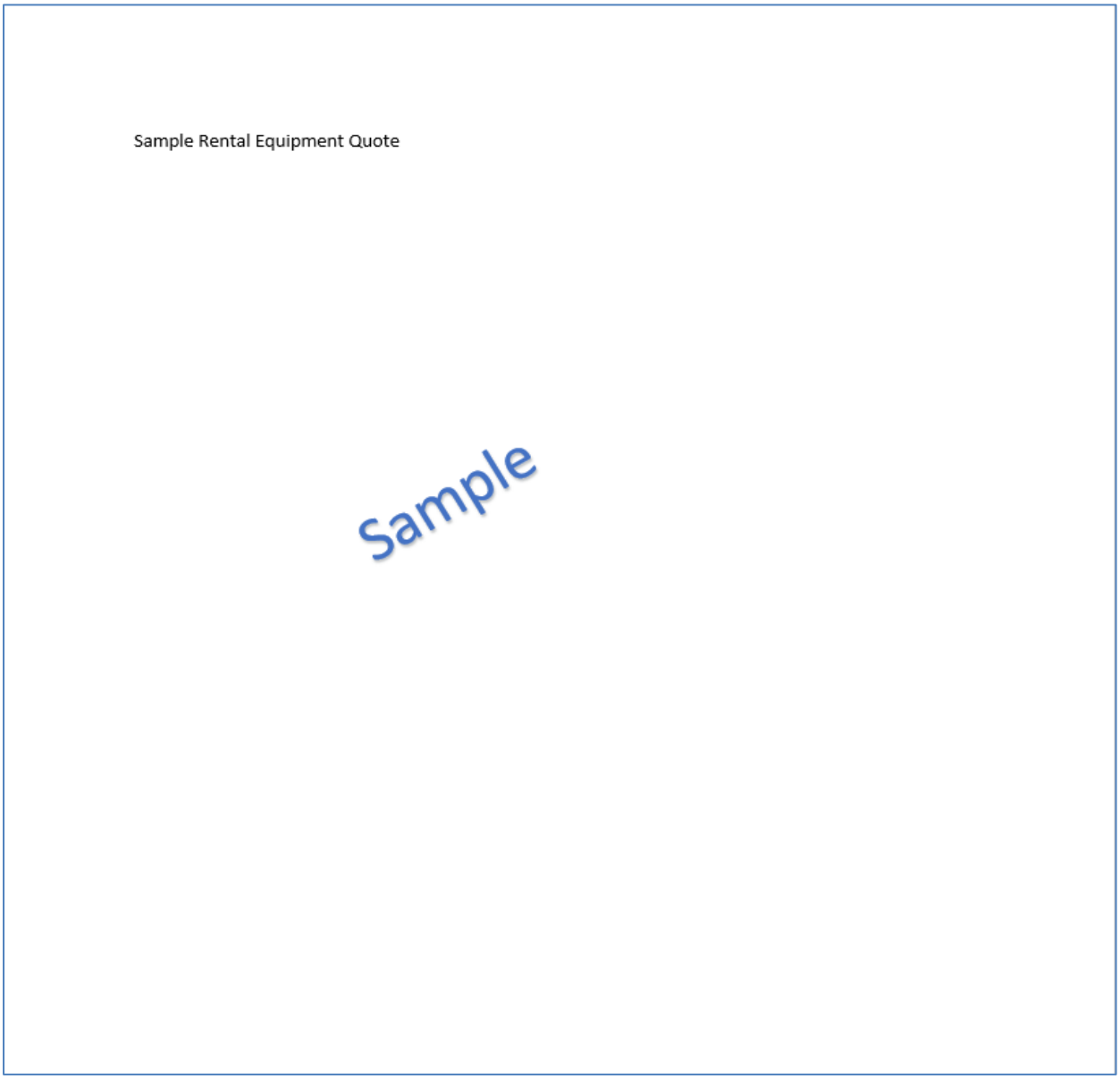
Grand Total Materials = $ -

*Attach Supporting Documentation or Insert Screenshot



Contractor - Additional Documentation

*Attach Supporting Documentation or Insert Screenshot



Change Order Request Form

Change Order Request# 1

Project Information:

Project:	[Project Name]	**Date:**	[Date]
Subcontractor 1:	[Subcontractor 1]	**Original Contract Sum:**	[Contract Sum]
Design Professional:	Mays Consulting & Evaluation Services, Inc.		
Owner:	[Client]	**Original Contract Date:**	[Contract Date]
Project No.:	AAA##-###		
DESCRIPTION:	[Description]		

Cost Breakdown:

A. LABOR UNIT PRICES (including payroll taxes, fringe benefits, workers' compensation insurance, overhead, and profit):
Unit Prices from Bid Form or Subsequently Agreed Upon

Labor Type	Quantity of Hours		Labor Unit Price		Labor Subtotals
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -

A. LABOR UNIT PRICES:		Total A:	$ -
B. EQUIPMENT (attach quotes/invoices):		Total B:	$ -
C. MATERIALS (attach supporting documentation):		Total C:	$ -
D. SUB - SUBCONTRACTOR 1A (To be approved by Design Professional):		Total D:	$ -
E. SUB-SUBCONTRACTOR 1B (To be approved by Design Professional):		Total E:	$ -
F. EQUIPMENT, MATERIAL, AND SUBCONTRACT SUBTOTAL (B+C+D+E)		Total F:	$ -
G. OVERHEAD & PROFIT (F x 15%):	Overhead and Profit Limit: 15%	Total G:	$ -
H. BONDS (attach supporting documentation):		Total H:	$ -
I. INSURANCE (attach supporting documentation):		Total I:	$ -
J. PERMITS (attach supporting documentation):		Total J:	$ -
		GRAND TOTAL (A+F+G+H+I+J):	$ -

Subcontractor 1 - Equipment Costs

Project: [Project Name]
Project No.: AAA##-###

Equipment	Total Cost
	$ -
	$ -
	$ -
	$ -
	$ -
	$ -
	$ -

Grand Total of Equipment = $ -

**Attach or Insert screenshot of the quote

Sample Rental Equipment Quote

Sample

Subcontractor 1 - Materials

Project: [Project Name]
Project No.: AAA##-###

Material Description	Quantity	Unit Cost	Total Cost
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -

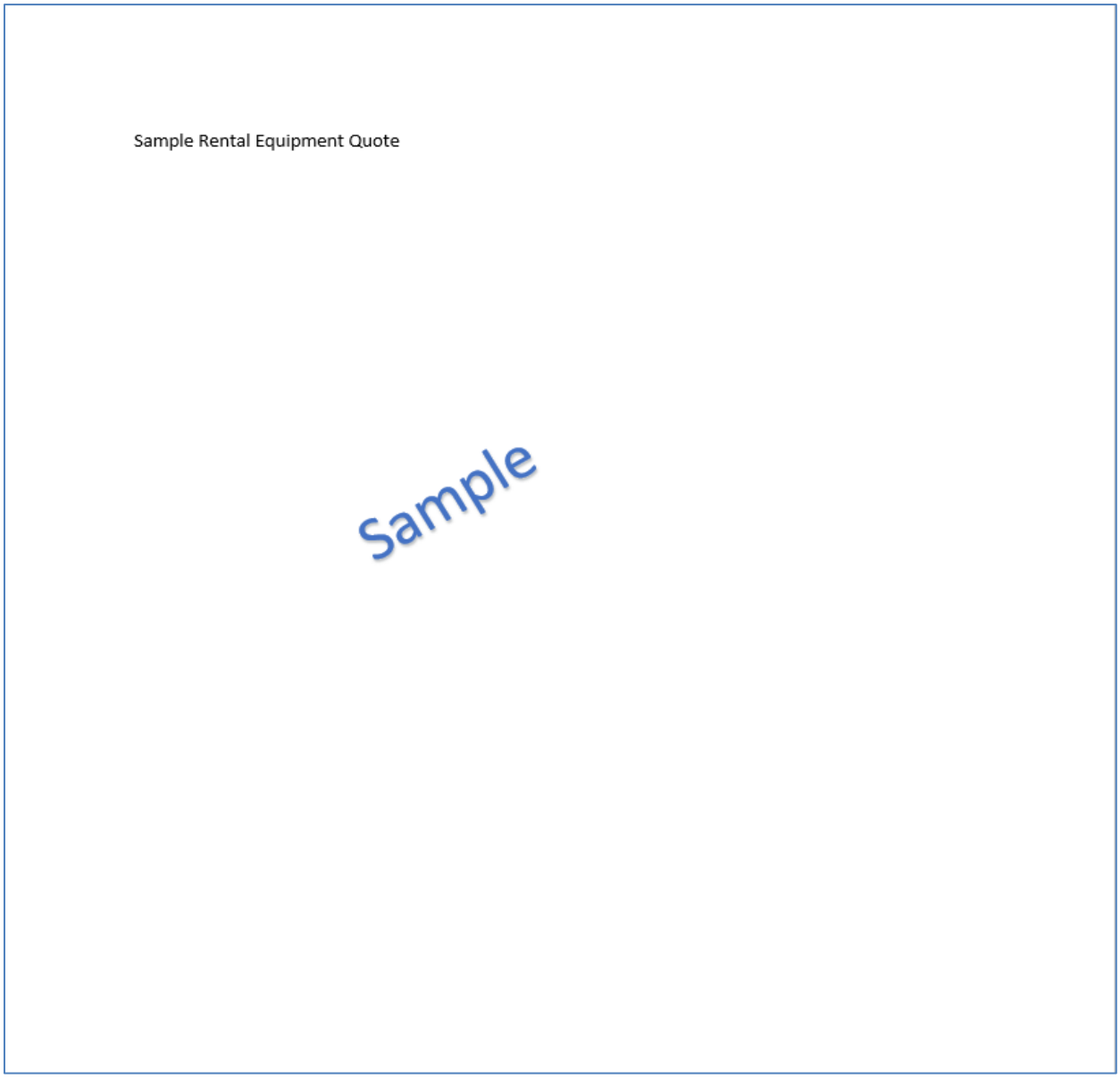
Grand Total Materials = $ -

*Attach Supporting Documentation or Insert Screenshot



Subcontractor 1 - Additional Documentation

*Attach Supporting Documentation or Insert Screenshot



Change Order Request Form

Change Order Request# 1

Project Information:

Project:	[Project Name]	**Date:**	[Date]
Subcontractor 2:	[Subcontractor 2]	**Original Contract Sum:**	[Contract Sum]
Design Professional:	Mays Consulting & Evaluation Services, Inc.		
Owner:	[Client]	**Original Contract Date:**	[Contract Date]
Project No.:	AAA##-###		
DESCRIPTION:	[Description]		

Cost Breakdown:

A. LABOR UNIT PRICES (including payroll taxes, fringe benefits, workers' compensation insurance, overhead, and profit):
Unit Prices from Bid Form or Subsequently Agreed Upon

Labor Type	Quantity of Hours		Labor Unit Price		Labor Subtotals
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -
	0	hours x	$ -	per hour =	$ -

A. LABOR UNIT PRICES:		Total A:	$ -
B. EQUIPMENT (attach quotes/invoices):		Total B:	$ -
C. MATERIALS (attach supporting documentation):		Total C:	$ -
D. SUB - SUBCONTRACTOR 2A (To be approved by Design Professional):		Total D:	$ -
E. SUB-SUBCONTRACTOR 2B (To be approved by Design Professional):		Total E:	$ -
F. EQUIPMENT, MATERIAL, AND SUBCONTRACT SUBTOTAL (B+C+D+E)		Total F:	$ -
G. OVERHEAD & PROFIT (F x 15%):	Overhead and Profit Limit: 15%	Total G:	$ -
H. BONDS (attach supporting documentation):		Total H:	$ -
I. INSURANCE (attach supporting documentation):		Total I:	$ -
J. PERMITS (attach supporting documentation):		Total J:	$ -
		GRAND TOTAL (A+F+G+H+I+J):	$ -

Subcontractor 2 - Equipment Costs

Project: [Project Name]
Project No.: AAA##-###

Equipment	Total Cost
	$ -
	$ -
	$ -
	$ -
	$ -
	$ -
	$ -

Grand Total of Equipment = $ -

**Attach or Insert screenshot of the quote

Sample Rental Equipment Quote

Sample

Subcontractor 2 - Materials

Project: [Project Name]
Project No.: AAA##-###

Material Description	Quantity	Unit Cost	Total Cost
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -
		$ -	$ -

Grand Total Materials = $ -

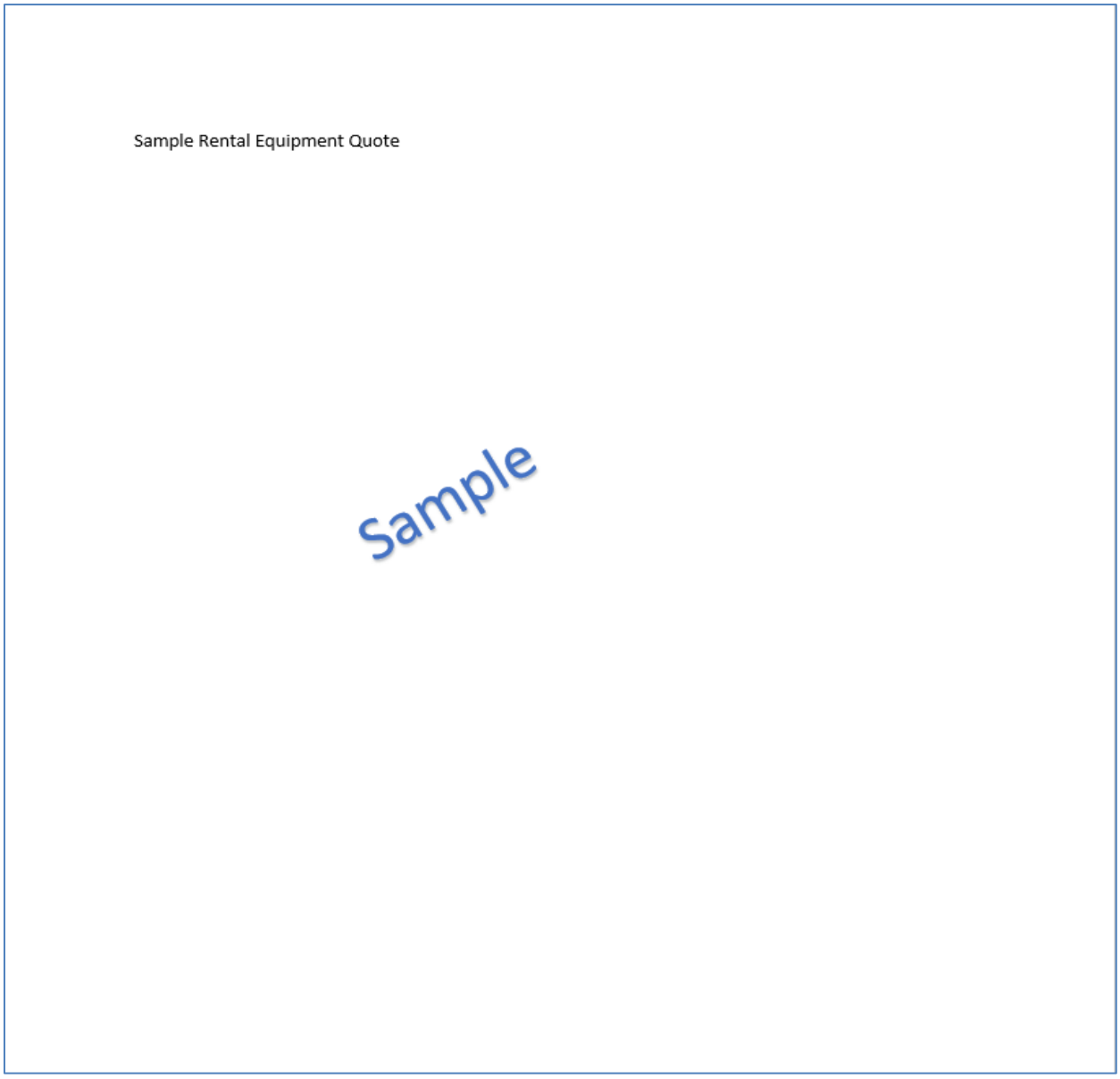
*Attach Supporting Documentation or Insert Screenshot

Sample Rental Equipment Quote

Sample

Subcontractor 2 - Additional Documentation

*Attach Supporting Documentation or Insert Screenshot



00 65 80
ASBESTOS FREE CERTIFICATE

The undersigned Contractor certifies that:

1. It has disclosed to the Design Professional in writing every incident in which to its knowledge it discovered Asbestos Containing Materials (ACM) during the course of the Contractor's Work at the Building Envelope 2025 PI/Bond Project – Roof Replacement at Daniel Wright Elementary School Project.
2. all materials incorporated by the undersigned into the Project are asbestos free.

_____
Contractor

By:

_____
Signature

_____
Typed Name

_____
Title

_____
Date

State of _____

County of _____

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

_____
Notary Public

END OF SECTION 00 65 80 – ASBESTOS FREE CERTIFICATE

01 11 00
SUMMARY OF WORK

PART 1 – GENERAL

1.01 GENERAL

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

1.02 SUMMARY OF WORK

A. The following is only a summary of the work that is to be completed and is not all-inclusive. The Contract Documents shall be reviewed as they specify all of the requirements for the project.

B. Base Bid – Roof Replacement – Roof Areas A1, A2, B1 – B5, C1 – C10, D1 – D4, F1, F2, F3, and L3

Related Specifications

Division 1	General Requirements
02 41 19	Selective Demolition
02 82 20	Asbestos Remediation – Hazardous Materials Abatement
02 82 21	Asbestos Remediation – Summary of Work
02 82 22	Asbestos Remediation – List of Contractor Requirements
02 82 23	Asbestos Remediation – Codes and Regulations
02 82 24	Asbestos Remediation – Temporary Facilities
02 82 25	Asbestos Remediation – Work Practices
02 82 26	Asbestos Remediation – Abatement Monitoring
02 82 27	Asbestos Remediation – Asbestos Abatement Procedures
02 82 28	Asbestos Remediation – Forms
02 82 29	Asbestos Remediation – Project Closeout
03 51 13.01	Cementitious Wood Fiber Roof Deck Repair
05 30 23.01	Steel Deck Repair
06 10 53.01	Rough Carpentry for Roofing
07 22 16	Roof Board Insulation
07 24 19	Water-Drainage Exterior Insulation and Finish System
07 54 00	Thermoplastic Membrane Roofing
07 62 00	Sheet Metal Flashing and Trim
07 72 00	Roof Accessories
07 92 00	Joint Sealants
08 51 13	Aluminum Windows
08 91 19	Fixed Louvers
22 14 26.13	Roof Drains
26 14 26.13	Lightning Protection for Structures
32 92 00	Turfs and Grasses

Low-Sloped Roof System Replacement

1. Remove existing membrane roof system down to the structural deck. Remove/abate existing faux slate (asbestos containing material) down to the existing FRT plywood roof deck on Roof Areas L3.

2. Inspect the structural steel deck for areas of deterioration.

   Areas of corroded steel roof decking shall be prepared and painted on a unit price basis. See Section 01 21 00 Allowances for the quantity of corrosion removal and painting that is to be included in Base Bid.

   Areas of moderately-to-severely corroded steel roof decking shall be replaced on a unit price basis. See Section 01 21 00 Allowances for the quantity of steel roof deck replacement that is to be included in Base Bid.

3. Install 60 mil fully-adhered Thermoplastic Membrane Roof System in accordance with the Contract Documents.

4. Install 60 mil fully-adhered Thermoplastic Membrane wall flashings and sheet metal attic exhaust vents.

5. Install new coping caps, edge metal, counterflashings, and miscellaneous sheet metal as specified.

6. Install roof membrane walkway, where specified.

Metal Wall Panel Modifications

1. Remove existing louver hoods and install new louver hood to allow for the removal and re-installation of the existing HVAC louver on Roof Area B1B and B3B.

Exterior Insulation and Finish System (EIFS) Repairs

1. Remove and/or repair the existing EIFS system as specified. See project drawings and elevations for the repair and/or replacement extents.

Miscellaneous Items

1. Remove the existing HVAC louver, modify the louver opening and plenum/duct to allow the for the specified flashing height. Provide and install a new HVAC louver.

2. Raise existing rooftop HVAC units (included extending ducts and HVAC service lines) where specified.

3. Re-route gas lines for HVAC units as specified.

4. Remove the existing mechanical room access door. Modify the mechanical room door sill to allow for the specified flashing height. Provide and install a new mechanical room access door and hardware to match the existing.

5. Remove the existing roof drain and overflow drain bowls and provide new cast iron roof drain bowls, and related accessories (i.e. insulation, clamps, supports, etc.).

Modify the existing interior piping as necessary to connect the new roof drain bowl.

6. Provide and install adjustable and/or static roof drain extensions (static preferred) as required by the roof insulation thickness.

7. Remove the existing aluminum window systems above Roof Area B2, raise the existing sill, and install new aluminum window system. The interior window sill shall also be raised, new cultured marble sill provided, and interior drywall repaired and painted, as specified.

8. Remove the existing FRT plywood wall sheathing from perimeter wall areas. Install new 5/8” FRT plywood wall sheathing.

9. Remove the existing lightning protection system and install new lightning protection system per the specified lightning protection standards. The down conductor and the existing below roof components of the down conductor shall be assumed to be adequately spaced and re-usable. A UL inspection and Master Label to be performed upon lightning protection system installation.

10. Install new roof hatches, where specified.

11. Install new roof access ladders, where specified.

1.03 CONSTRUCTION TIME

A. Time is of the essence in the performance of the Contract for the Project.

B. Alternate Work: All alternate work must be completed in conjunction with the Base Bid work.

1.04 PROJECT CONDITIONS AND WARNINGS

A. All activities shall be performed in a way to provide Owner with an immediate watertight roof system at all times during construction. It is the Contractor's responsibility to prevent construction-related leaks.

B. The majority of the work is over occupied space. Every precaution must be taken to protect the building occupants, the general public, and the contents/products stored in the building. The removal and replacement of the roof system shall be completed on specific roof and wall sections at such times as authorized by the Owner and Design Professional.

C. It is the Contractor's responsibility to prevent odors, dust, and hazardous materials from entering into the building.

D. Electrical service conduit lines, at some locations, are in close proximity to the bottom of the structural roof deck. It is the Contractor’s responsibility to prevent fastener penetration of same.

E. All activities shall be so staged to prevent interference with the building occupant operations to the greatest extent possible. Safety of building occupants shall be of utmost priority in all stages of the project.

F. In general, because of the nature of the project (high visibility and high profile), it is recommended that the Contractor instruct project-related personnel to not unduly alarm the general public and occupants. All issues regarding safety and security shall be communicated to all responsible parties, including occupants and the general public in the immediate vicinity of the work in progress - ALL SAFETY REGULATIONS SHALL APPLY. Communications shall be made through appropriate channels as approved through Owner's Design Professional.

1.05 USE OF SITE

A. Use of Site: Limit use of premises to areas within the limits indicated. Do not disturb portions of the site beyond areas in which the Work is indicated.

1. Limits: Limit size of disturbance to 30 feet beyond building perimeter; 10 feet beyond surface walkways, patios, surface parking, that require additional staging areas in order to limit compaction in the constructed area. See the project drawings for any areas where site access is limited.
2. Owner Occupancy: Allow for Owner occupancy of Project site and use by the public.
3. Driveways and Entrances: Keep undesignated driveways, parking areas, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use undesignated areas for parking or storage of materials.

    a. Schedule deliveries to minimize use of driveways and entrances.
    b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.06 OWNER'S RIGHT TO MAINTAIN OPERATIONS

A. During the course of this Project, normal and customary facility functions and operations must be maintained. The Contract Documents are intended to define a strict separation between the facility activities and the construction project.

B. The Owner will not tolerate any visible or audible actions initiated or responded to by employees of Contractors on this Project toward the building occupants or public at the facility. Violators shall be promptly removed from the Project site.

C. Contractors shall expend their best effort toward protection of the health, safety, and welfare of occupants on the Owner's property during the course of Work on this Project.

D. Contractors and subcontractors shall be subject to such rules and regulations for the conduct of the Work as the Owner may establish. Employees shall be properly and completely clothed while working. Bare torsos, legs, and feet will not be allowed. Possession or consumption of alcoholic beverages or drugs, tobacco, or other noxious behavior on the Project site is strictly prohibited. Violators shall be promptly removed from

the Project site.

E. No interruption to the Owner's operations will be permitted and Contractor shall schedule and perform his work accordingly.

1.07 OWNER'S OCCUPANCY REQUIREMENTS

A. Full Owner Occupancy: Owner will occupy Project site and building during the construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide not less than 48 hours' notice to Owner of activities that will affect Owner's operations.

1.08 CODES AND REGULATIONS

A. It is the intent of the Design Professional that the Contract Documents are in accordance with applicable laws, statutes, building codes and regulations. Contractor shall notify Design Professional and Owner immediately if Contractor observes that the Contract Documents are at variance with this intent in any respect. Design Professional shall make any necessary changes.

B. If the Contractor performs Work knowing it to be contrary to such laws, ordinances, rules, and regulations, and without such notice to the Design Professional and Owner, the Contractor shall assume full responsibility therefore and shall bear attributable costs.

1.09 PERMITS, FEES, AND NOTICES

A. The Contractor shall secure and pay for all building permits, trade permits, bonds, and other permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Contract.

B. Shutdowns of existing systems shall be limited to minimum time required and scheduled with other involved parties. Provide 72 hours written notice of shutdown to Design Professional and Owner.

C. Inspections of installed work shall be performed by governing authority (when required by governing authority) as arranged for by the Contractor. Work shall not be covered until approved.

D. Contractor shall give notices and comply with laws, ordinances, rules, regulations, and orders of public authorities bearing on the performance of his Work.

1.10 WORK RESTRICTIONS

A. General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. Definitions:

1. Ambient Noise Level: The total noise associated with a given environment, being usually a composite of normal or existing sounds from all sources near and far, excluding the noise source at issue.
2. Daytime: The hours from 7:00 a.m. to 9:00 p.m. on weekdays and 9:00 a.m. to 9:00 p.m. on weekends and holidays.
3. Nighttime: All non-daytime hours.
4. Property Line: The real or imaginary line along the ground surface and its vertical extension, which separates real property owned or controlled by one person from contiguous real property owned or controlled by another person or from any public right-of-way or from any public space.
5. Receiving Noise Area: Any real property where people live or work and where noise is heard, excluding the project or source area.

C. Work Hours:

1. The contractor will be permitted to work at the Project Site at the following times without prior written permission of the Owner or Design Professional:

Monday through Friday	7:00 a.m.	to	9:00 p.m.
Saturday	7:00 a.m.	to	9:00 p.m.
Sunday	No Work Permitted.		
Holidays	No Work Permitted.		

The Owner or Design Professional, at their sole discretion, may restrict working time or grant permission for additional working time.

Some municipalities and/or local authorities restrict work hours. The Contractor shall abide by all legal requirements regarding project work hours.

2. The following operations must also be completed during non-operating hours or completed in a manner that does not affect the operations of the building:

a. All operations which produce loud noises, and/or have the potential for injury related incidents from falling objects (i.e. tear off, decking replacement, curb removal, etc.), shall also be confined to non-operating hours. All project related interior debris, interior covering, equipment, etc. shall be removed and the interior shall be brought to like cleanliness condition prior to operating hours.

b. All operations (i.e. steel deck painting, adhesive application, etc.) which require HVAC equipment, ventilators, and air handling equipment to be shut off and/or sealed shall be completed in a time frame necessary to put such equipment back in service to achieve the desired interior operating temperature, and be odor free, at the time operations resume. It is the Contractor's responsibility to monitor and protect the interior and occupants of the building at all times during construction.

c. Any other special operations that interfere with the Owner/tenant daily operations.

D. Noise Control: Perform construction operations to minimize noise. Coordinate operations that may result in high levels of noise or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two (2) days in advance of proposed disruptive operations.

E. Repetitive and/or Intermittent, high-level noise:

1. Do not exceed the following dB limitations:

Sound Level dB	Time Duration of Impact Noise
70	More than 12 minutes in any hour
80	More than 3 minutes in any hour

2. Provide equipment, sound-deadening devices, and take noise abatement measures that are necessary for compliance.
3. Maximum permissible construction equipment noise levels at 50 feet (dB):

Equipment	dB
Trucks	75
Generators	75
Compressors	75
Cranes	75
Saws	75

F. Ambient Noise:

1. Maximum noise levels (dB) for receiving noise area at property line shall be as follows:

a.	Residential receiving area	Daytime:	65 dB
		Nighttime:	60 dB
b.	Commercial/Industrial receiving area	Daytime:	67 dB
		Nighttime:	65 dB

G. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Design Professional and Owner not less than 48 hours in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without written permission.

H. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

1.11 DRAWINGS AND SPECIFICATIONS

A. The Owner shall furnish the Contractor an electronic copy of the plans and specifications for use during the project. The Contractor shall provide a minimum of one (1) hard copy for use on-site, in addition to the Record and Permit Drawings.

1.12 MISCELLANEOUS PROVISIONS

A. Contractor shall enforce strict discipline and good order among his employees or other persons carrying out Work of his Contract and shall not permit employment of unfit person or persons or anyone not skilled in the task assigned to them.

B. The Contractor's employees shall be instructed to refrain from fraternization with the building occupants.

C. When requested, the Contractor shall furnish Design Professional a list of personnel to be working at the site.

D. When verification of existing dimensions is required, the Contractor requiring said verification for the construction or fabrication of his material shall be the Contractor responsible for the procurement of the field information.

E. Do not scale documents. Obtain or verify all dimensions for the accommodation of equipment and/or materials to be installed by the Contractor. Dimensions on the drawings indicate nominal sizes under ideal conditions and shall not be construed to relieve the Contractor of the responsibility of taking measurements in the field and furnishing material of the correct dimensions.

F. Advertising, References, and Pictures: Do not make reference to the project or use photographs of the work in any advertising without written permission of the Owner. These limitations also apply to subcontractors and vendors.

G. Building Access: The Contractor's employees will not be allowed within the building without permission of the Owner and must follow directions of the Owner when in the building. The Owner shall retain the right to inspect all packages, material, equipment, and property of any nature, entering and/or leaving the facility, as circumstances warrant. The Owner shall hold any material which he deems irregular or about which he has any doubt until it is inspected.

H. No gambling, drugs or alcoholic beverages will be permitted on the site at any time.

I. Hazardous Materials: The Contractor in addition to products banned as part of the Clean Air Act (NESHAP Rule, Nov. 1990 Revision; 40 CFR 60, Subpart M) shall not use or bring on-site materials containing more than 1 percent asbestos by polarized-light microscopy (PLM) analysis. No materials marked as "MAY CONTAIN MINERAL FIBERS" shall be used in construction unless written results of microscopic examination by an AIHA or NVLAP-certified laboratory documenting the asbestos content at less than 1 percent are provided and approved before installation.

    1. If materials containing more than 1 percent asbestos are brought onto Project site by Contractor, materials shall be removed in accordance with all applicable laws and precautions so as not to make fibers friable. Removal of materials containing more

than 1 percent asbestos and replacement of such materials shall be at contractor's expense.

2. Before final payment, the contractor shall submit to the Owner, on contracting firm's letterhead, a signed, dated copy of the following statement: "I hereby certify to the best of my knowledge that no asbestos containing material (ACM) above 1 percent content was used as a building material for this Project."

1.13 TOBACCO POLICY

A. Smoking Ban:

1. Smoking (including E-cigarettes) is prohibited in any "public place" or "place of employment" as of December 7, 2006. For definitions of a "public place" and "place of employment", refer to ORC 3794.01 Definitions.
2. All "public places" and "places of employment" must, by December 7, 2006, post conspicuous signs at each entrance. The signs must be clearly legible and shall contain a toll-free number for reporting violations. Refer to ORC 3794.06 (A) Posting of Signs.

B. Tobacco Use:

1. Smoking, E-cigarettes, and tobacco use is not permitted on the site, including vehicles.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION 01 11 00 - SUMMARY OF WORK

01 21 00
ALLOWANCES

PART 1 – GENERAL

1.01 GENERAL

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

1.02 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in order to address common work items that are required for this type of project, but the exact quantities are unknown until the existing components are removed.

B. Types of allowances include the following:

1. Lump-sum Allowances.
2. Unit Price Allowances.

1.03 LUMP SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials required to complete the scope of work required for the allowance and shall include taxes (if applicable), freight, and delivery to Project site.

B. Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to the scope of work required for the allowance.

C. Unused Materials: Return unused materials purchased under a Lump Sum Allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1.04 ADJUSTMENT OF ALLOWANCES

A. Lump Sum Allowance Adjustment: To adjust allowance amounts, prepare a Change Order based on the difference between the actual cost of the allowance scope of work and the Allowance amount.

1. The Contractor shall substantiate all costs for a Lump Sum Allowance. This shall include daily reports indicating labor hours utilized to complete the allowance scope of work, invoices for rented equipment, and material invoices for materials.

B. Unit Price Allowance Adjustment: To adjust allowance amounts, prepare a Change Order based on the additional unit price work that is anticipated and agreed on by all parties for each unit price.

1. The contractor shall not proceed with unit price work if the Unit Price Allowance has been completely utilized. The Contractor is responsible to monitor how much of the Unit Price Allowance has been utilized and notify the Design Professional and Owner prior to the Unit Price Allowance being fully utilized.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 SCHEDULE OF ALLOWANCES

A. Base Bid

1. Lump Sum Allowances: Include the following lump sum allowance amounts in Base Bid for inclusion in the Contract Sum:

   a. Allowance #1: Include $5,000 lump sum allowance for the remove and replacement of deteriorated wood blocking.

2. Unit Price Allowances: Include the following unit price allowances amounts in Base Bid for inclusion in the Contract Sum:

   a. Allowance #2: Include 1,500 square feet of the removal and replacement of deteriorated steel roof decking.
   b. Allowance #3: Include 3,000 square feet of corrosion removal and painting of deteriorated steel roof decking.
   c. Allowance #4: Include 20 hours of preparing and painting corroded light gauge steel attic framing (at plywood wall sheathing replacement areas).
   d. Allowance #5: Include 96 square feet for the labor to remove and replace areas of deteriorated Tectum roof decking.

B. Alternate #1

1. Lump Sum Allowances: Include the following lump sum allowance amounts in Base Bid for inclusion in the Contract Sum:

   a. Allowance #6: Include $5,000 lump sum allowance for the remove and replacement of deteriorated wood blocking.

2. Unit Price Allowances: Include the following unit price allowances amounts in Base Bid for inclusion in the Contract Sum:

   a. Allowance #7: Include 40 hours of preparing and painting corroded light gauge steel roof joists (at plywood roof deck replacement areas).

END OF SECTION 01 21 00 – ALLOWANCES

01 22 00
UNIT PRICES

PART 1 – GENERAL

1.01 GENERAL

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

1.02 SUMMARY OF WORK

A. This Section includes administrative and procedural requirements for unit prices.

1.03 DEFINITIONS

A. Unit price: A price per unit of measurement for materials and/or services that could be added or deducted from the Contract Sum.

1.04 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Measurement and Payment:

1. The Contractor must measure and document the amount of unit price work that is required to be completed on a daily basis. A daily written report, along with plan view or elevation drawings showing the approximate location of the work, must be completed.
2. The documentation of the unit price work must include photographs prior to the work being completed to demonstrate that the work is required. In addition, photographs shall also be provided showing that the unit price work was completed. Unit price work will not be approved for payment unless the Contractor provides the specified documentation.
3. The Contractor shall provide an update at every progress meeting outlining how much unit price work was completed and how much unit price work is remaining to be completed. The amount of remaining unit price work shall be evaluated at every progress meeting to determine if the remaining allowance for unit price work included in the contract is sufficient. If the amount of unit price work is determined to be insufficient, the parties shall agree on an allowance for future unit price work that may be needed and the Contract Sum increased by this amount.
4. At the completion of the Work, any remaining allowance for unit price work shall be deducted from the Contract Sum.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and have this work measured, at Owner's expense, by the Design Professional.

D. List of Unit Prices: A list of unit prices is included on the Bid Form. Specification Sections referenced in the schedule contain requirements for materials described under each unit

price.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 UNIT PRICE SCHEDULE

Item No.	Section	Item or Material	Unit of Measure
1	03 51 13.01	Labor to remove and replace deteriorated areas of Tectum Roof Decking. Labor Only.	Sq. Ft.
2	05 30 23.01	Prepare the existing steel roof decking by removing corrosion and painting the existing roof decking.	Sq. Ft.
3	05 30 23.01	Removal and replacement of areas of deteriorated steel roof decking.	Sq. Ft.
4	05 30 23.01	Prepare existing light gauge steel roof framing by removing corrosion and painting.	Per Hour
5	06 10 53.01	Remove and replace 5/8” FRT treated plywood sheathing (roof or wall).	Per Sheet
6	N/A	Roofing Foreman*	Per Hour
7	N/A	Roofing Mechanic*	Per Hour
8	N/A	Sheet Metal Foreman*	Per Hour
9	N/A	Sheet Metal Mechanic*	Per Hour
10	N/A	Plastering Foreman*	Per Hour
11	N/A	Plastering Mechanic*	Per Hour
12	N/A	Laborer*	Per Hour

*Hourly rate unit prices to reflect rate of the trade to complete additional required work. These rates are to include base rate, fringes, payroll burden, overhead, and profit.

END OF SECTION 01 22 00 – UNIT PRICES

01 23 00
ALTERNATES

PART 1 – GENERAL

1.01 GENERAL

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

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

1.02 DEFINITION

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 the 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.

1.03 SUMMARY OF WORK

A. Alternate #1 – Roof Areas H1 - H6, I1 – I3, J1, J2, K1 - K5, L1, L2, G1, G2, and M1 – M4

Related Specifications

Division 1	General Requirements
02 41 19	Selective Demolition
02 82 20	Asbestos Remediation – Hazardous Materials Abatement
02 82 21	Asbestos Remediation – Summary of Work
02 82 22	Asbestos Remediation – List of Contractor Requirements
02 82 23	Asbestos Remediation – Codes and Regulations
02 82 24	Asbestos Remediation – Temporary Facilities
02 82 25	Asbestos Remediation – Work Practices
02 82 26	Asbestos Remediation – Abatement Monitoring
02 82 27	Asbestos Remediation – Asbestos Abatement Procedures
02 82 28	Asbestos Remediation – Forms
02 82 29	Asbestos Remediation – Project Closeout
05 30 23.01	Steel Deck Repair
06 10 53.01	Rough Carpentry for Roofing
07 22 16	Roof Board Insulation
07 24 19	Water-Drainage Exterior Insulation and Finish System
07 31 13	Asphalt Shingles
07 53 23	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
07 62 00	Sheet Metal Flashing and Trim
07 72 00	Roof Accessories
07 92 00	Joint Sealants

26 41 13	Lightning Protection for Structures
32 92 00	Turfs and Grasses

Summary of Work

Steep Slope Roof Replacement

1. Remove/abate existing faux slate (asbestos containing material) down to the existing FRT plywood roof deck.

2. Remove the existing 5/8” FRT plywood roof sheathing.

3. Install new 5/8” FRT plywood roof sheathing.

4. Install self-adhering underlayment over the entire roof area.

5. Install new sheet metal flashings, valley, trim, gutters (where specified), and miscellaneous sheet metal as specified.

Low-Sloped Roof Replacement

1. Remove the existing membrane roof system down to the structural steel roof deck on Roof Areas G1 and G2.

2. Inspect the structural steel deck for areas of deterioration.

   Areas of corroded steel roof decking shall be prepared and painted on a unit price basis. See Section 01 21 00 Allowances for the quantity of corrosion removal and painting that is to be included in Base Bid.

   Areas of moderately-to-severely corroded steel roof decking shall be replaced on a unit price basis. See Section 01 21 00 Allowances for the quantity of steel roof deck replacement that is to be included in Base Bid.

3. Install 60 mil fully-adhered EPDM Membrane Roof System in accordance with the Contract Documents.

4. Install new edge metal, counterflashings, and miscellaneous sheet metal as specified.

Exterior Insulation and Finish System (EIFS) Repairs

1. Remove and/or repair the existing EIFS system as specified. See project drawings and elevations for the repair and/or replacement extents.

Miscellaneous Items

1. Enlarge the existing attic intake vents in the existing soffits.

2. Remove the existing lightning protection system and install new lightning protection system per the specified lightning protection standards. The down conductor and

the existing below roof components of the down conductor shall be assumed to be adequately spaced and re-usable. A UL inspection and Master Label to be performed upon lightning protection system installation.

B. Alternate #2 – Sheet Metal Fascia and Soffit Replacement

Related Specifications

Division 1	General Requirements
02 41 19	Selective Demolition
05 30 23.01	Steel Deck Repair
07 62 00	Sheet Metal Flashing and Trim

Summary of Work

1. Remove the existing sheet metal fascia and soffit.

2. Remove the existing FRT treated plywood sheathing.

6. Install new 5/8” FRT plywood sheathing.

3. Install adhered sheet air and moisture barrier.

4. Install new sheet metal fascia, soffit, and attic vents.

1.04 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the Alternate into the 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.
2. Contractor shall be responsible for any changes in the Work affected by the acceptance of Alternates. Claims for extras resulting from changes caused by the Alternates will not be allowed.
3. Alternates will be exercised at the option of the Owner.
4. Contractor shall coordinate related work and modify surrounding work as required to complete the Work, including changes under each Alternate, when acceptance is designated by the Owner.

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.

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

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION 01 23 00 - ALTERNATES

01 29 00
PAYMENT PROCEDURES

PART 1 – GENERAL

1.01 GENERAL

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

1. Refer to Article 9 of General Conditions.

B. Project Forms: This Section requires the Contractor to prepare and submit various American Institute of Architects (AIA) forms as part of the Contractor's Application for Payment. These forms are copyrighted, and the contractor is responsible for properly obtaining these forms through AIA for use on this project. Any forms that are specified to be prepared by the Design Professional (i.e. Change Orders and Certificate of Substantial Completion), will be provided by the Design Professional at no cost to the Contractor. These forms can be obtained online at www.aiacontracts.org/purchase. The following is a list of forms that are needed for this Section:

1. G702 – Application and Certificate for Payment
2. G703 – Continuation Sheet

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1. Coordinate the Schedule of Values with Applications for Payment, Project Schedule, Submittal Schedule, and List of Subcontracts.
2. Progress payments will not be processed without an approved Schedule of Values.

1.03 SCHEDULE OF VALUES

A. Coordination: Contractor shall coordinate preparation of their own Schedule of Values with the Construction Progress Schedule.

B. Format and Content: The Schedule of Values shall include a thorough breakdown of the following work items as a minimum with the limitations indicated:

1. Mobilization
2. Bonds, Insurance, and Permits
3. Submittals: In the amount of 2 percent of the Contract; however, not less than $1,000 or more than $10,000.
4. General Conditions (Lifts, dumpsters, safety, etc.)
5. Project Supervision
6. Sub-Contract A
    - Material
    - Labor
7. Materials

- Carpentry
- Roofing

8. Roof/Wall Area A
   - Demolition
   - Carpentry Labor
   - Insulation Labor
   - Roofing Labor
   - Sheet Metal Labor
9. Allowances
   - Deck Replacement
   - Deck Painting
10. Change Orders
11. Punch List: In an amount of 2 percent of the Contract; however, not less than $1,000 minimum and $50,000 maximum.
12. Warranty: Actual warranty cost.
13. Site Remediation
14. Lawn Maintenance
15. Close-Out Requirements: In an amount equal to 3 percent of the Contract amount; however, not less than $500 or more than $10,000.
16. Demobilization

1.04 APPLICATIONS FOR PAYMENT

A. The Application and Certification for Payment, including progress payments shall be as indicated in the Contract. Payments will not be made until final approval by the Owner and Submittals that precede application have been received and accepted.

1. Refer to General Conditions Article 9.
2. Each Application and Certification for Payment shall be submitted with three (3) originals.
3. Each Application for Payment to be accompanied by affidavits from principal subcontractors and suppliers to demonstrate that funds from the previous Application for Payment have been properly disbursed in accordance with Article 9.6 of the General Conditions of the Contract for Construction. Failure by the Contractor to submit affidavits will be considered cause for the Design Professional to decline to certify payment. In such event, payment will not be reconsidered until the following month.

B. Payment Request shall be consistent with previous applications and payments as observed by Design Professional and paid for by the Owner. Payment Request shall include the following information and documentation:

1. Contractor’s Payment Application Checklist.
2. Application and Certificate for Payment (AIA Documents G702 and G703).
3. Change Order (AIA Document G701)
4. Contractor’s Waiver & Release Affidavit
5. Original invoices for materials and equipment to verify the amount due the Contractor.
6. Back-up - Time Sheet for project labor.
7. Current list of the Contractor’s Subcontractors and material suppliers showing their

respective contract sums, amount paid and amount due.

8. Subcontractor Waiver & Release Affidavit (beginning with the second Application for Payment).
9. Schedule of all materials stored on site.
10. Schedule of all materials stored off site.
11. Material Supplier Waiver & Release Affidavit (beginning with the second Application for Payment).
12. Copies of daily Construction Reports for the time period of the payment request, inclusive of documentation of work completed on Allowance work items.

C. Application Preparation: Complete every entry on the form. Include execution by a person authorized to sign legal documents. The Design Professional will return incomplete applications without action.

D. Initial Payment Request: Administrative actions and submittals that must precede or coincide with submittal of the first Payment Request, in addition to the previously outlined items, include the following:

1. Approved Schedule of Values.
2. Approved Construction Progress Schedule.
3. Permits.
4. Certificates of Insurance and insurance policies.

E. Progress Payment Requests: Administrative actions and submittals that must precede or coincide with submittal of the Progress Payment Request include the following:

1. Updated and approved Construction Progress Schedule.
2. Review of Project Record Documents to confirm they are being properly updated.

F. Final Payment Request: Administrative actions and submittals that must precede or coincide with submittal of the final Contractor Payment Request include the following:

1. Contractor’s Final Waiver and Release Affidavit
2. Subcontractors Final Waiver and Release Affidavit
3. Suppliers Final Waiver and Release Affidavit
4. Consent of Surety to Final Payment
5. Certificate of Substantial Completion
6. Manufacturer’s Inspection Report(s)
7. Specified Warranty(ies)
8. Operating and Service Instructions
9. As-Built Drawings
10. Contractor’s Certificate of Insurance
11. Contractor’s Worker’s Compensation Certificate.
12. Asbestos Free Certificate in the form contained in the Contract Documents
13. Project Close-Out Submittals.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION 01 29 00 – PROGRESS PAYMENTS

01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.01 GENERAL

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

1.02 SUMMARY

A. This Section includes administrative provisions for coordinating operations on Project including, but not limited to, the following:

1. General project coordination procedures.
2. Subcontract list.
3. Administrative and supervisory personnel.
4. Requests for Information (RFI's).

1.03 DEFINITIONS

A. Request for Information (RFI): A request from the Contractor seeking information or clarification of some requirement of the Contract Documents. The Contractor shall clearly and concisely set forth the issue for which it seeks clarification or information and why a response is needed. The Contractor shall, in the written request, set forth its interpretation or understanding of the Contract's requirements along with reasons why it has reached such an understanding. Responses will not change any requirements of the Contract Documents.

B. Superintendent: Contractor's personnel in charge of day-to-day operations on the project, perform quality control, coordinate subcontractors, update the construction schedule, and maintain Record Documents.

C. Foreman: Contractor's personnel in charge of a group of workers under the direction of a Superintendent. Provides leadership and is responsible for the work being performed.

1.04 COORDINATION

A. Coordination: Coordinate construction operations with those of subcontractors and entities to ensure efficient and orderly installation of each part of the Work. Coordinate its operations, with work included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum 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.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of subcontractors to avoid conflicts and to ensure orderly progress of the Work.

1.05 PROJECT SUPERVISION

A. The Contractor shall assign a Superintendent and necessary assistants, all satisfactory to the Design Professional. Superintendent shall represent Contractor and all instructions given to him shall be as binding as if given to Contractor. Contractor's Superintendent is not to be replaced during progress of work without consent of Design Professional.

B. A superintendent shall be on-site at all times when work is being performed by the Contractor or any subcontractors, unless approved otherwise by the Design Professional. The superintendent shall not be continuously involved in the on-going work where it prevents him from performing the required responsibilities of the superintendent.

C. A foreman shall be on-site at all times when work is being performed by the foreman's crew, unless approved otherwise by the Design Professional. The foreman shall not be continuously involved in the on-going work where it prevents him from performing the required responsibilities of the foreman.

D. Contractor shall be responsible for all personnel employed in work and shall have power to employ and discharge such personnel, or remove from project site, personnel who, in the judgement of the Design Professional, are detrimental to the best interest of Owner and the project.

1.06 REQUESTS FOR INFORMATION (RFI)

A. Procedure: Immediately on discovery of the need for information regarding the Contract Documents, and if not possible to request information at Project meeting, prepare and submit an RFI in the form specified.

1. RFI's shall originate with the 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 so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of RFI: Include a detailed, legible description of item needing information and why a response is needed along with the following:

1. Project name.
2. Date.
3. Name of Contractor.
4. Name of Design Professional.

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). Contractor shall set forth an interpretation or understanding of the requirement along with reasons why such an understanding was reached. 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.

C. Design Professional Action: Design Professional will review each RFI and determine action required. If it is determined that the document is not RFI, it will be returned to the Contractor, unreviewed as to content, for resubmittal on the proper form and in the proper manner. If the RFI is determined unnecessary or frivolous, by nature of the information clearly indicated in documents, the RFI will also be returned with no response. Allow three (3) working days for Design Professional's response for each RFI. RFI's received after 1:00 p.m. will be considered as received the following working day. If a longer time is determined necessary, the Design Professional will, within five (5) working days of receipt of the request, notify the Contractor of the anticipated response time.

1. The following RFI's will be returned without action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Request for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Design Professional's actions on submittals.
    g. Incomplete RFI's or RFI's with numerous errors.

2. Design Professional action may include a request for additional information, in which case Design Professional's time for response will start when Design Professional receives the requested additional information.
3. Design Professional action on RFI's that might result in a change to the Contract Time or the Contract Sum may entitle Contractor to submit Change Proposal in accordance with the General Conditions.
4. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Design Professional in writing within 10 days of receipt of the RFI response. Failure to give such written notice within 10 days shall waive the contractor's right to seek additional time or cost in accordance with the General Conditions.

1.07 DAILY CONSTRUCTION REPORTS

A. Contractor shall keep a daily Construction Report. Daily Construction Report shall document weather conditions, number of personnel on site, hours worked, work accomplished, and conditions encountered. The Daily Construction Report shall be dated

and signed by the Superintendent.

B. The Contractor shall maintain a copy of all Daily Construction Reports at the project site and shall be available for review by the Owner or Design Professional, when on-site.

C. The Contractor shall submit to the Design Professional a copy of the daily Construction Reports with each Application for Payment and when requested by the Owner or Design Professional.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION 01 31 00 – PROJECT MANAGEMENT AND COORDINATION

01 31 19
PROJECT MEETINGS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the Contract, including General Conditions and the other Division 1 Specification Sections, apply to this Section.

B. Attendance of all meetings by an Authorized Representative of the Contractor is mandatory.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:

1. Post Award Meeting.
2. Pre-Construction Meeting.
3. In-Progress Meetings.
4. Safety.
5. Coordination.

1.03 DEFINITIONS

A. Authorized Representative: A person authorized by the contractor to make decisions for the Contractor regarding project staffing, schedule, and change order items.

1.04 POST AWARD MEETING

A. The Design Professional will schedule a Post Award Meeting prior to the submittal process, within ten (10) business days of the contract award letter.

B. Attendees: Authorized representatives of the Contractor, Owner, and Design Professional; the Contractor and the submittal coordinator; major subcontractors; primary material manufacturer, as requested by the Design Professional; and other concerned parties shall attend the conference.

C. Agenda:

1. Tentative submittal and construction schedule.
2. Submittal requirements.
3. Submittal submission requirements.

1.05 PRE-CONSTRUCTION MEETING

A. The Design Professional will schedule a Pre-Construction Meeting at the project site prior to the start of on-site construction. The Contractor shall be responsible to notify the appropriate Contractor personnel, subcontractors, material manufacturers, etc. involved or affected by the Work of the date, time, and location of the meeting.

B. Attendees: Authorized representatives of the Contractor, Owner, and Design Professional; the Contractor's Superintendent and foreman; major subcontractors; primary material manufacturer's technical representative, when requested by the Design Professional and other concerned parties shall attend the conference.

C. Agenda:

1. Safety.
2. Project schedule.
3. Delays – Weather, owner, contractor.
4. 2-Week look ahead.
5. Submittals.
6. Review mock-ups, if applicable.
7. Deliveries.
8. Weather limitations.
9. Compatibility problems.
10. Manufacturer's recommendations.
11. Warranty requirements.
12. Acceptability of substrates.
13. Inspection and testing requirements.
14. Daily coordination
15. Daily documentation requirements.
16. Change order work.
17. Job cleanliness.
18. Upcoming events.
19. Project details.
20. In-Progress Meeting Schedule

D. Meeting Minutes: The Design Professional will record significant discussions and agreements and disagreements of the Pre-Construction Meeting. The Design Professional will promptly distribute the record of the Pre-Construction Meeting to all attendees.

1.06 IN-PROGRESS MEETINGS

A. The Design Professional will schedule In-Progress Meetings at the project site on a weekly or bi-weekly basis. The Contractor shall be responsible to notify the appropriate Contractor personnel, subcontractors, material manufacturers, etc. involved or affected by the Work of the date, time, and location of the meeting. All subsequent meetings shall be held on the same day of the week and at the same hour for the duration of the construction period and/or at such times as directed by the Design Professional. Additional meetings may also be required, depending on progress of the work, as instructed by the Design Professional.

B. Attendees: Authorized representatives of the Contractor, Owner, and Design Professional; the Contractor's Superintendent and foreman; major subcontractors; and other concerned parties shall attend the conference.

C. Construction Schedule Update: The Contractor shall provide an updated construction schedule at least 48 hours prior to each In-Progress Meeting.

D. Agenda:

1. Safety.
2. Project schedule.
3. Delays – Weather, owner, contractor.
4. 2-Week look ahead.
5. Submittals.
6. Daily coordination
7. Project requirements.
8. Daily documentation requirements.
9. Job cleanliness.
10. Change order work.
11. Upcoming events.
12. Project details.

E. Meeting Minutes: The Design Professional will record significant discussions and agreements and disagreements of each In-Progress Meeting. The Design Professional will promptly distribute the record of the Pre-Construction Meeting to all attendees.

1.07 COORDINATION MEETINGS

A. The Contractor shall schedule and conduct subcontractor/coordination meetings as required for the project.

1.08 SAFETY MEETINGS

A. The Contractor shall conduct a separate safety meeting after the safety plan is submitted. The Contractor shall take meeting minutes. The minutes shall be made available upon request. The Contractor shall notify the Design Professional of the times and dates of these meetings, who may elect to attend these meetings as an observer. A minimum of one (1) safety meeting shall be held per month.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION 01 31 19 - PROJECT MEETINGS

01 32 16
CONSTRUCTION SCHEDULE

PART 1 – GENERAL

1.01 GENERAL

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

B. This Section includes administrative and procedural requirements for construction schedules.

1.02 SUMMARY

A. The purpose of the Construction Schedule is to allow the Contractor to prepare an orderly plan to aid in the timely completion of the Project.

B. The approved Construction Schedule will be used to plan and execute the work, to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis for all progress payments.

C. Contractors shall cooperate and coordinate with each other, and with the Design Professional and Owner, to provide all scheduling requirements in their respective schedules in accordance with the Contract Documents.

D. Failure to maintain the Construction Schedule in an approved status may result in the Owner withholding progress payment until the Contractor provides an updated schedule that is approved.

1.03 PROJECT SCHEDULING SEQUENCE REQUIREMENTS

A. The Contractor shall prepare a Construction Schedule for all work included under the scope of the Contract, in accordance with the General Conditions.

1. The Contractor will prepare and furnish to all contractors a Master Activity Coding template, in hard copy and electronic, defining Responsibility Code, Work Area Code, Milestones, Phase Code, etc. for the Construction Schedule, as outlined in this section. Contractors shall submit subsequent schedule requirements in accordance with the Master Activity Code template to achieve continuity in merging scheduling input.
2. The Contractor will prepare and distribute a schedule framework of proposed construction sequence to the Contractors.

B. The Contractor shall submit the Construction Schedule to the Design Professional, with signature indicating approval.

1. If acceptable, the Design Professional and Owner will accept the schedule.
2. If not acceptable, the schedule will be returned to the Contractor for revision. The revised schedule, with approval signature, shall be resubmitted.

PART 2 – PRODUCTS

2.01 SCHEDULE SOFTWARE

A. The computer software utilized by the Contractor to produce the project schedule shall be Primavera, Microsoft Project, or other software approved by the Design Professional and Owner.

PART 3 – EXECUTION

3.01 CRITICAL PATH METHOD

A. The Critical Path Method (CPM) of network calculations will be used to generate the schedule. The Contractor shall provide the schedule in Precedence Diagram Method (PDM) or the Arrow Diagram Method (ADM).

3.02 LEVEL OF DETAIL REQUIRED

A. With the exception of the preliminary schedule submission, the Construction Schedule shall include an appropriate level of detail. Failure of the Contractor to develop or update the schedule or provide resource information will result in the disapproval of the schedule.

B. Activity Durations:

1. Submit the following data to support the schedule calendar as it relates to durations. Failure of the Contractor to include this data will delay the review of the submittal until the Design Professional receives the missing data.

    a. The proposed number of working days per week.
    b. The holidays to be observed during the life of the contract (by day, month, and year).
    c. The planned number of shifts per day.
    d. The number of hours per shift.
    e. Break up the work into activities of a duration no longer than 20 workdays each, except as to non-construction activities (e.g. procurement of materials, delivery of equipment, concrete and asphalt curing) and any other activities for which the Owner may approve a longer duration.

C. Procurement Activities:

1. Prepare the schedule in chronological order of submittals. Show specification section of the submittal, name of contractor and generic description or work covered. Include activities to cover the complete procurement process to include but not limited to: submittal, review, approval, resubmittal, procurement, fabrication, delivery, permits, and similar pre-construction work.

D. Manpower:

1. Activities shall have an estimate of the average number of workers per day that are expected to be used during the execution of the activity.
2. Critical or near Critical Paths resulting from the use of manpower or equipment

restraints shall be kept to a minimum. Near Critical Paths are defined as paths having 10 workdays or less of total float.

E. Responsibility:

1. All activities shall be identified in the Construction Schedule by the party responsible to perform the work. Responsibility includes, but is not limited to, the Contractor, Subcontractor, Design Professional, or Owner.

F. Work Areas:

1. Arrange the schedule to show each major area of construction for each major category or unit of work.
2. All activities shall be identified in the Construction Schedule by the work area in which the activity occurs. Activities shall not be allowed to cover more than one work area. The work area of each activity shall be identified by the Work Area Code.

G. Change Order or Claim Number:

1. Any activity that is added or changed by a change order or used to justify any claimed time, shall be identified by change order code that changed the activity. Activities may not belong to more than one change order.

H. Milestones:

1. Milestone dates are defined in calendar days following the date set forth in the Notice to Proceed and are required to be met by all Contractors. Time is of the essence for the completion of Milestones and for the Contract Completion Date.
2. The following dates are defined in calendar days from the Notice to Proceed (unless noted otherwise) and shall be adhered to by each Contractor.

    a. Milestone 1 (M1) – N/A

I. Adverse Weather:

1. Definitions:

    a. Adverse Weather Day: A day when the magnitude of a weather parameter (precipitation or temperature) is such that it creates conditions that inhibit the ability of the contractor to work productively on a construction activity on the critical path.
    b. Expected Adverse Weather Days: The number of weather days expected to occur on a monthly basis.
    c. Unexpected Adverse Weather Days: The number of adverse days that exceed the expected number of adverse weather days determined on a monthly basis.
    d. Actual Adverse Weather Days: The actual number of adverse weather days that occur during a single month.
    e. Forecasted Weather Report: Weather forecast from a local weather forecasting source. Only forecasted weather reports for the next day are

acceptable, long-range weather forecasts are not acceptable.

f. Precipitation: Rain, snow, or hail.

2. Tracking: The Contractor shall track weather forecasts and weather reports to document claims for additional time due to adverse weather conditions. Claims for additional time without documentation of actual or forecasted weather conditions, will be rejected.

3.03 SCHEDULED PROJECT COMPLETION

A. Project Start Date:

1. The Construction Schedule may start no earlier than the date that the Notice to Proceed (NTP) was issued. The Contractor shall include as the first activity in the Construction Schedule an activity named “Notice to Proceed.” The “Notice to Proceed” activity shall have an early start constraint, a constraint date equal to the date that the NTP was issued, and a zero-day duration.

B. Constraint of Last Activity:

1. Completion of the last activity in the schedule shall be constrained by the contract completion date. Calculation on project updates shall be such that if the early finish of the last activity falls after the contract completion date, then the float calculation shall reflect a negative float on the Critical Path. The Contractor shall include as the last activity in the Construction Schedule an activity named “Contract Complete”. The “Contract Complete” activity shall have a late finish constraint, a constraint date equal to the completion date, equal to the date identified in the NTP for the project, and a zero-day duration.

3.04 INTERIM COMPLETION DATES (MILESTONES)

A. Contractually specified interim completion dates (Milestone dates) shall also be constrained to show negative float if early finish date of the last activity in that phase falls after the interim completion date.

3.05 DEFAULT PROGRESS DATA DISALLOWED

A. Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in the CPM Scheduling Software Systems. Actual Start and Finish dates and Remaining Durations on the CPM Schedule shall match those dates provided from Contractor Daily Reports for every in progress or completed activity and ensure that the data contained on the Daily Reports is the sole basis for schedule updating. Failure to comply may result in the disapproval of schedule.

3.06 OUT OF SEQUENCE PROGRESS

A. Activities that have posted progress without predecessors being completed (Out of Sequence Progress) shall be allowed only by the case-by-case approval of the Design Professional. The Design Professional may direct that changes in schedule logic be made to correct any or all Out of Sequence Work.

3.07 NEGATIVE LAG(S)

A. Lag durations contained in the schedule shall not have a negative value.

3.08 DEFINITION OF, AND CONDITIONS RELATING TO FLOAT

A. Float is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any activity in the schedule. Total float is defined as the amount of time any given activity or path of activities may be delayed before it will affect the project completion time.

B. Float is not time for the exclusive use or benefit of the Contractor and shall be used in the best interest of completing the project on time.

C. Extensions of time for performance required under the General Conditions pertaining to equitable time adjustment will be granted only to the extent that the equitable time adjustment exceed total float in the activity or path of activities affected at the time approval was issued for the change.

D. Use of float suppression techniques such as preferential sequences, special lead/lag logic restraints, extended activity times, or imposed dates, other than as required by the Contract, shall be cause for rejection of the Construction Schedule and any revisions or updates.

3.09 CONSTRUCTION SCHEDULE

A. The Construction Schedule, defining the Contractor's planned operations for project shall be submitted for approval within 10 calendar days after Notice to Proceed is issued. The approved Construction Schedule shall be used for payment purposes and the basis for measuring Contractor progress.

1. Paper copies shall be provided in color on minimum 11" x 17" paper and an electronic version in Adobe PDF format.

B. The Construction Schedule shall show the sequence and interdependence of activities required for complete performance of the work, beginning with Contractor's receipt of the Notice to Proceed and concluding with the date of Final Completion of the Contract. The Construction Schedule shall show all activities in workdays, with allowance for holidays and the effects of normal weather conditions on outside work.

C. The Construction Schedule shall comply with all limits imposed by the Scope of Work, with all contractually specified intermediate milestones and completion dates, and with all constraints, restraints, or sequences included in the Contract.

D. The Construction Schedule network (graphic presentations) and computer tabulations, the Resource Loading curve and the Contractor's signatures shall be submitted to the Design Professional for acceptance. Additionally, the Contactor shall submit one (1) copy of the data, containing the resource loaded Construction Schedule.

E. The following computer-generated reports shall be required as part of the Construction Schedule submittals:

1. Activity ID Report
2. Total Float/Early Start Report
3. Logic Report
4. Resource Report
5. Coding Dictionary

F. The schedule network (graphic presentation) shall include:

1. Activity ID
2. Activity Description
3. Original Durations
4. Remaining Durations
5. Early Start and Finish Dates
6. Baseline Start and Finish Dates
7. Total Float
8. Percent Complete

G. Schedule Review and Comments

1. Comments made by the Design Professional on the Construction Schedule during review shall not relieve the Contractors from compliance with the requirements of the Contract Documents.
2. Following the Contractor's receipt of the Design Professional's review comments, the Contractors shall correct the schedule to identify missing activities and relationships relevant to the Scope of Work. No time extensions will be granted to complete activities not initially included in the Contractor's Construction Schedule.
3. To the extent that there are any conflicts between the approved Construction Schedule and the requirements of the Contract Documents, the Contract Documents shall govern.

H. Resubmittal of Construction Schedule

1. Should the Design Professional reject the Construction Schedule, the Contractor shall comply with the Design Professional's direction and resubmit the Construction Schedule and all associated submittals within five (5) calendar days.

3.10 PERIODIC CONSTRUCTION SCHEDULE UPDATES

A. The following computer-generated reports in hard copy and electronic shall be required as a part of the monthly update thereof as a condition precedent to the receipt of progress payments under the Contract.

B. The Contractor's monthly narrative report is to include:

1. Activities started in the month (with actual start dates).
2. Activities completed during the month (with actual start and completion dates).
3. Activities in progress (with estimated remaining durations).
4. Activities scheduled to start in the next month (with estimated start dates).
5. A list of approved logic changes.
6. A list of proposed logic changes, new activities, and deleted activities.
7. Recommendations for adjusting the Construction Schedule to meet milestone

completion and Contract completion dates (include why the schedule needs adjusted, e.g., change order, weather, contractor resources, etc.).

a. Construction Contract Adjustment for Unexpected Adverse Weather

i. Contract adjustment is justified when the number of actual adverse weather workdays exceeds the expected number of adverse weather work days over the life of the project.
ii. The number of actual adverse weather workdays and related construction task(s) are to be reported on a monthly basis at the last Progress Meeting of the month as a condition of Payment Application approval.
iii. The Design Professional is to verify with documentation the actual adverse weather workdays reported by the Contractor.
iv. The calculation of the difference between the actual adverse working weather days and expected adverse weather working days is to be reported at the first Progress Meeting of the month by the Design Professional.

8. Attach copies of the Contractors' weekly schedule reports.

C. The Contractors graphic presentation of the schedule is to include:

1. Activity ID.
2. Activity Description.
3. Original Durations.
4. Remaining Durations.
5. Early Start and Finish Dates.
6. Baseline Start and Finish Dates.
7. Total Float.
8. Percent Complete.
9. The schedule shall be sorted by Early Start and Total Float and should show both the early schedule and the target schedule.

D. Computer generated reports are to include:

1. Activity ID Report.
2. Total Float/Early Start Report.
3. Logic Report.
4. In Progress or Planned to Start Report.
5. In Progress or Planned to Finish Report.
6. Resource Report.

3.11 WEEKLY PROGRESS REPORT

A. The Contractor shall provide a Weekly Progress Report to the Design Professional. The Weekly Progress Report shall be based on the most recent Construction Schedule update and shall summarize only those activities scheduled to begin or are in progress during the week before and for next two (2) weeks.

3.12 STANDARD ACTIVITY CODING DICTIONARY

A. The Contractor shall submit, with the Construction Schedule, a coding scheme that shall be used throughout the project for all activity codes contained in the schedule. The coding scheme submitted shall list the values for each activity code category and translate those values into project specific designations. For example, A Responsibility Code Value, “ELE”, may be identified as “Electrical Subcontractor”. Activity code values shall represent the same information throughout the duration of the contract. Once approved with the Preliminary Project Schedule Submission, changes to the activity coding scheme shall be approved by the Design Professional.

3.13 DATA

A. The preliminary, approved, and update Construction Schedules shall be provided in the form of electronic files.

B. File Medium:

1. Submit data on media acceptable to the Design Professional.

C. File Name:

1. The Contractor shall insure that each file submitted has a name related to the schedule data date, project name, or contract number. The Contractor shall develop a naming convention that will ensure that the names of all the files submitted are unique. The Contractor shall submit the file naming convention to the Design Professional.

3.14 APPROVED CHANGES VERIFICATION

A. Only Construction Schedule changes that have been previously approved by the Design Professional shall be included in the schedule submission. The narrative report shall specifically reference, on an activity-by-activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.

B. The Contractor shall prosecute the work in accordance with the approved Construction Schedule. Out of sequence construction, defined as a change from the Construction Schedule in the Contractor’s actual operation requires prior approval from the Design Professional.

C. Upon the approval of a change order or the issuance of a unilateral change order by the Owner the agreed upon change order activities, activity durations, logic and impacts shall be reflected in the next schedule submittal by the Contractor.

D. No change to the approved activities, original activity durations, logic, interdependencies, milestones, planned sequence of operations, or resource loading of the Construction Schedule shall be made without prior approval from the Design Professional. If the Contractor desires to make a change to the approved Construction Schedule, the Contractor shall request permission from the Design Professional in writing, stating the reasons for the change as well as the specifics, such as the proposed changes in activities, original activity durations, logic, interdependencies, milestones, planned sequence of operations, or resource loading of the baseline Construction Schedule. The Design

Professional shall respond within 14 calendar days after the receipt of the Contractor's request.

E. If the Design Professional considers the Construction Schedule change requested by the Contractor to be a major change, it may require the Contractor to revise and submit for approval, without additional cost to the Owner, all of the affected portions of the network diagrams, and any schedule reports, or construction equipment reports deemed necessary to show the probable effect on the entire project. The proposed network revision and required reports shall be submitted to the Design Professional within five (5) calendar days after the Design Professional notifies the Contractor that the requested revision is a major change. Only upon the approval of the requested change by the Design Professional may it be reflected in the next Construction Schedule update submitted by the Contractor.

F. A change will be considered of a major nature if the time estimated for an activity or sequence of activities is varied from the original plan to the degree that there is reasonable doubt that the Contract Completion date or milestones will be met, or if the change impacts the work of other Contractors at the job site. Changes to activities having adequate float may be considered as minor changes, except that an accumulation of minor changes may be considered a major change when such changes affect the Contract Completion date or milestones.

3.15 SCHEDULE REPORTS

A. The format of each activity for the schedule reports listed below shall contain:

1. Activity ID Number(s).
2. Activity Description.
3. Original Duration.
4. Remaining Duration.
5. Early Start Date.
6. Early Finish Date.
7. Baseline Start Date.
8. Baseline Finish Date.
9. Total Float.
10. Actual Start and Actual Finish dates shall be printed for those activities in progress or completed.

B. Activity ID Report: A list of all activities sorted according to Activity ID number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.

C. Logic Report: A list of preceding and succeeding activities for every activity in ascending order by activity number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.

D. Total Float Report: A list of all activities sorted in ascending order of total float. Activities which have the same amount of total float shall be listed in ascending order of Early Start Dates.

3.16 NETWORK DIAGRAM (GRAPHIC PRESENTATION)

A. The network diagram is required on the preliminary, baseline and monthly schedule submissions. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The Design Professional will use, but is not limited to, the following conditions to review compliance with this paragraph:

1. Continuous Flow: Diagrams shall show a continuous flow from left to right. The Activity ID, description, original duration, remaining duration, early start and finish dates, target start and finish dates, total float and percent completed shall be shown on the diagram.
2. Project Milestone Dates: Dates shall be shown on the diagram from start of any project, any contract required interim completion dates, and contract completion dates.
3. Critical Path(s): The Critical Path(s) shall be clearly shown.
4. Banding: Activities shall be grouped to assist in the clear understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

END OF SECTION 01 32 16 – CONSTRUCTION SCHEDULE

01 33 00
SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes administrative and procedural requirements for submittals required for performance of the Work.

1.02 GENERAL REQUIREMENTS

A. Electronically submit to Design Professional submittals as required by the project specifications.

B. Submittals shall be submitted within ten (10) calendar days after the Notice to Proceed. The Contractor shall submit a list of any submittals that cannot be submitted within ten (10) calendar days after the Notice to Proceed for Design Professional review and approval. The list shall include the reason the submittal cannot be submitted and a schedule indicating when the submittal will be submitted.

C. The time required for the submittal process has been allotted for in the Construction Time. Additional time will not be considered in the event the Contractor does not complete the submittals in a timely manner.

D. Review of shop drawings and product data by Design Professional will be general in nature and does not relieve Contractor in any way of responsibility for proper detailing of designs furnished by Owner, satisfactory construction, compliance with Contract Documents and applicable codes, or for errors or omissions of any kind in final Work.

E. Contractor to maintain one (1) hard copy of all submittals at the project site within the field office that is to be available for use by the Design Professional.

1.03 DEFINITIONS

A. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display-independent fixed-layout document format.

B. File Sharing Program (FSP): An internet based electronic file storage service to enable sharing and collaboration of project documents.

C. Non-Technical Submittals: submittals that do not pertain to technical aspects of the project but are to be submitted to the Design Professional for review.

D. Informational Submittals: submittals that are provided to the Design Professional for information purposes only and do not require action by the Design Professional.

E. Technical Submittals: submittals that pertain to technical aspects of the project and are to be submitted to the Design Professional for review.

F. Review Notations

1. “Approved”: Fabrication, manufacture, or construction may proceed on the basis that the submitted item is in conformance with the design concept and the contract documents.

2. “Approved as Noted”: Fabrication, manufacture, or construction may proceed after making the noted corrections to satisfy compliance with the design concept and/or contract documents. If additional submittals are required to be submitted, no fabrication, manufacture, or construction may proceed without the additional submittals required. Submit additional submittals promptly.

3. “Rejected”: No fabrication, manufacture, or construction may proceed. Make revisions and/or submit new documents as indicated.

1.04 NON-TECHNICAL SUBMITTALS

A. Worker’s Compensation Certificate: Submit a current Worker’s Compensation Certificate for the Contractor and all subcontractors.

B. General Liability Insurance: Submit proof of general liability insurance in the limits required in the Contract Documents. The Owner and Design Professional shall be listed as additional insureds.

C. Installation Floater and/or Builders Risk: Submit proof of Installation Floater and/or Builders Risk Insurance in the limits required in the Contract Documents.

D. Subcontractor Insurance Certificates: Submit proof of general liability insurance in the limits required in the Contract Documents.

E. List of Subcontractors: Submit AIA Document G705 – List of Subcontractors.

F. Schedule of Values: Submit a schedule of values that includes a thorough breakdown of the work. Each work item shall include a line item for the material and labor portion of the work.

G. Project Schedule: Submit a detailed critical path method (CPM) construction schedule broken down per unit area indicating the durations, critical path, and overall project duration.

1.05 INFORMATIONAL SUBMITTALS

A. Contractor Site Safety Plan: Submit the Contractor’s Site Safety Plan.

B. Drug-Free Workplace Program: Submit written evidence that the Contractor and subcontractors are enrolled and are in good standing in the OBWC Drug-Free Workplace Program or similar approved program.

C. Permit: Submit a copy of the permit, if required by the local jurisdiction.

D. Contractor Emergency Contact Information: The Contractor shall submit contact numbers for the lead on-site personnel, project manager, and subcontractor(s) that can be utilized in

case of an after-hours emergency.

1.06 TECHNICAL SUBMITTALS

A. Shop Drawings: Submit each shop drawing as required by the technical specifications.

B. Product Data: Submit copies of the manufacturer's product data, bulletins, specifications, installation instructions, product test reports, etc. as required by the technical specifications.

C. Qualification Data: Prepare and submit 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 Design Professionals and Owners, and other information specified.

D. Material/Product Certificates: Prepare and submit written statements on manufacturer's letterhead certifying that material complies with requirements.

E. Manufacturer Certificates: Prepare and submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

F. Material Test Reports: Prepare and submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

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

H. Maintenance Data: Prepare and submit written and graphic instructions and procedures for operation and normal maintenance of products and equipment.

I. Delegated Design: Where required by the specifications, the Contractor shall engage a Professional Engineer to perform the design of the specified system. The sealed drawings and calculations shall be submitted for review. All delegated design submittals shall also include a Certificate of Professional Liability Insurance with a minimum limit of $1,000,000 included with the submittal.

1.07 SAMPLES

A. Where Specifications require samples to be submitted, submit three (3) samples of materials.

B. One (1) sample will be returned to Contractor when approved.

C. Install materials matching approved samples.

1.08 MOCK-UP MODELS

A. Where Specifications require mock-up models, submit and/or construct one (1) mock-up

model. If the mock-up is constructed on-site and not permitted to be incorporated into the work, it shall be placed in an area designated by the Design Professional and shall not be removed until completion of the work and instructed to do so by the Design Professional.

B. Make changes to mock-ups until accepted by Design Professional.

1.09 SUBMITTAL PROCEDURE

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Submit electronic submittals via the Design Professional's FSP.

B. Electronic submittals will only be accepted in an unchangeable electronic format such as pdf. File formats such as MS Word (.doc or .docx), MS Excel (.xls or .xlsx), AutoDesk, AutoCAD (.dwg or .dwf), are considered unacceptable as the original file submitted could be accidentally altered from the originators intended document. These file types will be rejected by the Design Professional.

C. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp prior to submitting.

D. Each submittal to bear Contractor's stamp. This shall indicate that the Contractor has reviewed the submittals and they are in compliance with the Contract Documents. Any submittals that are not in compliance with the Contract Documents shall be clearly indicated on the submittal cover page along with an explanation of why it is being submitted.

1. Stamp shall be made electronically on the Submittal Transmittal Form in the assigned location. Stamp shall include name of reviewer, time, and date stamp was applied.
2. Submittal Transmittal Form shall not be printed out to allow for a physical stamp to be applied and then scanned back into electronic format.

E. All submittals shall include the Submittal Transmittal Form included in the specification (Section 00 62 11). The Contractor shall include all project and submittal information as outlined on the Submittal Transmittal Form. All submittals shall be named utilizing the file format outlined in Section 00 62 11 – Submittal Transmittal Form. The Submittal Transmittal Form will be provided to the Contractor in electronic format by the Design Professional.

F. Electronic submittals shall be compiled, to the greatest extent, from original electronic formats. Scanning of physical or paper copies shall be kept to a minimum to maintain smaller file sizes and clarity of documents.

G. Each submittal shall be submitted as one combined file inclusive of the Submittal Transmittal Form and all documents required by the contract documents for that submittal. A PDF binder format shall be used and not a portfolio format.

H. Electronic submittals shall not have document restrictions applied by the Contractor that would prevent the Design Professional from reviewing or annotating the Submittal Transmittal Form or other submittal documents.

I. File Sharing Program (FSP)

1. Contractor shall, at the Design Professional's direction, log-in and create an account on the FSP.
2. Contractor will be given access to submittal folders on the FSP. The Contractor will have permission to view and download files from folders at the Design Professionals discretion. The Contractor will have permission to one folder to upload submittals.
3. The project will have multiple folders used for the management of project documents. The primary folder to be used for Submittals is labeled 10 Submittals. This folder contains the following sub-folders:

    a. 10.01 Sample Forms: Forms provided by Design Professional for use by the Contractor to prepare the electronic submittals. Folder will contain documents such as the Submittal Transmittal Form, Sample Submittal Transmittal Form, Sample Manufacturer Letters, and other forms or sample letters.
    b. 10.02 Submittals Checklist: Will contain a submittal checklist prepared and maintained by the Design Professional. Checklist will be used to track the progress of submission by the Contractor and Review by the Design Professional. Checklist will be used for file naming of the submittals per the direction given by the Design Professional on the Sample Submittals Transmittal Form.
    c. 10.03 Submitted: Folder will be used by the Contractor to upload submittals for the Design Professional's review. Submittals shall only be submitted by this method.
    d. 10.04 Reviewed: This folder will contain submittals reviewed by the Design Professional. Contractor will have access to this folder to view or download the Design Professionals Reviewed Submittals.
    e. 10.05 Miscellaneous: Folder will be used by Design Professional to place miscellaneous files such as Informational Submittals.

J. Incomplete submittals may be returned without review with a request to resubmit when complete.

K. The Contractor shall allow 14 calendar days for the initial and each subsequent review that may be necessary. No extension of Contract Time will be authorized because of failure to transmit submittals enough in advance of the work to permit processing.

1.10 SUBMITTAL REVIEW PROCEDURE

A. General: The Design Professional will not review submittals that do not bear the Contractor's approval stamp and will return them without action.

B. Design Professional will review each submittal, make marks to indicate corrections or modifications required, and return it.

C. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.

D. Submittals not required by the Contract Documents will not be reviewed and may be

discarded.

1.11 PROJECT CLOSE-OUT SUBMITTALS

See Section 01 78 39 Project Record Documents for Close-Out Submittal requirements.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION 01 33 00 – SUBMITTAL PROCEDURES

01 40 00
QUALITY REQUIREMENTS

PART 1 – GENERAL

1.01 GENERAL

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

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for Contractor quality control on the project.

B. Specific quality control requirements for individual construction activities are specified in the Sections that govern those activities. Requirements in those Sections may also cover production of manufactured products.

C. Specified tests, inspections, and related actions do not limit Contractor's quality control obligations to comply fully with the Contract Document requirements in all regards.

D. Provisions of this Section do not limit the requirements for the Contractor to provide quality control services required by the Contract Documents or the authority having jurisdiction.

E. The following quality issues are addressed in detail in this Section:

1. Quality Control.
2. Quality Assurance.
3. Testing Agency.
4. Testing.
5. Inspections.
6. Pre-Installation Meetings.
7. Mock-ups.

1.03 DEFINITIONS

A. Quality Control: Quality Control shall be the sole responsibility of the Contractor, unless specifically noted otherwise. The Contractor shall be responsible for all testing, coordination, start-up, operational checkout and commissioning of all items of work included in the project, unless specifically noted otherwise. All costs for these services shall be included in the Contractor's cost of work and general conditions.

B. Quality Assurance:

1. Quality Assurance is performed by the Owner or their delegated representatives. These procedures may include observations, inspections, testing, verification, monitoring, and any other procedures deemed necessary to ensure compliance with the Contract Documents.

2. The Contractor shall cooperate with and provide assistance to the Owner for all

aspects of this endeavor. This shall include providing ladders, lifts, scaffolds, lighting, protection, safety equipment, and any other devices and/or equipment (including operators if required) deemed necessary by the Owner to access the work for observation or inspection.

1.04 TESTING AGENCY

A. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated and specializes in types of tests and inspections to be performed.

B. Owner may employ services of independent testing agencies to perform certain specified testing, as it deems necessary.

C. The Contractor shall employ and pay for services of an independent testing agency to perform all specified testing requiring an independent agency, unless noted otherwise.

D. Employment of agency in no way relieves the Contractor of the obligation to perform work in accordance with requirements of Contract Documents.

1.05 TESTING

A. Where specific testing is specified in a technical section of the specifications or indicated in the Contract Documents, the Contractor shall bear all costs of such tests unless they are specifically stated to be paid by the Owner.

B. Testing specifically identified to be conducted by Owner will be performed by an independent entity and will be arranged and paid for by the Owner unless otherwise indicated in the Contract Documents. Should the test return unacceptable results, the Contractor shall bear all costs of retesting and re-inspection as well as the cost of all material consumed by testing, and replacement of unsatisfactory material and/or workmanship.

C. The Owner’s Designated Representative (ODR) will schedule the Owner’s testing services unless otherwise directed in writing by the Owner. The Contractor is required to coordinate with the ODR to facilitate timeliness of such testing services.

1.06 INSPECTIONS

A. It is the intent of the Contract Documents that all work be subjected to inspection and verification of correct operation prior to 100% payment of the line item(s) pertaining to that aspect of the Work.

B. The Contractor shall incorporate adequate time for performance of all inspections and correction of noted deficiencies into the Work Progress Schedule for the project.

C. During the course of construction, the Owner, Design Professional, and/or other Owner representatives may visit the site for observation of the work in place. The Contractor shall provide all necessary equipment for safe access to the work to be inspected or observed. This requirement shall extend to all Owner personnel and their representatives. Some of these inspections will be informal and some will require formal notification by the Contractor.

The following are typical project inspections:

1. Informal daily review of project conditions by the Design Professional's Project Representative, Owner, and/or Design Professional. When considered appropriate, results of these reviews will be documented via Observation Report. In addition to cooperating with, and providing safe access for these parties, the Contractor shall provide a system of tracking all Observation Reports, describing items noted and resolution of each item. This report shall be reviewed as necessary, at least on a monthly basis.
2. Where specified, concealed space inspections are to be formally scheduled in advance through the Design Professional by submitting written notification at least five (5) working days in advance.

D. On systems/equipment requiring a manufacturer's representative to verify installation/operation, the Contractor is required to perform a thorough check-out of operations with the manufacturer's representatives prior to requesting formal inspection by the Owner. Notify the ODR, in advance, as to when the manufacturer's representative is scheduled to arrive.

E. Inspection of individual equipment and/or system(s) must be accomplished prior to requesting Substantial Completion Inspection for any area affected by that equipment and/or system.

F. For any requested inspection, the Contractor shall make prior inspection to ensure that items are ready for inspection and acceptance by the Owner and/or Design Professional. The Contractor will be responsible for any and all costs incurred by Owner and/or Design Professional resulting from a review or inspection that was scheduled prematurely.

G. The Contractor shall coordinate the work and schedule the inspections in advance so as not to delay the work. All major inspections should be indicated on the Work Progress Schedule for advance planning and the Contractor should allow a minimum of five (5) working days to confirm schedule of requested inspections with Owner and Design Professional.

H. The Contractor shall list and track all punch list items. The punch list shall be kept up-to-date reflecting status of work in place and inspections on the project. Copies of this populated and updated matrix shall be supplied to Design Professional and ODR for use during the course of the project.

1.07 PRE-INSTALLATION/CONSTRUCTION MEETINGS

A. The Design Professional will schedule and conduct meetings to review the installation of major systems/equipment on the project.

B. The Contractor shall ensure attendance of the installing subcontractor, manufacturer and/or supplier (if appropriate), supporting subcontractors involved in the installation and any other parties involved in the work being reviewed.

C. Each party shall be prepared to discuss in detail the staging, installation procedure, quality control, testing/inspection, safety and any other pertinent items relating to the work being reviewed. Submittal approval shall be a prerequisite for the meeting.

1.08 MOCK-UPS

A. Before installing portions of the Work requiring mock-ups, build mock-ups for each form of construction and finish required, using materials indicated for the completed work.

B. Build mock-ups in location and of size indicated or, if not indicated, as directed by Design Professional. The mock-up may be work in place that is intended to remain, unless otherwise directed by the Design Professional.

C. Notify Design Professional and Owner five (5) working days in advance of dates and times when mock-ups will be constructed.

D. Demonstrate the proposed range of aesthetic effects and workmanship. Include anticipated repairs in mock-up, such as stone veneer.

E. Obtain Design Professional's and Owner's approval of mock-ups before starting work, fabrication, or construction.

F. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed work.

G. Demolish and remove mock-ups when directed by Design Professional.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION 01 40 00 – QUALITY REQUIREMENTS

01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 GENERAL

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

B. Temporary installations shall comply with federal, state and local codes and regulations and with utility company requirements.

C. Materials may be new or used, but adequate in capacity and safe for conditions.

1.02 SUMMARY

A. This Section includes requirements for temporary utilities.

1. Contractor is responsible for installing and maintaining such temporary facilities.
2. At the completion of the Work, or when requested to, the Contractor shall remove all temporary utilities and related temporary work.

B. Temporary facilities include, but are not limited to, the following:

1. Temporary utilities include, but are not limited to, the following:
   a. Rooftop Electric: Furnished by Contractor.
   b. Water: Furnished by Owner, within limited quantities (i.e. existing hose connections). Large quantities of water usage must be approved by Design Professional and Owner and may require payment for such usage.
   c. Sanitary Facilities, including drinking water.

2. Support facilities include, but are not limited to, the following:
   a. Storage containers.
   b. Parking for construction personnel.
   c. Waste disposal services.
   d. Scaffolding, ladders, and other access equipment.

3. Security and protection facilities include, but are not limited to, the following:
   a. Temporary project signs.
   b. Temporary fire protection.
   c. Safety and health regulations for construction.
   d. Storm drainage protection.
   e. Security enclosure.
   f. Tree and plant protection.
   g. Fume and odor control.
   h. Dust and dirt control.
   i. Interior protection and cleaning.

1.03 SUBMITTALS

A. Use of Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.04 QUALITY ASSURANCE

A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.

B. Comply with codes and regulations regarding potable drinking water, sanitation, dust control, fire protection, and other temporary controls.

1.05 PROJECT CONDITIONS

A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.
2. Relocate temporary services and facilities as required by progress of the work.

PART 2 – PRODUCTS

2.01 EQUIPMENT, FACILITIES AND CONTROLS

A. General:

1. Provide incombustible construction for offices, shops, and sheds located within 30 feet of building lines. Comply with NFPA 241.
2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion and when authorized by Design Professional.

B. Site Enclosure Fence:

1. Chain Link Fencing: Minimum 2 inch, 0.148 inch thick, Galvanized steel, chain link fabric fencing; minimum 6 feet high with Galvanized steel pipe posts at approximately 6' on-center. The fencing shall have ballasted, moveable stands at asphalt pavement areas. Non-pavement areas shall have posts embedded in the ground.
2. Construction Site Fencing: Plastic fencing; 4 feet high with support posts spaced at approximately 6' on-center to prevent displacement. At grass areas, the posts shall be embedded in the ground.
3. Locate where indicated on the project drawings. Install in a manner that will prevent people, dogs, and other animals from easily entering the site except by gate entrances.
4. Provide gates in sizes and at locations necessary to accommodate the construction operations. Close and lock after construction hours.

C. Sanitary Facilities: Provide temporary toilet, wash facilities, and drinking water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
2. Toilets: Provide self-contained single occupant units of chemical type; vented; fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material. Provide separate facilities for male and female personnel.
3. Wash Facilities: Install wash facilities supplied with potable water at locations as required for personnel who handle materials that require wash up. Dispose of drainage properly. Supply cleaning compounds appropriate for each type of material handled.

D. Drinking Water Fixtures: Provide potable water, including paper cup supply.

E. Project Identification and Temporary Signs: Do not permit installation of unauthorized signs except as required by law.

1. Prepare temporary signs to provide directional information to construction personnel and visitors.
2. Install signs where indicated on project drawings.
3. Post construction permit at the field office, as required by building department.

F. Storage Containers: Provide non-combustible storage containers, as necessary, to store moisture and/or temperature sensitive materials.

G. Temporary Stairs: Provide temporary stair towers where ladders are not adequate. The bottom 6’ of the stair tower shall be enclosed with a lockable door in order to prevent unauthorized access. During non-construction times, the stair tower access door shall be locked.

H. Storm Drainage Protection: Where the existing soil is disturbed by construction or construction traffic, provide temporary filters and silt fences around storm drain inlets in order to filter out excessive soil, construction debris, and other contaminants that might clog or pollute the waterways.

I. Contractor Parking: Parking for the Contractor’s employees will be assigned by the Design Professional and only this area may be used.

J. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate to support loads and to withstand exposure to traffic during construction period. Locate temporary roads and paved areas as indicated on Drawings.

1. Provide and maintain access to fire hydrants, free of obstructions.
2. Provide means of removing mud from vehicle wheels before entering streets.
3. Designated existing on-site roads may be used for construction traffic.

PART 3 – EXECUTION

3.01 GENERAL

A. General:

1. Locate facilities where they will serve Project adequately or as directed by Owner or Design Professional.
2. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed.
3. The Owner will make all reasonable effort to provide a suitable and undisturbed space to the Contractor; however, if it becomes necessary at any time during progress of work to move temporary storage facilities, field offices, equipment or materials, the Contractor shall relocate them at no cost to the Owner.

B. Motor Vehicles: All motor vehicles shall be driven slowly with extreme caution, obeying all posted traffic signs.

C. 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.

D. Tree and Plant Protection: Install temporary fencing located as indicated or outside drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion.

E. Site Security Fence: The contractor set-up area where the job trailer, equipment storage, etc. are located shall be enclosed with a 6’ high chain link fence.

F. Material Storage Areas: Material only storage areas shall be enclosed with construction site fencing.

G. Work Areas and Traffic Paths: All work areas and equipment traffic paths that are not located on existing roadways shall be fenced off with construction site fencing to prevent pedestrian traffic from unknowingly entering the construction area. The fencing shall be maintained until construction work (inclusive of any lawn remediation) in that area is complete and there are no hazards.

3.02 TRAFFIC CONTROLS

A. Comply with requirements of authorities having jurisdiction.

B. Protect existing site improvements to remain including curbs, pavement, and utilities.

C. Maintain access for firefighting equipment and access to fire hydrants.

3.03 FIRE PROTECTION

A. Comply with fire insurance and governing regulations.

B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent for exposures.

1. Provide adequate number of fire extinguishers to protect the Work.

C. Temporary Fire Protection: Provide and maintain temporary fire-protection of quantity and type needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

3.04 EXISTING UTILITY PROTECTION

A. Existing utility lines and structures indicated or known, and utility lines constructed for this Project shall be protected from damage during construction operations.

B. Damage to existing utility lines or structures not indicated or known shall be reported immediately to the Design Professional and affected utility.

3.05 FUME AND ODOR CONTROLS

A. Prior to using any construction material containing solvents or other material causing objectionable odors, the Contractor must contact Owner to coordinate the protection of the air intakes in order to prevent fume or odor entry into the building. This protection could involve the following:

1. Shut down air intake dampers.
2. Shut down HVAC unit and cover intake vents with plastic sheeting.
3. Installing activated carbon filter material over the HVAC intake vents.
4. Re-locate equipment producing odors downwind from the air intake vents.

B. If fumes or odors enter the building, the Contractor must work with the Owner to provide necessary ventilation to remove the fumes and odors from the building.

3.06 DUST AND DIRT CONTROLS

A. The Contractor shall control blowing dust, dirt, and refuse.

B. The Contractor shall remove accumulations of dust, dirt, litter, and debris.

C. The Contractor shall prevent roofing debris and dirt entry at roof deck terminations, holes, roof penetrations, roof deck replacement areas, etc. Upon the completion of the work, the contractor shall clean any construction related debris from the interior of the building, including from above ceiling tiles upon completion of the work.

D. The Contractor shall provide protection of equipment and personnel during operations creating dust from drilling, chipping, etc.

E. The Contractor shall prevent debris, dust, or dirt from entering the building or the buildings HVAC system. The Contractor must contact Owner to coordinate the protection of the air intakes in order to prevent fume or odor entry into the building. This protection could involve the following:

1. Shut down air intake dampers.
2. Shut down HVAC unit and cover intake vents with plastic sheeting.
3. Installing filter material over the HVAC intake vents.
4. Re-locate equipment producing dust, dirt, or debris downwind from the air intake vents.

F. The Contractor shall be responsible for any damage related to debris, dust, or dirt entry into the building or building HVAC system.

3.07 PROTECTION OF WORK AND BUILDING

A. The Contractor shall be responsible for the protection of the building interior and its contents from rain at holes or penetrations through the building envelope during work.

B. The Contractor shall be responsible to prevent the leakage of adhesives and other construction related liquids from entering the building through holes or openings in the deck. The Contractor shall seal any holes or openings to prevent the migration of construction related liquids from entering the building.

C. The Contractor shall be responsible for the protection of the building exterior and grounds from Contractor operations. When hoisting materials and/or removing materials, cover exterior walls including all items in work area with tarps or other required protection. An enclosed chute is required for the removal of the existing materials, from second story and higher locations, whenever building height is in excess of one (1) story.

D. The Contractor shall provide protection to the grounds, walks, etc. from construction related materials and material handling equipment by placing plywood sheeting, tarps, or other required protection in and adjacent to the work area.

E. The Contractor shall prevent dirt and debris entry into the building at openings and terminations in the roof decking (i.e. pipe penetrations, expansion joints, walls, etc.).

3.08 INTERIOR PROTECTION AND CLEANING

A. Interior Protection: The Contractor shall provide interior protection in area where there are no drop ceilings and fine dust and dirt can fall onto and damage the Owner's furnishings.

1. The installation of interior protection shall be coordinated with the Owner's personnel.
2. The interior protection shall consist of drop clothes or plastic sheeting draped over the furnishings.
3. The Contractor shall coordinate with the Owner's Representative when sensitive/heat producing electronic equipment must be protected so that the interior protection is installed in a manner to not cause overheating of the equipment or the equipment is shutdown.

B. Interior Cleaning: The Contractor shall sweep all areas where there is no drop ceiling or penetrations and/or terminations in the roof deck to remove any construction related dirt and debris.

1. At areas of deck replacement, the Contractor shall vacuum the top of the drop ceiling tile to remove large accumulations of dirt and debris that enters the building.
2. At areas of roof deck penetrations and terminations, the Contractor shall inspect and vacuum the top of the drop ceiling tile to remove accumulations of dirt and debris that enters the building.

C. All interior protection and cleaning operations shall be completed in a manner to minimize interference to the Owner's operations.

D. Interior protection shall be removed and interior cleaning completed as soon as possible.

3.09 SCAFFOLDING, LADDERS, AND OTHER ACCESS EQUIPMENT

A. The Contractor shall provide all necessary scaffolding, ladders, runways, and manlift equipment. All of this equipment shall be assembled and maintained in accordance with all applicable safety codes and standards. The Contractor shall provide the Owner and Design Professional with access to all work and storage areas.

3.10 EXISTING ROADWAYS AND SIDEWALKS

A. The Contractor shall not utilize paved areas that are indicated to be light-duty pavement. This includes areas only designed for passenger vehicle parking and playgrounds. Any traffic that is required over these areas must be minimized and any damage shall be repaired by the Contractor at no cost to the Owner.

B. When the Contractor is utilizing normal or heavy duty pavement areas, the Contractor shall verify the equipment does not exceed the weight capacity of this pavement. In addition, the Contractor shall install protection for the pavement in areas where damage could occur (i.e. dumpster locations, excessive equipment traffic, etc.). Any damage to the pavement due to excessive traffic or overweight equipment shall be the responsibility of the Contractor to repair. Normal wear and tear will not be required to be repaired.

C. The Contractor shall not traverse existing sidewalks as they are not typically designed for vehicular traffic. Any traffic that is required over these areas must be minimized and any damage shall be repaired by the Contractor at no cost to the Owner.

3.11 EXISTING BUILDING LOAD LIMITS

A. During warm weather conditions, materials shall not be loaded or placed on the structure in a manner that the loads exceed the live load capacity of the building, as determined by the local building code or ASCE 7.

B. During winter-time conditions (when snow can occur), materials shall not be stored on the roof surface. During heavy snow events, rooftop storage could overload the structure causing the potential for damage or collapse.

3.12 OPERATION, TERMINATION, AND REMOVAL

A. Maintenance: Maintain temporary facilities in good operating condition until removal. Protect from damage caused by weather.

END OF SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

01 74 00
CLEANING AND WASTE MANAGEMENT

PART 1 – GENERAL

1.01 GENERAL

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

1.02 SUMMARY

A. This Section includes cleaning requirements during construction operations.

1.03 SAFETY REQUIREMENTS

A. Hazards Control

1. Store volatile wastes in covered metal containers and remove from premises daily.
2. Prevent accumulation of wastes that create hazardous conditions.
3. Provide adequate ventilation during use of volatile or noxious substances.

B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

1. Do not burn or bury rubbish or waste materials on Project site.
2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
3. Do not dispose of wastes into streams or waterways.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Cleaning Agents: Use only cleaning materials recommended by manufacturer of surface to be cleaned.

1. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finish surface.
2. Use cleaning products that comply with the allowable VOC level as permitted by the authority having jurisdiction.

PART 3 – EXECUTION

3.01 DAILY/PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements of NFPA 241 for removal of combustible waste materials

and debris.

2. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
   a. Use containers intended for holding waste materials of type to be stored.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer of fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Contract Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Contract Completion.

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

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

K. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted or finished surfaces.

END OF SECTION 01 74 00 – CLEANING AND WASTE MANAGEMENT

01 78 39
PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 GENERAL

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

1.02 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents.

1.03 CLOSEOUT SUBMITTALS

A. Record Drawings (As-Built Drawings): Complying with the following:

1. Number of Copies: Submit one (1) set of marked-up Record Prints and a PDF electronic file of the scanned printed to the Design Professional, unless otherwise noted.

B. Warranties: As required by each technical section.

C. Operating and Maintenance Instructions: Provide written maintenance instructions for each system specified.

D. Manufacturer's Inspection Reports: Provide manufacturer's final inspection report for each system specified that requires a manufacturer's inspection.

E. Asbestos-Free Certificate

F. Certificate of Substantial Completion

G. Contractor's Certificate of Insurance

H. Performance and Payment Bond Form

PART 2 – PRODUCTS

2.01 PROJECT RECORD DOCUMENTS

A. General: Refer to the requirements of the General Conditions.

B. Record Documents, General

1. The Contractor shall maintain at the jobsite one (1) copy of Drawings, Project Manual, addenda, final shop drawings, approved submittals, change orders, field orders, other contract modifications, and other documents submitted by the Contractor, in compliance with various Sections of the Project Manual.

C. Record Drawings

1. The Contractor shall update “As-Built Drawings” on separate set of Drawings set-aside especially for this purpose on the job. Drawings shall incorporate changes made in the Work during the construction period. Such changes shall be indicated at the time they occur.

    a. Accurately record information in an understandable drawing technique.
    b. Record data as soon as possible after obtaining it. Record and check markup prior to enclosing concealed installations.

2. Each of these drawings shall be clearly marked “As-Built Drawings”; maintained in good condition; available for observation by Design Professional; and shall not be used for construction purposes. Mark these drawings to show the actual installation where the installation varies from the installation shown originally. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Items required to be marked include, but are not limited to, the following:

    a. Dimensional changes to the Drawings.
    b. Significant detail not shown in the original Contract Documents including Change Orders or Field Work Orders.
    c. The location of underground utilities dimensionally referenced to permanent surface improvements.
    d. The location of internal utilities concealed in building structures, referenced to visible and accessible features of the structures.
    e. When elements are placed exactly as shown on Drawings, so indicate; otherwise show changed location.
    f. Revisions to details shown on the Drawings.
    g. Depths of foundations below the first floor.
    h. Revisions to routing of piping and conduits.
    i. Actual equipment locations.

3. Keep drawings current. Do not permanently conceal work until the required information has been recorded. Mark record prints of Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where shop drawings are marked, show cross-reference on Drawings location.

    a. Mark record sets with red, or color that may be photocopied, erasable colored pencil. Use other colors (no blue) to distinguish between changes for different categories of the work at the same location.
    b. Note Field Work Orders, alternate numbers, change order numbers, and similar identification.

4. Prior to request for Final Payment, the Contractor shall organize the “As-Built Drawings” into manageable sets, bind the sets with durable paper cover sheets, certify to the accuracy of the “As-Built Drawings” by signature thereon, and deliver the “As-Built Drawings” to the Design Professional.

D. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Drawings with Design Professional and Owner. When authorized, prepare a full set of corrected digital data files of the Record Drawings, as follows:

1. Format: Adobe PDF

PART 3 – EXECUTION

3.01 RECORDING AND MAINTENANCE

A. Recording: Maintain one (1) copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents: Store Record Documents in the field office apart from Contract Documents used for construction. Do not use Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Record Documents to Design Professional's reference during normal working hours. The Design Professional may review the Record Document to assure they are being properly updated prior to each payment request.

3.02 CLOSE-OUT SUBMITTALS

A. The contractor shall prepare and submit one (1) 3-ring binder with the following binder tabs:

1. **Title Page:** Include project name.
2. **Contractor Information:** Include Contractor and subcontractor name, project manager/superintendent, address, phone number and email address.
3. **Contract Bond:** Include a copy of Contract Bond.
4. **Insurance Certificates:** Include a copy of the Contractor's insurance certificate.
5. Material Information: Include product data sheets for the primary material utilized in the project.
6. **Color Selection Information:** Include a summary of the colors selected for each material that required a color selection.
7. **Warranties:** Include a copy of each warranty required for the project.
8. **Operating and Maintenance Instructions:** Include a copy of the operating and maintenance instructions for each system installed as part of the project.
9. **Asbestos Free Certificate:** Include a completed copy of the Asbestos Free Certificate included in the project specifications.
10. **Manufacturer's Inspection Reports:** Include a copy of all manufacturer's inspection reports.
11. **Final Lien Waivers:** Include a copy of the Contractor's Final Waiver & Release Affidavit.
12. **Project Forms:** Include a copy of the Asbestos Free Certificate and Certificate of Substantial Completion.
13. **Change Orders:** Include a copy of each change order that was authorized for the project.
14. **As-Built Drawings:** The Contractor shall include the As-Built Drawings.
15. Based on the project, additional tabs may be required by the project administrator

for additional project that may be required for specific projects.

B. Electronic Copy: In addition to the one (1) hard copy of Project Record Documents, the contractor shall also provide an electronic copy. The electronic copy shall be in Adobe PDF format. The files shall be organized into folders with each tab name. The electronic copy shall be submitted by CD or USB drive.

END OF SECTION 01 78 39 – PROJECT RECORD DOCUMENTS

02 41 19
SELECTIVE DEMOLITION

PART 1 –GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Work of this section includes the removal and disposal of demoed components of the project.

B. Items covered by this specification section (Removal and Disposal):

1. Existing Roof Systems
2. Deteriorated Steel Roof Decking
3. Deteriorated Wood Blocking
4. Metal Roof Flashings and Metal Edging
5. Abandoned Curbs
6. Roof Drains
7. Exterior Insulation and Finish System (EIFS)
8. Lightning Protection System

1.03 RELATED SECTIONS

Division 1	General Requirements
02 82 20	Asbestos Remediation – Hazardous Materials Abatement
02 82 21	Asbestos Remediation – Summary of Work
02 82 22	Asbestos Remediation – List of Contractor Requirements
02 82 23	Asbestos Remediation – Codes and Regulations
02 82 24	Asbestos Remediation – Temporary Facilities
02 82 25	Asbestos Remediation – Work Practices
02 82 26	Asbestos Remediation – Abatement Monitoring
02 82 27	Asbestos Remediation – Asbestos Abatement Procedures
02 82 28	Asbestos Remediation – Forms
02 82 29	Asbestos Remediation – Project Closeout
03 51 13.01	Cementitious Wood Fiber Roof Deck Repair
05 30 23.01	Steel Deck Repair
06 10 53.01	Rough Carpentry for Roofing
07 22 16	Roof Board Insulation
07 24 19	Water-Drainage Exterior Insulation and Finish System
07 31 13	Asphalt Shingles
07 53 23	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
07 54 00	Thermoplastic Membrane Roofing
07 62 00	Sheet Metal Flashing and Trim
07 92 00	Joint Sealants
08 51 13	Aluminum Windows
08 91 19	Fixed Louvers

22 14 26.13 Roof Drains
26 41 13 Lightning Protection for Structures
32 92 00 Turfs and Grasses

1.04 REUTILIZED MATERIALS

A. The following items shall be assumed to be fully salvageable and reusable:

1. Lightning protection system down conductors.

1.05 SUBMITTALS

A. Shop Drawings:

1. Indicate demolition and removal sequence, equipment to be used, location and construction of barricades, fences and temporary work structures.

B. Proposed Dust Control and Noise Control Measures:

1. Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed timeframe for their operation. Identify options if proposed measures are later determined to be inadequate.

C. Schedule of activities

D. Existing Condition Survey:

1. Submit written and photographic documentation of any pre-existing damage in the work area.

1.06 REGULATORY REQUIREMENTS

A. Conform to all applicable codes for demolition of structures, safety of adjacent structures, dust control and disposal of materials.

B. Obtain required permits from authorities with jurisdiction.

C. Notify affected utility companies, if any, before starting work, and comply with their requirements.

D. Do not close or obstruct any roadways, sidewalks or hydrants without permits.

E. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.

1.07 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner’s property, demolished materials shall become Contractor’s property and shall be removed from the site and legally disposed of.

B. Historic items, relics, and similar objects of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver to Owner.

PART 2 – PRODUCTS - N/A

PART 3 - EXECUTION

3.01 INSPECTION

A. Contractor shall survey the site for any pre-existing damage. Contractor shall document (written and photographic) any pre-existing damage and submit to the Design Professional prior to any on-site work.

B. Contractor shall survey the site prior to any demolition work and examine drawings and specifications to determine the extent of the work.

C. Contractor shall examine the existing structure for any conditions that would affect the integrity of the remaining structure. Notify the Design Professional in writing of conditions detrimental to the Work.

3.02 PREPARATION

A. Provide, erect, and maintain temporary barriers and safety devices to protect workers and public as needed.

B. Protect the existing building and roof to prevent damage to any part of the building that is not to be demolished.

C. Mark location of utilities.

D. Contractor to submit all required notifications required by local, state, and federal governing authorities related to the asbestos removal.

3.03 DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent structures or building occupants.

B. Contractor to comply with requirements all local, state, and Federal authorities having jurisdiction for the removal of the asbestos containing materials.

C. Contractor to handle and dispose of asbestos containing roofing materials as required by all local, state, and Federal regulatory requirements.

D. Cease operations immediately if any structure not to be demolished appears to be in danger. Notify the Design Professional immediately.

E. Conduct operations with minimum interference to public or private accesses. Maintain sufficient egress and access at all times.

F. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon or limit access to their property.

G. Sprinkle Work with water to minimize dust. Provide hoses and water connections for this purpose. The use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions, such as ice, flooding, or pollution.

H. Protect building and contents from weather damage during and after demolition, until roof is replaced per the project specifications and drawings.

I. Contractor assumes full responsibility for providing a watertight building envelope.

J. A five (5)-day notice to building occupants and Design Professional is required before any demolition may proceed.

K. No explosive devices may be used for demolition.

3.04 DEMOLITION

A. Remove demolished materials from the site daily. Materials that cannot be removed daily shall be stored in areas specified by the Design Professional.

B. Do not burn or bury materials on site. Leave site in clean condition.

C. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads.

D. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.

E. Remove any temporary fences or barricades.

3.05 REMOVAL OF EXISTING ROOF SYSTEM

A. GENERAL

1. Remove existing roof in areas designated on project drawings.

2. Remove all materials specified for removal, inclusive all wet and/or damaged roofing and flashing, including cants, wood blocking, underlayment materials, and currently concealed, damaged flashing materials. All existing roof system removal shall be in accordance with Regulatory Requirements.

3. The Contractor shall be responsible for the protection of the building interior and its contents from rain at holes or penetrations through the roof system during work. When roof deck is being replaced, he shall also be responsible for the normal protection of Owner’s furnishing and equipment by covering all items in the work area with drop cloths or other required protection.

4. The Contractor shall prevent dirt and debris entry at holes or terminations in the roof decking. Upon the completion of the work, the Contractor shall vacuum up

any debris that enters the building, including from above the drop ceiling).

5. The Contractor shall provide protection of equipment and personnel during operations creating dust and debris from removal process.

6. The Contractor shall be responsible for the protection of the building exterior and grounds from the Contractor's operations. When hoisting materials and/or removing materials, cover exterior walls, including all items in the work area, with tarps or other required protection. An enclosed chute or lift with a debris container is required for the removal of the existing roof system materials, from the roof to the ground level, whenever building height is in excess of 14'.

7. Removed portions of the existing roof system shall be replaced with materials in accordance with this specification. At the discretion of the roofing Contractor, the Contractor can either remove existing roof in its entirety and provide, at no additional charge to the Owner, a temporary roof system inclusive of appropriate flashings or remove/replace existing roof in sections to assure continued watertightness.

8. Remove all rubbish from the Owner's premises each day in compliance with all applicable local regulations. Dumpsters shall be placed at locations per Owner Representative's instructions. Rubbish placed in approved roof spot locations for future removal shall be placed out of view of the general public and shall be confined within tarps and/or plastic bags stored in a secure manner to prevent wind-blown debris.

9. After the existing roof system has been removed, the contractor shall remove any remaining debris from the steel roof deck flutes (or the deck surface) by vacuuming or sweeping.

B. REMOVAL SCHEDULE

1. Contractor shall outline to Design Professional prior to commencement of work the removal and replacement schedule for each roof section. Removal/replacement of the roof system shall be closely coordinated with Design Professional and building occupants.

2. It is critical that the removal and replacement process takes into consideration factors such as weather conditions, conditions of the existing roofing system(s), installation method of the new roofing system, productivity of the crew, material availability, etc.

3. Removed portions of the old roof system must be replaced in its entirety prior to commencing with additional roofing removal.

4. Upon commencement of roofing work, tie-in and/or cut- offs shall be removed. Where incompatible substances were used for construction of a tie-in, care shall be taken to prevent any contact of the incompatible component and the roof membrane. Any contaminated sections shall be removed and replaced.

5. Contractor shall coordinate removal/re-roofing to minimize construction traffic

over completed areas, out of scope roof areas, or existing roof systems. Where traffic over completed roof areas, out of scope roof areas, or existing roof systems is necessary, Contractor shall construct traffic path consisting of plywood boards anchored and/or weighted to prevent movement by winds. The Contractor shall monitor any traffic path areas for damage and repair, as necessary, to prevent leaks.

6. In cases where loading/unloading has to be done on completed roof, Contractor shall designate one (1) area for this work. The area shall be adequately protected by use of plywood upon completion of the work and removal of the loading platform, Contractor together with the Design Professional shall inspect the roof area. At the discretion of the Design Professional, damaged or contaminated portions of the roof system shall be replaced.

3.06 REMOVAL OF EXISTING EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

A. GENERAL

1. EIFS work that is required over a roof system requires the installation of protection material to protect and prevent damage to the roof system from any required scaffolding and foot traffic.

   If the EIFS work is being performed in conjunction with a roof replacement project, the EIFS work should be coordinated to be completed prior to the roof replacement to eliminate the chance of damage to the new roof system.

   For roof areas that are to remain after the completion of the EIFS work, the temporary protection shall be comprised of plastic sheeting, rigid foam insulation, and wood sheathing or thick rubber mats, as a minimum to protect the roof surface. All protection materials must be secured in order to prevent displacement by winds or storms.

   Upon the completion of the EIFS work, the roof surface shall be inspected and any construction related damage repaired at no cost to the Owner.

2. Remove existing EIFS in areas designated on project drawings.

3. Where specified, remove the existing windows, to allow for the installation of new flashing materials.

4. Remove all materials specified for removal, inclusive of exterior gypsum sheathing. Any existing flashings shall be removed to prevent a build-up of material or potential adhesion issues with new flashing materials. All existing EIFS removal shall be in accordance with Regulatory Requirements.

5. The Contractor shall be responsible for the protection of the building interior and its contents from rain during the EIFS system work. Contractor shall prevent insulation and other debris from entering HVAC louvers and other ventilation openings.

6. The Contractor shall prevent dirt and debris entry at holes or penetrations in the

wall. Upon the completion of the work, the Contractor shall vacuum up any debris that enters the building.

7. The Contractor shall provide protection of equipment and personnel during operations creating dust and debris from removal process.

8. Remove all rubbish from the Owner's premises in compliance with all applicable local regulations. Dumpsters shall be placed at locations approved by Owner Representative's.

B. REMOVAL SCHEDULE

1. Contractor shall outline to Design Professional prior to commencement of work the removal and replacement schedule for each EIFS section. Removal/replacement of the EIFS system shall be closely coordinated with Design Professional and building occupants.

3.07 ROOF DRAINS

A. GENERAL

1. Remove roof drains in areas designated on project drawings. The Contractor shall protect the interior of the building and contents as necessary to complete the work.

2. The Contractor shall be responsible for the protection of the building interior and its contents from debris and water leakage during the roof drain replacement work.

3. The Contractor shall use caution when working in the above ceiling space to not damage any existing utility lines (i.e. electrical, data, fire alarm systems, fire sprinkler systems, etc.)

4. The Contractor shall remove the existing roof drain bowl, lines, pipe insulation, etc. as necessary to replace the roof drain bowl.

   On concrete roof deck areas, the Contractor shall assume that the roof drain bowls are cast into he concrete roof deck. The existing concrete roof deck penetration shall be enlarged as required to accommodate the new roof drain bowl, to be installed at the roof deck level.

5. Remove all rubbish from the Owner's premises each day in compliance with all applicable local regulations. Dumpsters shall be placed at locations per Owner Representative's instructions. Rubbish placed in approved roof spot locations for future removal shall be placed out of view of the general public and shall be confined within tarps and/or plastic bags stored in a secure manner to prevent wind-blown debris.

B. REMOVAL SCHEDULE

1. Contractor shall outline to Design Professional prior to commencement of work

the removal and replacement schedule for each roof drain location. Removal/replacement of the roof drain bowls shall be closely coordinated with Design Professional and building occupants.

3.08 LIGHTNING PROTECTION SYSTEM

A. Prior to the start of the removal of the lightning protection system, the Contractor shall notify the Design Professional in writing of any pre-existing damage or conditions that could affect the performance of the system upon re-installation.

B. Remove the existing lightning protection system as necessary to install the new roof system.

C. The existing lightning protection system shall be re-utilized to the greatest extent possible. The Contractor shall replace components damaged or lost during the removal process.

3.09 LOUVERS

A. Remove louvers in areas designated on project drawings.

B. The Contractor shall be responsible for the protection of the building interior and its contents from rain at holes or penetrations through the masonry veneer system during work.

C. The Contractor shall be responsible for the protection of the building exterior and grounds from the Contractor's operations.

D. Contractor shall outline to Design Professional and Owner prior to commencement of work the removal and replacement schedule for each louver. Repair of the existing HVAC plenums shall be closely coordinated with Design Professional and building occupants.

E. Upon commencement of louver repair, temporary weather protection shall be installed to prevent water infiltration into the building.

END OF SECTION 02 41 19 – SELECTIVE DEMOLITION

SECTION 02 82 20

Asbestos Remediation – Hazardous Materials Abatement

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. General Requirements for removal and disposal of hazardous materials and related work.

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

1. Section 02 82 21 "Summary of Work".
2. Section 02 82 22 “Contractor Requirements”.
3. Section 02 82 23 “Codes and Regulations”.
4. Section 02 82 24 “Temporary Facilities”.
5. Section 02 82 25 “Work Practices”.
6. Section 02 82 26 “Abatement Monitoring”.
7. Section 02 82 27 “Asbestos Abatement Procedures”.
8. Section 02 82 28 “Forms”.
9. Section 02 82 29 “Project Close-out”.

1.2 GENERAL REQUIREMENTS

A. General contract conditions and specifications apply to this section.

B. The project site is: Daniel Wright Elementary School located at 2335 West Case Road, Dublin, Ohio 43017. The Design Professional is Mays Consulting & Evaluation Services, Inc. located at 201 Pennsylvania Avenue P.O Box 1020, Delaware, Ohio 43015. All communication must go through the Design Professional.

C. The Asbestos Consultant (Consultant) is Lawhon & Associates, Inc. Consultant is responsible for the NESHAPs assessment and asbestos abatement design (Domanic Martin, APD #60900 exp. 10/07/2025). The Consultant’s office is located at 1441 King Avenue, Columbus, OH 43212. Mr. Domanic Martin is the Consultant’s Project Manager.

D. Any reference to third party monitoring, 3rd party consultant clearance testing, etc. is the responsibility of the Contractor and any such fees shall be included in the Contractor’s bid for the project. Lawhon is not contracted for any additional services during the construction portion of the project.

E. The project scope includes the removal and disposal of Category II Non-Friable Asbestos-Containing Materials including but not limited to: faux slate roofing materials. **Abatement notification to the Ohio EPA is not required but is encouraged as a courtesy notification on this project, given the asbestos containing materials are not rendered friable at any point.**

Abatement work may be required to be performed in multiple phases with building areas and associated start/completion dates for those areas determined by GC/ Prime Contractor. **Abatement Contractor to coordinate at time of bidding.**

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 02 82 20

SECTION 02 82 21

Asbestos Remediation – Summary of Work

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes the Summary of Work and General Notes.

B. Related Sections: Section 02 82 20 "Hazardous Materials Abatement", Section 02 82 22 “Contractor Requirements”, Section 02 82 23 “Codes and Regulations”, Section 02 82 24 “Temporary Facilities”, Section 02 82 25 “Work Practices”, Section 02 82 26 “Abatement Monitoring”, Section 02 82 27 “Asbestos Abatement Procedures”, Section 02 82 28 “Forms”, Section 02 82 29 “Project Close-out”.

1.2 SUMMARY OF WORK

The abatement contractor shall remove and dispose of all regulated asbestos-containing materials and other hazardous materials associated with the Replacement of Base Bid and Alternate #1 Roof Areas of Daniel Wright ES. The listed below quantities are only estimates.

A. ASBESTOS ABATEMENT SCOPE OF WORK

1. TABLE 1: Total estimated asbestos quantities to be abated:

ACM	Approximate Quantities (1)	General Locations (2)
Faux Slate Roofing Material	Base Bid- 132 square feet Alternate #1- 13,129 sf	Roof

Table Specific Notes:
(1) All Quantities are only approximations and should be verified prior to bid.
(2) Coordinate exact locations of demolition/ abatement with the Prime Contractor and Contract Documents.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 02 82 21

SECTION 02 82 22

Asbestos Remediation – List of Contractor Requirements

List of Contractor Requirements
for Pre-Abatement Meeting
for Successful Bidder

_____ 1. Notify the appropriate regulatory agencies (Not required on this project)

_____ 2. Provide list (within 5 days after issue of Notice to Proceed) of Contractor's employees who are authorized to sign documents that are binding to the Contractor.

_____ 3. Copy of License to Conduct Asbestos Abatement Activities

_____ 4. Name and certification of supervisor.

_____ 5. Name and certification of company's point of contact.

_____ 6. Detailed work plan by week and construction schedule.

_____ 7. Emergency contact list.

_____ 8. Worker certifications and health records.

These documents are required to be submitted by Contractor prior to commencement of abatement. Please refer to the Contract Documents for other deliverables. Contractor is to have documents in chronological order and submitted digitally.

Documents To Be Posted or Maintained On Job Site (prior to start of work)

POSTED ON JOB SITE

1. Copy of Ohio EPA Notification.
2. Proof of Worker Training, with a Photostat of a picture ID. attached or Photostat on the Worker Training document.
3. List of Emergency Phone Numbers.
4. List of contact people and phone numbers, i.e. Contractor Foreman, Superintendent, 3rd Party Consultant, etc.
5. U. S. Department of Labor Job Safety & Health Protection Notice, per 29 CFR 1903.2 (a) (1).
6. Copy of Contractor's State License for Abatement.
7. Equal Opportunity Notice.
8. Worker's Compensation Certificate.
9. Proof of Insurance
10. Daily clean up program
11. Fire & Police notification

MAINTAINED ON JOB SITE

1. All Employee Worker Certificates and Health Records.
2. A copy of pre-construction submittals.
3. Logs for: Daily Sign-In, Air Monitoring, and Daily Project Logs.
4. Specification, Drawing and other Contract Documents.
5. Health and Safety Plan.
6. Negative exposure assessments for respirator type used.

List of Abatement Project Close-out Documentation

	Date Submitted	Received By (Initials)
1. a. Original landfill receipts (Waste Shipment Records).	_____	_____
b. Copy of waste hauler's manifest.	_____	_____
c. Copy of certificates of recycling/destruction.	_____	_____
2. Certificate of Substantial Completion.	_____	_____
3. Certification from suppliers that all replacement materials are asbestos free (if applicable).	_____	_____
4. Contractor's log of all air samples and results.	_____	_____
5. Contractor's log of daily notes.	_____	_____
6. Contractor's Revisions of all EPA Notifications & Inspections (if applicable)	__	_____
7. Copies of inspection reports (if applicable)	_____	_____
8. Copies of worker certifications not submitted prior to abatement	_____	_____

Submit these documents along with the Pre-Abatement and Job site submittals copies to the Owner's Rep. The above mentioned documents are to be submitted at the end of the project digitally with hard copies of the Waste Manifest.

END OF SECTION 02 82 22

SECTION 02 82 23

Asbestos Remediation – Codes and Regulations

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes governmental regulations and industry standards that are included and incorporated herein by reference and made a part of the specification. This section also sets forth those notices and permits that are known to the Owner and that either must be applied for and received, or which must be given to governmental agencies before start of Work

1.2 CODES AND REGULATIONS

A. General Applicability of Codes, Regulations, and Standards

Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.

B. Contractor Responsibility

The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, state, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. In addition, the Contractor must provide the Owner, 3rd Party Consultant, and CMR with the names and phone numbers of a plumbing contractor and an electrical contractor who will be available 24 hours per day to enter the work areas in case of emergency. The 3rd Party Consultant will assist the Contractor by arranging for appropriate posting of schedule, listing of contractors, description of protection, and monitoring plans, etc. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, state, and local regulations. The Contractor shall hold the Owner, 3rd Party Consultant and CMR harmless for failure to comply with any applicable work, hauling, disposal, safety, health, or other regulation on the part of himself, his employees, or his subcontractors.

C. Federal Requirements that govern asbestos hazard abatement work include, but are not limited to, the following:

1. OSHA: U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA), including but not limited to:

29 CFR 1910.134	Respiratory Protection
29 CFR 1926.20	General Safety and health provisions
29 CFR 1926.21	Safety training and education
29 CFR 1926.23	First Aid
29 CFR 1926.24	Fire Protection
29 CFR 1926.25	Housekeeping
29 CFR 1926.28	Personal Protective Equipment

29 CFR 1926.51 (f)	Washing Facilities
29 CFR 1926.55	Gases, vapors, fumes, dusts, and mists
29 CFR 1926.56	Illumination
29 CFR 1926.57	Ventilation
29 CFR 1926-59	Hazard Communication Standard
29 CFR 1926.62	Lead Construction Standard
29 CFR 1926.103	Respiratory Protection
29 CFR 1926.353	Ventilation: Welding, cutting or heating of metals of toxic significance
29 CFR 1926.300, 301, 302	Hand and power tools
29 CFR 1926.451	Scaffolding
29 CFR 1926.500, 502, 503	Fall Protection

2. DOT: U.S. Department of Transportation, including but not limited to:

49 CFR 171 and 172	Hazardous substances

3. EPA: U.S. Environmental Protection Agency (USEPA) including, but not limited to:

40 CFR 61, Subpart A	National Emission Standard for Hazardous Air Pollutants
40 CFR 61, Subpart M	National Emission Standard for Hazardous Air Pollutants: Amendments to Asbestos Standard
40 CFR 763.117 and 763.302	Notification Requirements: Reportable Quantity Adjustments
40 CFR 260, 261, 262, 263 and 264	Resource Conservation and Recovery Act (RCRA)
40 CFR 745 (Proposed)	Lead Based Paint Activities: Training, Certification, and Work Practice Requirements
40 CFR 763 Subpart E	Asbestos-Containing Materials in Schools: Final Rule and Notice

4. State Requirements that govern asbestos abatement work include, but are not limited to, the following:
   a. OEPA: Ohio Environmental Protection Agency, including but not limited to:

Ohio Administrative Code, Chapter 3745-20	Emission Control Rules
Ohio Administrative Code, Chapter 3745-22	Licensing Rules

   b. Certifications
      1. The Contractor must be certified by the Ohio Environmental Protection Agency to perform asbestos abatement activities as required by Chapter 3710 of the Ohio Revised Code.

2. The Contractor's Supervisor must be certified by the Ohio Environmental Protection Agency as a Contractor Supervisor.

3. All of the contractor's employees must be certified by the Ohio Environmental Protection Agency as either Asbestos Workers or Contractor Supervisors.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 02 82 23

SECTION 02 82 24

Asbestos Remediation – Temporary Facilities

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Temporary facilities and use and provision of water, electrical services.

1.2 TEMPORARY FACILITIES

A. Materials and Equipment

1. Water Service – The Owner shall supply water and pay for cost of water used. Contractor shall provide decontamination facilities. Contractor shall provide constant hot and cold water for decontamination showers, at all times.

2. Electrical— The Owner shall supply electricity and pay for cost of energy used. The Contractor is responsible to verify that electricity is available at a nearby source, and may tie into existing building systems. Contractor shall be responsible for restoring the system to its original condition upon completion of the work. Comply with all applicable NEMA, NECA, and UL standards and regulations for materials and layout of temporary electrical service. Contractor shall provide hardwired ground fault circuit interrupters with a minimum 100 amp rating for each work area or floor of a work area. All electrical power used for this project shall be provided via these units.

3. First Aid—Comply with governing regulations and recognized recommendations within the construction industry. Contractor shall be responsible for providing first aid supplies for employees. Further, the contractor must have at least one person on site that has been trained in the administration of first aid.

4. Fire Extinguishers—Provide Type “A” fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical or grease-oil-flammable liquid fires. In other locations, provide type “ABC” dry chemical extinguishers. One fire extinguisher, sealed in polyethylene, of the “ABC” type shall be placed within the work area for each 2000 sq. ft. of floor space in a location that would be easily accessible during an emergency.

5. Decontamination Facilities—Contractor is to provide these facilities as required and approved by 3rd Party Consultant.

6. Telephones—Contractor is responsible for providing mobile phones. For emergency purposes, a phone must be operable on site.

7. Documents—Contractor shall maintain and post all required documents on site.

8. Office—If necessary, the Contractor shall maintain an office, an office will not be provided by the owner. Contractor shall allow space for 3rd Party Consultant to maintain office on-site.

9. Supply Storage— Contractor shall not be permitted to store any products or equipment inside the building unless prior approval from the Owner is granted. The GC and Owner are not responsible for site security; contractor may store supplies/ equipment at site at their own risk.
10. Restrooms—Coordinate on-site restroom facilities with the GC/ Owner.
11. Parking/Access— Parking and access location on site of Contractor vehicles and waste dumpster(s) shall be limited to areas designated by Owner.
12. The Contractor is responsible for storage of asbestos-containing waste in properly labeled, and bagged waste, which must be stored in a lockable and secure, enclosed (closed-top) storage container at a location designated by GC and/or Owner.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 02 82 24

SECTION 02 82 25

Asbestos Remediation – Work Practices

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes requirements for abatement monitoring.

B. Related Sections: Section 02 82 20 "Hazardous Materials Abatement", Section 02 82 22 “Contractor Requirements”, Section 02 82 23 “Codes and Regulations”, Section 02 82 24 “Temporary Facilities”, Section 02 82 25 “Work Practices”, Section 02 82 26 “Abatement Monitoring”, Section 02 82 27 “Asbestos Abatement Procedures”, Section 02 82 28 “Forms”, Section 02 82 29 “Project Close-out”, and Hazardous Materials Assessment Reports

1.2 WORK PRACTICES

A. Respiratory Protection

1. At a minimum, a power-air purifying respirator shall be used for the following activities:

a. Removal of all friable ACM.

b. Until phase PCM sampling achieves <0.01 fibers per cubic centimeter (f/cc).

2. At a minimum, a half-face respirator shall be used for the following activities:

a. Pre-cleaning activities.

b. Load out activities outside of work area.

c. After phase PCM clearance, contractor will be allowed to use a half-face for tile and mastic removal (HEPA/organic).

B. Use of Water

1. Contractor shall provide constant hot and cold water for showers, at all times, from an adjustable fixed head at the shower. Also ample soap, shampoo, disinfectant and towels for use by employees and authorized visitors, as needed, must be available.

2. The clean room, airlock and shower shall be disinfected daily and no accumulations of used towels, suits, street clothes and supplies shall be allowed in any decontamination unit and/or work area.

3. No water shall be allowed to accumulate within the shower. All shower water must be promptly filtered through a filtration unit capable of removing particles 3.0 microns or larger. Contractor must document filter pore size and 3rd Party Consultant reserves the right to acquire effluent samples for analysis. In the event that analysis indicates contamination of effluent (any asbestos particles observed longer than 5.0 microns by TEM) the Contractor shall bear the costs of all testing and shall immediately correct any problems and document that the corrections have been effective.

4. In the event that a leak occurs which releases water from the work area into any clean area all work shall immediately stop until the leak is repaired and all liquid cleaned up. Cleaning shall include mopping, wet-wiping, and HEPA vacuuming as necessary to ensure collection of all asbestos fibers.

C. Work Area Isolation (Becomes Required if Material Becomes Friable)

1. Only full-weight polyethylene shall be used to construct work area enclosures. Polyethylene used to cover critical barriers and floors shall be 6-mil and polyethylene used to cover wall surfaces shall be 4-mil. In addition, reinforced polyethylene shall be used in areas of high traffic and areas where the use of scaffolds or other equipment may be reasonably assumed to cause damage to sensitive flooring materials.

2. Work area enclosures shall be erected so as to remain intact during the duration of the abatement project. Methods to be used include, but are not limited to, anchoring polyethylene with wire or wooden blocks, attaching anchoring strips to the surface of walls, using prefabricated 2” x 4” panels with polyethylene stapled to the frame, etc. The 3rd Party Consultant reserves the right to approve or deny use of materials or devices used to anchor polyethylene. The Contractor assumes all responsibility for damage caused to the building surfaces or structure due to construction and operation of the abatement enclosure.

3. Electrical extension cords and air filtration ducting shall be suspended off the floor.

4. Air filtration units shall be placed strategically to promote the most effective circulation of air within the work area. Air filtration ducting shall be inspected daily for leaks.

5. Emergency exits shall be clearly labeled and shall be constructed so as to provide easy exit from the containment in event of an emergency. Red paint shall be used to denote the locations of emergency exits, fire extinguishers and hazardous areas within the work area. Contractor’s employees shall be trained in emergency procedures.

6. Respiratory protection is required for all activities involving asbestos. Respiratory protection is to be initiated during the start of work area isolation.

7. A wood partition or wall (1/2 inch) shall be utilized when:

   a. When a decontamination unit, with permission from the 3rd Party Consultant and Owner, is established outside, the structure must be able to be locked and secured.

   b. When the work area barriers/containment border non-work areas that are of significant space and are occupied.

   c. For all AFD exhaust ports to the outside of the building

8. An approved decontamination unit, containment, and securable waste storage shall be in place for removal of items or fixtures that are adjacent to asbestos. No exterior decontamination units will be permitted, unless the 3rd Party Consultant and/or Owner gives permission.

9. Install at least one clear one square foot 1/4 inch Plexiglas viewing ports into each work area.

D. Removal of ACM

1. The floor of the work area shall be kept free of unnecessary equipment, supplies and debris. All contaminated materials shall be promptly bagged and removed from the work area according to established removal methods. The contractor shall not allow asbestos-containing materials to dry out or collect on floors or other surfaces. Bagged ACM shall not accumulate within the work area. No contaminated materials are to be stored outside of the building except in a sealed, secure, temporary storage trailer.
2. The contractor shall use amended water during all asbestos removal operations. All ACM must be thoroughly wetted prior to and during removal and shall be wetted during bagging operations. No dry brushing, sweeping or cleaning of asbestos or asbestos contaminated materials shall occur. Contractor cannot wet roofing once removed. Any leaks inside the building are the responsibility of the contractor.
3. The use of protective clothing including gloves and boots is required for demolition of ceiling materials.
4. If a breech of containment occurs, removal activities are to cease until containment integrity has been restored.

E. Disposal of ACM

1. All ACM must be disposed of in approved containers at an approved, licensed facility. Wastes are to be disposed of at an USEPA and OEPA approved landfill.
2. Open top dumpsters will not be permitted at either site. All waste must be places in secure, closed top dumpsters, regardless of EPA classification.
3. Proper decontamination procedures for removing ACM wastes from the work area are required.
4. All ACM wastes are to be removed from the structure and properly disposed of by the end of each work shift.
5. All ACM bagged wastes will be labeled, counted by Contractor, and be entered into daily logs.
6. Proper documentation of all ACM wastes generated as a result of this project must be delivered to the 3rd Party Consultant in a timely fashion.
7. On-site disposal container must be lockable and closed top.

F. Cleaning of Work Area

1. HEPA filters and pre-filters shall be inspected by the Contractor on a daily basis. This includes filters on air filtration devices and HEPA equipped vacuum cleaners. All vacuums in the work area must have and maintain HEPA attributes.
2. Disposable cloths are to be used for final cleaning procedures. Cloths are to be used only once and disposed of. Rinse water shall be changed frequently.
3. All liquids sprayed within the work area shall be delivered through an airless sprayer. Spraying with garden hoses and pressurized sprayers is prohibited.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 02 82 25

SECTION 02 82 26

Asbestos Remediation – Abatement Monitoring

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes requirements for abatement monitoring.

B. Related Sections: Section 02 82 20 "Hazardous Materials Abatement", Section 02 82 22 “Contractor Requirements”, Section 02 82 23 “Codes and Regulations”, Section 02 82 24 “Temporary Facilities”, Section 02 82 25 “Work Practices”, Section 02 82 26 “Abatement Monitoring”, Section 02 82 27 “Asbestos Abatement Procedures”, Section 02 82 28 “Forms”, Section 02 82 29 “Project Close-out”, and Hazardous Materials Assessment Report (Attachment A).

1.2 ABATEMENT MONITORING

A. Air Monitoring Required by OSHA Regulations

1. If the transite becomes friable during removal, the Contractor must perform air monitoring in the work area to comply with OSHA regulations for his employees. Results shall be posted no later than 48 hours after sample collection.

2. The Contractor shall keep a log of all monitoring activities he performs and an updated copy of the log shall be submitted to the 3rd Party Consultant at the end of each work week. Failure to provide this data will precipitate an immediate work stop order. A complete log of all air samples and results will be submitted to the 3rd Party Consultant at the completion of the Project. It is the Contractor’s responsibility to furnish and maintain all air monitoring equipment. The Contractor shall bear all costs in connection with air sampling and reporting under this section.

3. The 3rd Party Consultant may procure personal air samples of Contractor’s or 3rd Party Consultants’ employees to measure worker exposure levels. Contractor will cooperate with such monitoring activities.

B. Air Monitoring of the Work Area (Third Party Consultant)

1. The Contractor will be required to provide containment enclosures with appropriate air circulation for asbestos removal operations. The Contractor must monitor and maintain a minimum negative air pressure of 0.02 inches of water while enclosure is operative. Each containment enclosure shall be equipped with a convenient transparent observation port no smaller than one square foot.

2. The 3rd Party Consultant may perform air monitoring outside of and adjacent to the work areas. If these measurements indicate contamination in excess of 0.01 fibers/cc outside the work area from asbestos hazard abatement work, the 3rd Party Consultant shall notify the Contractor to immediately cease operations until the presence of contamination is verified and the cause of the contamination is identified and corrected, if necessary, to the satisfaction of the 3rd Party Consultant. This correction may involve establishing a more stringent enclosure. The Contractor shall resume asbestos operations only after he receives written authorization from the 3rd Party Consultant.

3. The Contractor shall facilitate and cooperate fully with air monitoring and shall take no action intended to distort or falsify measurements of fiber concentrations and shall not take any action to obstruct air monitoring activities. In the event that the Contractor fails to comply with these provisions, the 3rd Party Consultant has the authority to recommend stopping Contractor's work.
4. All sampling and analytical work shall be in conformance with ORM, NIOSH Method 7400 (A Rules) or by AHERA specified clearance procedures.
5. Copies of records of air monitoring are available for Contractor to review.
6. It is the 3rd Party Consultant's responsibility to furnish and maintain all air monitoring equipment and supplies in connection with his monitoring, testing, and reporting for the Owner. The Owner shall bear all costs in connection with 3rd Party Consultant's air sampling and reporting required, except to the extent that air monitoring indicates contamination caused by Contractor's work, in which case the Contractor will bear all direct and indirect costs associated with these tests.

C. 3rd Party Consultant's Inspection

The contractor's 3rd Party Consultant will conduct inspections regarding: work area isolation structures, decontamination facilities, and protective coverings; worker protection program; Contractor's air monitoring program; proper performance of asbestos hazard abatement work including work area preparation and isolation, stripping, removal, encapsulation, and disposal; conformance with State of Ohio, EPA, OSHA, DOT, and other regulations; and conformance with these Specifications.

The Daily Inspection Form will be completed by the 3rd Party Consultant and copies of the completed form will be transmitted to the Owner weekly.

E. Submittals

All submittals must go to the Owner's Rep for distribution to appropriate parties.

1. Worker Qualification Form

The Contractor shall submit completed Worker Qualification Forms for each employee who performs asbestos hazard abatement work on the project. This form must document that the employee has attended a Worker Protection Program. With this form, the Contractor shall also submit satisfactory evidence that he has complied with OSHA requirements for employee medical surveillance. No worker shall be permitted to work on this project unless a properly documented Worker Qualification Form has been submitted for him.

2. Prompt Submittals

The Contractor's applications for payment will not be processed until all required submittals have been received and approved by the Owner's Rep.

F. Personnel and Facility Protection

1. Protection Instruction

Contractor shall provide written decontamination and work procedures to the 3rd Party Consultant to be followed by the workers, as part of the health and safety plan submitted.

2. Protective Clothing

   Contractor shall comply with OSHA regulations for protective clothing. The Contractor shall at all times have sufficient supplies of protective clothing and supplies needed for the proper entrance/exit from the work area.

3. Hygiene Facilities and Practices

   Contractor shall comply with OSHA regulations concerning hygiene facilities and practices. Daily inspection and disinfecting of decontamination facilities shall be provided by the Contractor.

4. Emergency Precautions

   Prepare a contingency plan for emergencies including fire, accident, power failure, negative pressure system failure, supplied air system failure, or any other event that may require modification or abridgment of decontamination or work area isolation procedures. Include in plan specific procedures for decontamination or work area isolation. Note that nothing in this plan should impede safe exiting or providing of adequate medical attention in the event of an emergency.

5. Facility Security

   The Contractor shall comply with OSHA and EPA regulations concerning signage and labeling. All entrances to the work areas shall be clearly labeled to prevent accidental entrance to a regulated area. Labeling shall include signs, stickers, and flagging as appropriate to prevent unauthorized entry to the work site.

G. Disposal

1. Waste containers shall be suitable to receive and retain any asbestos-containing or contaminated materials until disposal at an approved site. The containers shall be labeled in accordance with OSHA, EPA, and DOT regulations. Containers must be airtight and watertight. Shipping manifests shall be submitted to the Owner’s Rep as well as disposal documentation.
2. Waste storage containers (dumpsters) must be secured, lockable and completely enclosed (closed-top).
3. Wastes are to be disposed of at an EPA approved landfill that accepts regulated asbestos waste.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 02 82 26

SECTION 02 82 27

Asbestos Remediation – Asbestos Abatement Procedures

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes requirements for work area isolation, removal, decontamination, encapsulation and disposal of asbestos containing materials, cleaning of work area, and work area clearance.

B. Related Sections: Section 02 82 20 "Hazardous Materials Abatement", Section 02 82 22 “Contractor Requirements”, Section 02 82 23 “Codes and Regulations”, Section 02 82 24 “Temporary Facilities”, Section 02 82 25 “Work Practices”, Section 02 82 26 “Abatement Monitoring”, Section 02 82 27 “Asbestos Abatement Procedures”, Section 02 82 28 “Forms”, Section 02 82 29 “Project Close-out”, and Drawings.

1.2 GENERAL SEQUENCE FOR PERFORMING ASBESTOS ABATEMENT ACTIVITIES:

The general sequence for performing asbestos abatement activities will be as follows:

A. Work Area Isolation (General)

B. Work Area Isolation (Full Containment)

C. Removal of ACM

D. Disposal of ACM

E. Cleaning of Work Area (decontamination)

F. Work Area Clearance

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 WORK AREA ISOLATION – GENERAL

A. All work areas where Class I, II, or III work is being conducted shall be performed within a regulated area. Regulated areas must be of sufficient size to contain all work activities, supplies, equipment, and waste, and must be demarcated in such a manner that a person approaching the work area will not be exposed to the asbestos hazard before they are able to recognize the hazard present.

B. The 3rd Party Consultant will review the size and layout of the work area for appropriate set-up prior to approval to start work activities in that work area. 3rd Party Consultant will accept or reject the layout based on the requirements stated above.

3.2 WORK AREA ISOLATION (FULL CONTAINMENT) – Only Required For Class I Work or when asbestos of any category is projected to become friable.

A. All electrical and HVAC systems are to be de-energized at the proper breaker and locked out by the Owner. All electrical power to be used for this project shall pass through a temporary, ground fault circuit interrupt system, installed by a licensed

electrician. This includes all power needed for equipment and machinery inside and outside of all contained areas. No existing electrical service shall be used on this project (this includes existing lighting).

B. Seal all critical barriers with 1 layer of 6-mil (full weight) polyethylene. This shall include all non-asbestos thermal, doors, windows, HVAC penetrations (grills, etc.), skylights, etc. Smoke alarms and security devices shall be left exposed and functioning unless they are to be removed and replaced. Should the security alarm keypad be in an area designated for full containment the Owner shall relocate unless otherwise specified.

C. Install HEPA equipped air-filtering devices. The devices shall be placed as to minimize stagnant air within the work area. The number of units shall be such that there is a minimum of (1) 2000 cfm unit for each 20,000 cubic feet of workspace. Units larger than 2000 cfm will count as (1) 2000 cfm unit.

D. Pre-clean all surfaces, fixtures, and objects within the work area. Cleaning shall be accomplished by HEPA vacuuming and wet wiping all surfaces to remove all dust, dirt and ACM residue and other debris. Any asbestos found in a pre-cleaned area during asbestos removal work or removal of the enclosures shall be assumed as having been caused by the Contractor's work and shall be cleaned at Contractor's expense. All fixtures and objects remaining within the work area are to be sealed with 1 layer of 6-mil polyethylene. The owner will move all moveable items until the abatement has been completed.

E. Place 1 layer of 6-mil polyethylene over the floor area and seal to the walls. Polyethylene must extend a minimum of 12” up each wall.

F. Attach 1 layer of 4-mil polyethylene to the walls such that the top edge is sealed to within 6” of the ACM without covering any overspray. The bottom edge should extend to floor level and be sealed to the existing layer of polyethylene.

G. Attach another floor layer of 6-mil polyethylene to the wall layer. Polyethylene shall extend a minimum of 8” up each wall.

H. Attach second wall layer of 4-mil polyethylene to the floor layer at floor level. The top edge of polyethylene shall be sealed as closely to the ACM as possible without covering any overspray.

I. Attach final layer of 6-mil floor covering so that polyethylene extend a minimum 4” up each wall.

J. Attach non-slip material to stairs to prevent falling. Install 1/4" Plexiglas view port.

K. Attach polyethylene to a decontamination unit so that an airtight and watertight seal is made between the work area and the decontamination unit.

L. Prepare the personal decontamination unit by installing a shower (separated from the work area by an airlock) to the clean room area (separated from the shower by an airlock) to the non-regulated area (separated from the clean room by an airlock).

The clean area shall be of sufficient size to allow the non-restricted entry/exit of the entire work crew and shall not be a storage area for abatement supplies.

M. A separate equipment/waste decontamination unit shall be installed. The equipment/waste decontamination unit shall consist of a separate shower (isolated by airlocks) joined to a separate clean room area (isolated by airlocks). This area is to be

used for the removal of ACM and equipment from the work area and is only to be used for personnel decontamination in the event of an emergency.

N. Document level of pressure differential of containment. Minimum pressure differential shall be 0.02 inches of water. Daily pressure checks shall be obtained by the Contractor. Continuous monitoring of containment is recommended. Readings shall be taken in areas remote from air filtration devices and sources of makeup air.

O. The Contractor shall mark all exits from the work area in the event of an emergency. Contractor shall check daily to ensure exit is unlocked or accessible.

3.3 WORK AREA ISOLATION (CATEGORY II NON - FRIABLE ROOFING MATERIALS)

A. The Contractor shall post warning signs far enough away from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure.

B. The Contractor shall seal, shut down and lock out all heating, cooling, and air conditioning system (HVAC) components that are in, or whose make-up is drawn from, the work area.

C. The Contractor shall seal all critical barriers with 1 layer of 6-mil (full weight) polyethylene. This will include all non-asbestos thermal, windows, HVAC penetrations (grill, etc.), skylights, etc. inside the work area and immediately below that is within the work area. Security devices shall be left exposed and functioning unless they are to be removed.

3.4. REMOVAL OF ACM

A. Remove all equipment and fixtures from area to be abated necessary to accomplish the asbestos removal specified. This includes all utility caps, counterflashing, trim, etc. All items removed are to be stored in a location designated by the Owner.

B. Pre-clean the entire work area.

C. Spray surfactant on all surfaces within the work area. Allow surfactant to penetrate depth of material to be removed.

D. Removal of Category I Non - Friable ACM Roofing Materials

1. Remove all equipment and fixtures from area to be abated necessary to accomplish the asbestos removal specified. All items removed are to be stored in a location designated by the Owner.

2. Pre-clean roof to be free and clear of all debris prior to roof material removal.

3. Properly wet all surfaces within the work area. Allow water / surfactant to penetrate depth of material to be removed.

E. Removal of ACM – Category II Non – Friable Roofing Materials

1. Thoroughly wet prior to and during removal operations. No dry brushing, sweeping, or cleaning of asbestos or asbestos-contaminated materials shall occur.

2. Apply amended water to transite prior to removal. Remove transite roofing in whole pieces; refrain from breaking transite.

3. Contractor shall not allow asbestos-containing materials to dry out or collect on roof or other surfaces.

4. All asbestos containing transite roofing shingles must be wetted with amended water and promptly bagged and safely carried or lowered to the ground. Contractor will not be permitted to drop or throw asbestos containing roofing materials to the ground. Transite shingles shall be placed in re-enforced polybags (Rice Bags) and then black bagged in asbestos warning bags prior to removal from the work area.

5. Perform final cleaning of work area to ensure no debris remains in work area. Utilize HEPA vacuums were applicable.

6. Perform inspection and clearance of work area.

7. Roof felts and plywood decking may be removed after inspection and clearance of work area by 3rd party consultant.

3.5. DISPOSAL OF ACM

A. All ACM generated from this project shall be properly documented. Detailed disposal documents including information concerning amounts of material, generator information, hauler information, date of generation, and disposal documentation must be processed for all material disposed of as contaminated wastes.

B. All bagged contaminated materials shall be sufficiently wetted, sealed in airtight containers, and as a minimum shall be sealed within two 6-mil polyethylene bags (one sealed inside the other). No rips or tears shall be visible in the bags, no material may be protruding through the polyethylene, and no visible residue may be visible outside of a container. Contractor shall wash all inner, as well as outer, bags of asbestos-containing material.

C. All asbestos disposal containers shall be labeled with the current hazardous warning labels and DOT information. The Contractor shall label the inner and outer asbestos bag or container.

D. All contaminated materials shall be moved from the work area through the waste decontamination unit. There, all bags will be washed and placed into clean bags before being removed from the building.

E. All ACM wastes shall be transported in enclosed vehicles. The driver compartment must be separated from the cargo compartment. The cargo compartment shall be totally enclosed (closed-top) and lined with 6-mil polyethylene that is to be removed at the dump and disposed of as contaminated.

F. The cargo compartment of the disposal vehicle shall be cleaned between loads. Cleaning shall include washing, wet-wiping, and HEPA vacuuming.

G. Wastes are to be disposed of at an EPA Approved landfill capable of accepting regulated asbestos waste.

3.6. CLEANING OF THE WORK AREA

A. All HEPA filtration devices shall continue to operate during cleaning of the work area. All vacuums inside work area shall utilize HEPA filtration.

B. Cleaning shall be initiated only after all of the gross ACM has been removed from the work area.

C. All unnecessary equipment, tools, devices, and supplies shall be properly cleaned and removed from the work area via the equipment decontamination unit.

D. Cleaning shall start by wetting all surfaces within the work area with clean water. Surfaces shall be wetted from top to bottom.

E. Removal of ACM residue/debris shall be accomplished with the use of nylon-bristle brushes, nylon scouring pads, towels, sponges, and HEPA equipped vacuums. The use of dry brushing ACM residue is strictly prohibited**.**

F. After all residue of ACM has been removed the surfaces are to be cleaned with clear water and wiped with a clean disposable towel. Each towel is to be used only once and then disposed of. Rinse water is to be changed frequently.

G. Perform inspection and clearance of work area.

3.7 FINAL CLEARANCE/CLEANING PROCEDURES

A. The following cleanup sequence shall be utilized for this asbestos removal project. It consists of two visual inspections and one cleaning. The sequence is as follows:

1. Gross Removal Inspection—A visual inspection of all surfaces previously containing ACM. The Contractor's head supervisor shall accompany the 3rd Party Consultant's OSM on the visual inspection. All surfaces must have been cleaned thoroughly so no visible debris, film or residues remain.

2. Gross Cleaning—Contractor removes all remaining accumulation and visible ACM, debris, dust from all surfaces. Remove all containers and equipment not necessary for clean-up procedures. Wet clean all surfaces in work area.

3. Gross Cleaning Inspection—A visual inspection of work area to ensure that all surfaces are clean of asbestos-containing materials. The contractor’s head supervisor must accompany 3rd Party Consultant's OSM.

4. Upon favorable visual clearance results, the contractor shall remove all remaining polyethylene, equipment, and any supplies or materials from the work area.

3.8 FINAL INSPECTION PROCEDURES

A. The Initial inspection for the project will occur prior to the removal of the regulated area. The purpose of the initial inspection is to ensure that all ACM has been removed from the project site per the Contract Documents. A list of deficiencies will be developed and prepared by the 3rd Party Consultant (within 24 hours) who will then distribute it to the Contractor. (Note: If the ACM has been removed in accordance with the Contract Documents, the 3rd Party Consultant, upon written notification, can instruct the Contractor to proceed with the removal of the containment.)

B. The second inspection for the project will occur after the regulated area has been removed. The Contractor will indicate to 3rd Party Consultant when they are substantially complete and ready for an inspection. If the 3rd Party Consultant agrees, the 3rd Party Consultant will provide a list of deficiencies for the project (within 24 hours) and will distribute the list to the Contractor. The 3rd Party Consultant will coordinate, administrate and expedite the completion of the deficiencies. When all items have been satisfied (field-related items and administrative requirements) the 3rd Party Consultant will issue a final completion letter.

END OF SECTION 02 82 27

SECTION 02 82 28

Asbestos Remediation – Forms

FORMS

A. Project Sign-in sheet.

B. Waiver of Liability Form for Asbestos Hazard Abatement Visitors.

PROJECT SIGN-IN SHEET

1. Project: Asbestos Abatement – Daniel Wright School
2. Date: _____
3. Contractor: _____

Employee Name	Time In	Time Out

Waiver of Liability Form for Asbestos Hazard Abatement Visitors

Project: _____

WARNING!

This project involves the stripping, removal, and disposal of asbestos. The work area may be contaminated and entry into the work area may result in exposure to airborne asbestos fiber. In addition, there are other hazards typically found on construction sites.

Numerous studies indicate that there is no known safe level of exposure to airborne asbestos. Asbestos is considered a health hazard, and is widely believed to cause or contribute to several diseases, including asbestosis and several types of fatal cancers.

The respiratory protection equipment supplied is believed to provide reasonable protection, and does provide the best protection readily available; it substantially exceeds all current federal requirements. However, it does not provide absolute protection.

WAIVER OF LIABILITY

I understand and agree that Lawhon & Associates, Inc., its individual employees, officers, or owners; Dublin School District, its representatives and employees; and the Contractor, its officers or employees, shall not be held liable for any damages, including incidental and/or consequential damages, regardless of the legal theory asserted, including negligence or strict liability, arising out of my entry into the work area, and including, but not limited to, damage resulting from exposure to airborne asbestos.

Project: _____

Building Owner: _____

Contractor: _____

Field Representative/3rd Party Consultant: _____

VISITOR

Name: _____

Address: _____

_____

Telephone: S.S.# Birth Date

Affiliation: _____

Purpose of Visit: _____

_____

Date(s) of Visit: _____

Respiratory Protection Supplied: _____

_____

I certify that I have read and understand the information contained on this form, that I understand that my entry into the work area may result in exposure to airborne asbestos, that such exposure may carry some risk of injury, that I do not have any physical condition that can interfere with the performance of supplied respiratory protection or

which would prohibit or restrict the use of such equipment, and that all my statements and answers on this form are true.

Signed: _____ Date: _____

SECTION 02 82 29

Asbestos Remediation – Project Closeout

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. General Requirements for Project Closeout.

1.2 PROJECT CLOSE-OUT

A. Description of Requirements

1. “Project Close-out” is the term used to describe certain collective project requirements, indicating completion of the Work, that are to be fulfilled near the end of the Contract time in preparation for final acceptance and occupancy of the Work by the Owner, as well as final payment to the Contractor and the normal termination of the Contract.

2. Time of close-out is directly related to issuance of written notice of contract completion; therefore, the time of close-out may be either a single time period for the entire Work or a series of time periods for individual elements of the Work that have been certified as substantially complete at different dates. This time variation, if any, shall be applicable to the other provisions of this section.

B. Prerequisites to Contract Completion

1. General: Complete the following before requesting 3rd Party Consultant to perform final inspection for letter of contract completion, either for the entire Work or for portions of the Work. Include list of known exceptions.

a. Include supporting documentation for completion as indicated in these Contract Documents.

b. Submit a statement showing an accounting of changes to the Contract Sum to the 3rd Party Consultant.

2. Inspection Procedures: Upon receipt of Contractor’s request for inspection, 3rd Party Consultant will either proceed with inspection or advise Contractor of unfulfilled prerequisites. Following initial inspection, 3rd Party Consultant will either certify substantial completion, or will advise Contractor of work that must be performed before the certification will be issued. The 3rd Party Consultant will repeat the inspection when requested and when assured that the Work has been completed.

C. Prerequisites to Final Acceptance

1. General: Complete the following before requesting final inspection for certification of final acceptance, and final payment as required by the General Conditions. List known exceptions, if any, in request:

a. Submit the final payment request with final release and supporting documentation not previously submitted and accepted, in compliance with the general Conditions.

b. Submit a final damages settlement statement, if any, acceptable to the 3rd Party Consultant.

c. Submit Affidavit of Waiver of Lien, if any, to the 3rd Party Consultant.

d. Submit outstanding asbestos hazard abatement documentation including air sample logs, disposal forms, notifications, and worker qualification forms, to the 3rd Party Consultant.

2. Re-inspection Procedure: The 3rd Party Consultant, Owner and the Owner's Representative will re-inspect the Work upon receipt of the Contractor's notice that the Work resulting from earlier inspections has been completed.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 02 82 29

03 51 13.01
CEMENTITIOUS WOOD FIBER ROOF DECK REPAIR

PART 1 –GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1 - General Requirements, are included as part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Work of this section shall provide replacement of deteriorated areas of existing structural cementitious wood fiber roof decking. The repaired decking must be able to support the applicable live and dead loads and provide a suitable substrate for the application of new roof system.

B. Items covered by this specification section:

1. Structural cementitious wood fiber insulated roof deck panels.
2. Accessories

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and Contractor.

1. Provide unit price per square foot for the removal and replacement of cementitious wood fiber decking.

1.04 RELATED SPECIFICATIONS

Division 1	General Requirements
02 41 19	Selective Demolition
06 10 53.01	Rough Carpentry for Roofing
07 22 16	Roof Board Insulation
07 54 00	Thermoplastic Membrane Roofing

1.05 STANDARD REFERENCES

A. American Society of Testing and Materials (ASTM)

1. C177 – Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
2. C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
3. C1621 – Standard Test Method for Passing Ability of Self-Consolidating Concrete by J-Ring

4. D1079 – Standard Terminology Relating to Roofing and Waterproofing
5. D2842 – Standard Test Method for Water Absorption of Rigid Cellular Plastics
6. E96 – Standard Test Methods for Water Vapor Transmission of Materials.

B. UL – Underwriters Laboratory

1. UL 580 Standard for Safety for Tests for Uplift Resistance of Roof Assemblies.

1.06 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Waterproofing Manual" for definition of terms related to roofing work in this section.

1.07 PERFORMANCE REQUIREMENTS

A. General: Installed roof decking shall support the required loads and serve as a base for the new roof system installation.

B. Material Compatibility: Provide roof deck materials and accessories that are compatible with one another under conditions of service and application required, as demonstrated by roof deck manufacturer based on testing and field experience.

C. Structural Characteristics: Provide roof deck assembly that has been manufactured, fabricated, and installed to provide a deflection of L/240 or less at design load.

D. Wind Up-Lift Characteristics: Provide a roof deck system that is identical to systems that have been successfully tested in accordance with UL 580 by a qualified testing and inspecting agency to resist a minimum uplift pressures of 90 pounds per square foot.

E. Fire-Test Response Characteristics: Provide roof deck 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. Interior Fire-Test Exposure: Flame Spread – Less than 25
   Smoke Developed Index – Less than 50

1.08 REUTILIZED MATERIALS

The following items shall be assumed to be fully salvageable and reusable:

1. N/A

1.09 SUBMITTALS

A. Product Data:

1. Submit manufacturer's product data for each type of deck, accessory, and product specified.

B. Shop Drawings:

1. Provide shop drawings detailing the roof deck replacement and fastening requirements.

C. Material Safety Data Sheet (MSDS):

2. Submit an MSDS sheet for each material that will be utilized on-site.

D. Manufacturer Certification:

1. Submit manufacturer's certification that the products meet or exceed the Performance Requirements.

2. ICC Evaluation Report – Submit ICC Evaluation Report for the roof deck material.

E. Sample Warranty.

1.10 QUALITY ASSURANCE

A. Source Limitations: Obtain cementitious wood fiber deck and accessories from a single manufacturer for each product required, unless approved by the Design Professional.

B. Cementitious Wood Deck Standard: .

C. Contractor Qualifications: A firm that has been engaged in placing and finishing cast-in-place concrete for a minimum of five (5) years.

D. Manufacturer Qualifications: A firm experienced in manufacturing cementitious wood fiber deck materials for a minimum of ten (10) years.

E. Environmental Standard: Manufacturer and contractor shall conform to Federal, State, and Local V.O.C. (Volatile Organic Compound) Regulations in area where the project is located. Notify Design Professional in writing if variations to the Contract Documents are required to comply with these regulations.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Protect deck from moisture, deformation, and other damage during delivery, storage, and handling.

B. Stack deck on platforms or pallets and protect with waterproof covering and ventilate to avoid condensation.

C. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

1.12 WEATHER LIMITATIONS ON WORK

A. Roof deck work shall not be done during precipitation and shall not be started in the

event there is a high probability of precipitation during the ongoing work.

1.13 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. Contractor shall implement all necessary precautions to control debris or materials/equipment during the roof deck removal and replacement process. Contractor shall conform to all regulations and precautions as required by applicable safety organizations.

1.14 MANUFACTURER'S REPRESENTATIVE

A. Contractor shall require the presence of a Technical Representative of the roof deck manufacturer to provide field instructions and supervision during the duration of the work, if necessary.

B. In addition, Design Professional may require the presence of the Technical Representative of the roof deck manufacturer, as necessitated by the work progress.

1.15 GUARANTEES AND MAINTENANCE

A. Provide roof deck manufacturer’s standard 15-year material warranty.

PART 2 – PRODUCTS

2.01 CEMENTITIOUS WOOD FIBER ROOF DECK

A. Cementitious Wood Fiber Roof Deck:
1. Material: Aspen wood fibers bonded with inorganic hydraulic cement.
- Nominal Panel Thickness: 3” – This is based on the original project drawings. Contractor to field verify.
- Style: Plank
- Side Joints: Grouted
- Interior Finish: Paint to match existing

2. Manufacturers:
- Armstrong World Industries, Newark, OH (Tectum I Tile)

2.02 ACCESSORIES

A. Bulb-Tee Sub-purlins:
1. Material: Steel
2. Style: 218
3. Manufacturers:
- Western Fireproofing Co., Kansas City, MO

B. Grout:
1. Material: Gypsum cement grout, ready for mixing with potable water.

C. Screws:
1. Material: 14-gauge with 2” diameter steel washer.

2. Manufacturers:
   - Armstrong World Industries, Newark, OH

D. Adhesive:
1. Material: Miracle Construction Adhesive SFA-66.
2. Manufacturer:
   - ITW Polymers Sealants North America, Inc., Irving, TX

PART 3 – EXECUTION

3.01 INSPECTION

A. A pre-job conference including the Design Professional, Owner's Representative, Contractor, the manufacturer's representative and all involved trades shall be conducted prior to commencement of the roofing work.

B. Examine the substrate and the conditions under which the work is to be performed. Do not proceed until unsatisfactory conditions have been corrected as required for the material application and in accordance with the material manufacturer’s specifications and requirements. Surfaces to receive roofing material components are to be clean, even, smooth, dry and free from defects and projections which might adversely affect the application.

C. Notify the Design Professional in writing to all conditions which may adversely affect the installation and/or performance of the roof system prior to commencing with the work. Proceed with installation only after unsatisfactory conditions have been corrected. Application of any part of the roofing system shall indicate acceptance of the roof surface and acknowledgment of full responsibility for the quality and durability of the roofing.

D. Verify slope prior to installation.

E. Contractor shall verify that work penetrating the roof deck, or which may otherwise affect the roof deck has been properly completed.

F. Examine all roof deck surfaces for defects.

G. Areas of deflection greater than l/240, cracked panels, or obvious water damage (to the Tectum or OSB Panel) shall be removed and replaced.

3.02 DECK REPLACEMENT

A. In areas where deck replacement is required, the existing decking must be removed in lengths so that each piece of decking is bearing on half of the structural support in the field and fully on the support at terminations.

B. Tongue and Groove panels must be removed in pairs to prevent damage to the tongue and grooves. The panels shall be cut at the center line of the structural support to allow the panels to be removed.

C. Tile type panels shall be cut lengthwise in the center, parallel to tees. Clean grout from the tees.

D. Tongue and Groove panels shall be installed in pairs. Each side shall be inserted into the respective tongue or groove and the panel folded into place. If the existing system has channels in the tongues and groove, the channels shall be replaced. The new panels shall be attached to the structural bar joist with screws and 2” plates.

E. Tile type panels shall be inserted and must bear a minimum of ½” on each tee. The tile shall be centered on the tees and grouted into place.

F. The panels shall be set into the manufacturer’s recommended adhesive applied to the existing structural supports and the existing adjacent panels.

G. Secure the panels to the structure with screws with 2” diameter washers at the required rate to meet the specified Performance Requirements.

3.03 COMPLETION

A. Correction of Work

1. Work which does not conform to specified requirements including tolerances, slopes and finishes shall be corrected and/or replaced as directed by Owner's Representative at Contractor's expense without extension of time. Therefore, Contractor shall also be responsible for cost of correction to any work affected by or resulting from corrections to work of this section.

B. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to pre-construction condition.

C. All manufacturer's on-site inspection reports shall be submitted prior to final payment.

D. All guaranties, as required in Part 1 of this specification, shall be submitted for approval prior to final payment.

END TECHNICAL SECTION 03 51 13.01

05 30 23.01
STEEL DECK REPAIR

PART 1 –GENERAL

1.01 GENERAL REQUIREMENTS

Work of this section, as shown or specified, shall be in accordance with the requirements of the contract documents.

1.02 SCOPE OF WORK

A. GENERAL STATEMENT:

Coordinate all work closely with Design Professional as it relates to the deck repair. Deck repairs will be performed where and as directed by the Design Professional, and as identified in the project specifications and drawings.

Closely inspect any uncovered condition and alert Design Professional to any condition that may interfere with the performance of the deck repairs.

B. INTENT OF SPECIFICATION:

It is the intent of this specification to provide repairs to deteriorated areas of existing structural steel decking. The repaired decking must be able to support the applicable live and dead loads and provide a suitable substrate for the application of new roof system.

C. DECK REPAIRS:

1. After the removal of the existing roof system and cleaning of the roof deck, the condition of the existing structural steel deck shall be inspected by the Contractor and Design Professional to determine areas where remediation is required.

2. Areas of moderately to severely corroded steel decking shall be replaced with new steel decking on a unit price basis.

   The actual quantity of deck replacement is unknown at this time. See Section 01 21 00 Allowances for the quantity of roof deck replacement that is to be included in the base bid. The contract sum will be adjusted up or down based on the actual quantity of deck replaced.

3. Areas of light corrosion shall be prepared and painted. All corrosion removal and painting shall be completed on a unit price basis.

   The actual quantity of corrosion removal is unknown at this time. See Section 01 21 00 Allowances for the quantity of corrosion removal and painting that is to be included in the base bid. The contract sum will be adjusted up or down based on the actual quantity of deck replaced.

4. Light Gage Steel Attic Framing: During the FRT plywood sheathing replacement (walls or roof), areas of light corrosion shall be prepared and painted. All corrosion removal and painting shall be completed on a unit price basis.

   The actual quantity of corrosion removal is unknown at this time. See Section 01 21 00 Allowances for the quantity of corrosion removal and painting of the light gage attic framing at sheathing replacement areas that is to be included in the base bid. The contract sum will be adjusted up or down based on the actual quantity of deck replaced.

1.03 UNIT PRICE WORK

The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and Contractor.

1. Provide unit price per square foot for the removal and replacement of steel decking.

2. Provide unit price per square foot for corrosion removal and painting of steel decking.

3. Provide unit price per hour for corrosion removal and painting of the light gage steel attic framing at FRT plywood replacement areas.

1.04 RELATED SPECIFICATIONS

Division 1	General Requirements
02 41 19	Selective Demolition
06 10 53.01	Rough Carpentry for Roofing
07 22 16	Roof Board Insulation
22 14 26.13	Roof Drains

1.05 STANDARD REFERENCES

A. AISI – American Iron and Steel Institute

B. AWS – American Welding Society

C. SDI – Steel Deck Institute

D. SSPC – Steel Structures Painting Council

1.06 SUBMITTALS

A. Product Data:

   Submit manufacturer’s product data for each type of deck, accessory, and product specified.

1.07 REUTILIZED MATERIALS

The following items shall be assumed to be fully salvageable and reusable:

N/A

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with waterproof covering and ventilate to avoid condensation.

C. Material shall be located on site in manner that overloading of any of the individual framing members does not occur.

1.09 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with the provisions of the following codes and standards, except as otherwise shown or specified:
   1. AISI “Specification for the Design of Cold-Formed Steel Structural Members”
   2. SDI “Steel Roof Deck Design Manual”

PART 2 – PRODUCTS

2.01 STEEL ROOF DECK

A. Steel Roof Deck:

   1. Material Properties:
      Minimum Yield Strength: 33 ksi
      Deck Profile: To match existing.
      Profile Depth: 1-1/2”
      Thickness: 20 Ga.
      Span Condition: Two or more
      Side Joints: Overlapped
      Protective Coating: Galvanized

   2. Manufacturers:
      - Nucor Corp., Lawrenceville, GA
      - Roof Deck, Inc., Hightstown, NJ
      - United Steel Deck, Inc., Summit, NJ

B. Flat Stock Sheet Metal:

   1. Material Properties:
      Minimum Yield Strength: 33 ksi
      Profile: Flat Stock
      Thickness: 18 gauge
      Span Condition: 12” max.

Side Joints: Overlapped
Protective Coating: G-90 Galvanized

2.02 DECK FASTENERS – SELF-DRILLING SCREWS

A. Steel Deck Fasteners – Self-Drilling Screws:

1. Material Properties:

Diameter:
#12 – Steel Support Attachment
#12 – Deck Side Laps

Corrosion Resistance:
Kesternich Results (DIN 50018, 2.0L)
30 Cycles – 10% or less red rust

Salt Spray Test (ASTM B117):
720 hours – 10% or less red rust

Drill Point: As required for material thickness

2. Material Manufacturers:

1. ITW Buildex, Itasca, IL
2. Trufast Corp., Bryan, OH
3. Fastenal, Winona, MN

2.03 DECK COATING MATERIAL

A. Paint

1. Material Properties:
- Volume Solids: 39% +/- 2%
- Weight Solids: 53% +/-2%
- VOC: <100 g/L
- Adhesion: ASTM D4541 – 500 psi
- Corrosion Weathering
  ASTM D5894 – 3,360 hours, 10 cycles: Pass
- Salt Fog Resistance ASTM B117 – 1,250 hours: Pass

2. Material Manufacturers:

- Sherwin Williams, Cleveland, OH – Pro-Cryl Universal Primer
- Benjamin Moore, Montvale, NJ
- DuPont, Wilmington, DE

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine all roof deck surfaces for corrosion-induced defects.

B. Areas of light corrosion shall be repaired by removing the corrosion and painting.

C. Areas of moderate-to-severe corrosion shall be repaired by removing the existing decking and installing new decking. Overlay of the existing decking is not allowed, except with the Design Professional's permission.

3.02 PREPARATION

A. General: Prior to the start of corrosion removal or painting operations, the Contractor shall install interior protection and/or seal holes in the decking to prevent paint from dripping through holes or joints in the decking and damaging any interior furnishings or finishes. Upon completion, the interior protection shall be removed.

3.03 DECK REPLACEMENT

A. In areas where deck replacement is required, the existing decking must be removed in lengths so that no existing or new decking will span less than three (3) structural supports. Holes in the deck from removed penetrations that are 12" or less in diameter can be repaired by overlaying with a flat plate.

B. Lap ends of deck units not less than 2 inches centered over supports.

C. Deck units shall have a minimum of 1-1/2" bearing onto the structural support.

D. Place deck units flat and square, secured to adjacent framing without warp or excessive deflection.

E. Mechanically fasten deck units to structural steel supports with a minimum of one (1) self-drilling screws, at 12" on-center in the field and 6" on-center at the perimeter and corner areas. Perimeters and corner areas shall be as recommended by ASCE 7.

F. Mechanically fasten deck side laps with self-drilling screws spaced 24" on-center.

G. Use of power-actuated fasteners is prohibited.

H. Deck securement by welding is prohibited.

3.04 CORROSION REMOVAL AND PAINTING

A. In areas where corrosion removal and painting is required, the existing decking must be cleaned prepared per SSPC – SP2 – Hand-Tool Clean and SP3 – Power Tool Clean.

B. Prior to painting, remove dirt, dust, debris, or similar contaminants from the surface. Asphalt contamination need not be removed prior to painting.

C. The paint coating shall be applied in a one (1) coat application to provide a minimum wet mil thickness of 6.0 mils.

D. The paint shall dry to the touch prior to the application of the roof system. It is acceptable to cover the wet paint with plastic sheeting and installing the roof system immediately.

E. The contractor is responsible to monitor the interior for fumes or odors related to the paint application. If any odors or fumes are detected, it is the responsibility of the contractor to provide additional ventilation to remove the fumes or odors. This is incidental to the paint application and no additional costs will be allowed for this.

3.05 REPAIRS/RESTORATION

A. After deck installation, clean and paint any scarred areas with equal type of finish as shop finish.

END OF SECTION 05 30 23.01 – STEEL DECK REPAIR

06 10 53.01
ROUGH CARPENTRY FOR ROOFING

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1 - General Requirements, are included as part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Work of this section shall provide Owner with sound wood blocking to allow for the attachment of roofing components.

B. Items covered by this specification section:

1. Wood blocking
2. Plywood sheathing
3. Fire-retardant treated wood sheathing
4. Fasteners
5. Accessories

1.03 UNIT PRICE WORK

The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and Contractor.

1. N/A

1.04 RELATED SPECIFICATIONS

Division 1	General Requirements
02 41 19	Selective Demolition
07 22 16	Roof Board Insulation
07 31 13	Asphalt Shingles
07 53 23	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
07 54 00	Thermoplastic Membrane Roofing

1.05 REFERENCES

A. American Plywood Association (APA)
   1. PRP-108 – Performance Standards and Policies for Structural-Use Panels

B. American Society of Testing and Materials (ASTM)
   1. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

C. American Wood Preservers Association (AWPA)
   1. C20 – Structural Lumber, Fire-Retardant Treatment by Pressure Processes

2. C27 – Plywood, Fire-Retardant Treatment by Pressure Processes
3. U1 – User Specification for Treated Wood

D. Federal Specifications
1. MIL-L-19140 – Lumber and Plywood, Fire-Retardant Treated

E. FM Global
1. Data Sheet 1-28 – Design Wind Loads
2. Data Sheet 1-49 – Perimeter Flashing

F. Underwriter's Laboratories (UL)
1. UL 723 – Test for Surface Burning Characteristics of Building Materials and Flammability Ratings.

G. U.S. Product Standards
1. PS 1 – Construction and Industrial Plywood
2. PS 20 – American Softwood Lumber Standard

H. American Wood Council (AWC)
1. National Design Specification for Wood Construction

I. National Fire Protection Association (NFPA)
1. NFPA 255 – Standard Method of Test of Surface Burning Characteristics of Building Materials.

1.06 DEFINITIONS

A. Dimensional Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

B. Board or Strips: Lumber of less than 2 inches nominal size in least dimension.

1.07 PERFORMANCE REQUIREMENTS

A. General: Installed wood blocking and sheathing shall be secured to the building structure to provide an attachment point for the specified products and assemblies.

B. Material Compatibility: Provide wood materials that are compatible with the building structure, fasteners, and other materials that will be in contact with the wood materials. Provide separator materials where required to prevent compatibility issues.

1.08 REUTILIZED MATERIALS

A. The following items shall be assumed to be fully salvageable and reusable:

1. Existing wood blocking, where specified for re-use.

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

1. Wood – include species and grade.
2. Fasteners – including load capacity and pull-out resistance.
3. Fire retardant treatment.

B. Product Samples:

1. Fasteners – each type.

C. Material Safety Data Sheets (MSDS):

1. Submit an MSDS sheet for each material that will be utilized on-site.

1.10 QUALITY ASSURANCE

A. Source Limitations: Obtain wood materials, fasteners, sheathing, and accessories from a single manufacturer for each product required, unless approved by the Design Professional.

B. Wood Standard: National Design Specification for Wood Construction; American Plywood Association.

C. Installer Qualifications: A firm that has been engaged in carpentry work for a minimum of five (5) years.

D. Environmental Standard: Manufacturer and contractor shall conform to Federal, State, and Local V.O.C. (Volatile Organic Compound) Regulations in area where the project is located. Notify Design Professional in writing if variations to the Contract Documents are required to comply with these regulations.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Materials delivered to site in a wet condition shall be rejected and removed off Owner's property.

B. Stack lumber to ensure proper ventilation and drainage. Protect lumber from the elements.

C. Store in a manner that will prevent warpage.

1.12 JOB CONDITIONS (CAUTIONS AND WARNINGS)

A. All methods employed in performing the work, and all equipment, tools, and machinery used for handling materials and executing any part of the work, shall be subject to the approval of the Design Professional before the work is started, and whenever found unsatisfactory, shall be changed and improved as required.

B. Time delivery and installation of carpentry to avoid delaying other operations whose work is dependent on or affected by the carpentry work, and to comply with protection and storage requirements.

C. Protect installed carpentry from damage due to other work activities and weather.

D. Select anchors for attachment of carpentry suitable for structural roof substrate.

PART 2 - PRODUCTS

2.01 LUMBER

A. Grading Rules: PS 20

B. Dimensions: Lumber dimensions are nominal; actual dimensions conform to industry standards established by American Lumber Standards Committee and rules writing agencies.

C. Moisture Content: Shall be kiln-dried to 15%, maximum

D. Species: No. 2 grade (or better) Southern Yellow Pine

E. Treatment: None

2.02 SHEATHING

A. Comply with PS-1 for plywood construction panels and, for products not manufactured under PS-1 provisions, with APA PRP-108.

B. Moisture Content: 15% maximum.

C. Exposure: 1

D. Grade Designation: CDX

E. Treatment: Fire Retardant Treated, where specified

F. Span Rating: 5/8” Wall and Roof Sheathing - 40/20; ½” plywood – 32/16

2.03 FIRE RETARDENT TREATMENT

A. Lumber: AWPA C20

B. Plywood: AWPA C27

C. Flame Spread: Less than 25 per ASTM E84, NFPA 255, or UL 723.

D. Moisture Content: Lumber - 19% maximum; Plywood 15% maximum

E. Fire-retardant chemicals used to treat the lumber must be free of halogens, sulfates and ammonium phosphate.

F. Testing on the fire performance, strength and corrosive properties of the fire-retardant treated wood shall be recognized by issuance of a National Evaluation Services Report.

G. Carbon steel, galvanized steel, aluminum, copper and red brass in contact with the fire-

retardant treated wood must exhibit corrosion rates of less than one mil per year when tested in accordance with Federal Specification MIL-L-19140 Paragraph 4.6.5.2.

2.04 FASTENERS

A. General: All fasteners shall be corrosion-resistant stainless steel or heavy-duty fluorocarbon-coated steel threaded screw fasteners unless otherwise noted, to meet/exceed Factory Mutual Standard 4470 (current edition). Fasteners in contact with preservative treated or fire-retardant treated materials shall be tested and approved for use with fire-retardant treated materials.

B. Wood-to-Metal Applications: #12-14 self-drilling screw (#12-14 for steel thickness 0.048" to 0.210" and #12-24 for steel thickness 0.210" to 0.500") with 0.500" diameter head with wafer head. Screw length shall be sized as required for plywood sheathing thickness. Fastener must be tested for use with fire-retardant treated wood. Basis-of-Design: Triangle Fastener Corp – Blazer Self-Drilling Screws, Wood-to-Metal Screws.

C. Wood Screw Fasteners: #10 diameter shank, bugle head, and Type 17 point.

D. Concrete Screw Fasteners: 0.190" (#14) diameter shank and 0.435" head diameter.

E. Anchor Bolts: ½" diameter hot-dipped Galvanized anchor bolts with a J-shaped end that is to be embedded into fresh concrete or grout.

F. Adhesive Anchor Bolts – Adhesive anchoring system designed for use in grout filled masonry. Adhesive anchor must have ICC-ES Evaluation Report for required application.

1. Material Properties:
   a. Threaded Rod: ½" diameter steel grade 55, ASTM F1554 Galvanized anchor bolts.

2. Manufacturers:
   a. Hilti North America – HIT-HY 270 Adhesive Anchor
   b. DeWalt – Pure 110+ or AC100+ Gold
   c. Or Approved Equal

G. Washers: Galvalume steel or 300 series stainless steel.

H. Manufacturers:

- Triangle Fastener Corp., Pittsburgh, PA
- Trufast (Altenloh, Brinck & Co. US, Inc.), Bryan, OH
- OMG Roofing Products, Agawam, MA
- Power Fasteners, Brewster, NY
- ITW Buildex, Itasca, IL

2.05 REJECTED MATERIALS

A. The Design Professional shall have the right to inspect all materials brought to or stored at the job site. Those materials that do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person

designated by the Contractor to be the lead on site supervisor. The verbal notification will be by the Design Professional, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 PREPARATION

A. Installer must examine the substrates and supporting structure and the conditions under which the carpentry work is to be installed. Notify the Design Professional in writing of conditions detrimental to the Work.

B. Discard units of material which are unsound, warped, bowed, twisted, improperly treated, not adequately seasoned or too small to fabricate the Work with a minimum of joints or the optimum jointing arrangement.

C. Verify the existing wood blocking is securely attached and in good condition. The Design Professional shall be notified in writing, if the attachment, condition, location, or size of the wood blocking does not meet the specification requirements.

3.02 INSTALLATION

A. General:

1. Fit carpentry work to other work. Scribe and cope as required for accurate fit.

2. Set carpentry work accurately to required levels and lines with members plumb and true.

3. Securely attach carpentry work to substrates by anchoring and fastening as specified and as required by applicable building codes. Wood blocking shall be fastened to resist a force of 200 lbs. per linear foot applied in any direction.

    a. Provide washers under bolt heads and nuts in contact with wood.

    b. Countersink fastener heads where detailed on drawings, or where required by subsequent application of flashing materials.

4. Fasteners: Make tight connections between members. Install fasteners without splitting of wood. If structural deck is thicker than 20-gauge or where wood rides up threading prior to penetrating the structural deck, pre-drill the blocking. Where required, use washers and countersink into wood member.

5. Tighten bolts and lag screws at installation and re-tighten as required for tight connections prior to closing in or at completion of work.

6. A minimum of two (2) fasteners shall be utilized per section of wood, regardless of length. Pull out resistance must be a minimum of 360 lbs. per fastener.

7. All wood blocking indicated on the project drawings is to be new wood blocking, unless the drawings indicate that the blocking is existing and is to remain in place. The wood blocking shown on the project drawings is for graphical illustrations only

and does not reflect the actual number of layers required at all locations. The contractor shall determine the number of layers of wood blocking required based on the insulation required and the field conditions.

8. The wood blocking shall be a minimum of 2” x 6” at perimeter edges. Wood blocking at interior locations shall be a minimum of 2” x 4”.

9. Use of power-actuated fastener use is not permitted.

10. Fasteners shall be installed in accordance with the manufacturer’s installation recommendations.

11. The fastener thread penetration into or through the substrate shall be as listed below. Edge and end distances shall be as listed below. The fastener penetration shall exclude any drilling point or tapered point.

    a. Solid Wood Blocking: 6 x Screw Diameter into the substrate and minimum 1-1/4” embedment; edge and end distances as required to prevent splitting.
    b. Plywood or OSB Sheathing: ¾” minimum penetration through the sheathing; edge distance 3/8”
    c. Steel Decking: ¾” through the sheet metal; ½” minimum edge distance.
    d. Concrete: 1” min. embedment; 6 x Screw Diameter edge distance
    e. Masonry or Stone: 1-1/2” min. embedment; 8 x Screw Diameter edge distance.

3.03 WOOD BLOCKING INSTALLATION – WOOD, STEEL, OR CONCRETE SUBSTRATES

A. Wood blocking shall be installed at appropriate roof perimeters, curbs, and similar penetrations. All wood blocking shall be of sufficient thickness so as to be flush with the roof insulation. Wood blocking shall not be lower than the insulation surface.

B. The wood blocking shall be fastened to the substrate at 12” on-center, staggered. The fastener spaced shall be enhanced eight feet (8’) from each corner to two (2) rows of fasteners 12” on-center. At each end of the blocking there shall be two (2) fasteners installed.

C. For wood blocking wider than 6 inches, bolts should be staggered to avoid splitting the wood. Each wood blocking member should have at least two fasteners. A fastener should be located approximately 4 inches but not less than 3 inches from each end of the wood. Additional wood members, such as cant strips and stacked wood blocking, should be fastened with corrosion-resistant fasteners having sufficient pullout resistance. Fasteners should be staggered, spaced at a maximum 12 inches on centers and should penetrate the wood sufficiently to achieve design pullout resistance.

D. At areas of tapered insulation, solid wood blocking shall be installed by shaping the wood blocking to the same profile as the tapered insulation. Wood blocking shall not be lower than the insulation surface.

E. Install wood blocking with one-eighth inch (1/8") gap between each length or as required based on climatic conditions at the time of installation.

F. Wood blocking, cants, etc. shall be chamfered, beveled, shaved, planed, or shimmed as necessary to provide smooth transition to adjacent materials.

G. Wood shims, where used for providing transition to insulation. Shims are only acceptable in conditions where shim thickness does not exceed one-half inch (1/2"). All shim material to be in compliance with this Section. All shims must be continuous and shall be placed at deck level.

H. Pre-drilling of fastener holes will be required for installation of wood blocking over any concrete surface.

3.04 WOOD BLOCKING INSTALLATION – TOP OF HOLLOW-CORE CMU

A. The wood blocking shall be fastened to the CMU wall with anchor bolts located 4’ on-center.

B. At hollow-core wall areas, an anchor bolt shall be installed to a depth of 16” and grouted into place. The anchor bolt shall be countersunk into the wood blocking so that the bolt does not extend above the surface of the wood blocking. Provide washers at countersunk hole locations.

C. At solid concrete or CMU walls, an adhesive anchor bolt shall be installed to a depth of 6” and adhered into the concrete with a chemical adhesive. The anchor bolt shall be countersunk into the wood blocking so that the bolt does not extend above the surface of the wood blocking. Provide washers at countersunk hole locations.

D. Install wood blocking with one-eighth inch (1/8") gap between each length or as required based on climatic conditions at the time of installation.

3.05 SHEATHING INSTALLATION

A. General:

1. Fastener heads shall be set flush with the sheathing surface.
2. Sheathing sheets shall be spaced with a one-eighth inch (1/8”) gap between sheets at all edges and ends.
3. Stagger panel end joints.

B. Installation Over Rafters:

1. Where sheathing is installed as sheathing over open-framing, the sheathing shall be fastened 6” on-center at each end of the plywood and 12” o.c. at each intermediate support location for field of roof areas (Zone 1). The sheathing shall be fastened 6” on-center at each end of the plywood and 6” o.c. at each intermediate support location for the perimeter and corner areas (Zones 2 and 3).

2. One (1) panel clip per span shall be installed for spans up to 24” o.c., if panels with tongue and grooved edges are not utilized.

C. Installation Over Solid Substrates:

1. Where sheathing is installed over a solid substrate, the sheathing shall be secured

at a rate of 20 fasteners per 4’x8’ sheet of sheathing, unless otherwise specified.

3.06 COMPLETION

A. Work that does not conform to specified requirements including tolerances and finishes, shall be corrected and/or replaced, as directed by Design Professional, at Contractor's expense, without extension of time. Therefore, Contractor shall also be responsible for cost of corrections to any Work affected by or resulting from correction to work of this Section.

END OF SECTION 06 10 53.01 - ROUGH CARPENTRY FOR ROOFING

07 22 16
ROOF BOARD INSULATION

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1 - General Requirements, are included as a part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Items covered by this specification section:

1. Rigid Insulation
2. Cover Board
3. Vapor Retarder
4. Accessories

B. It is the intent of this specification to provide a layer of roof insulation to form a smooth, uninterrupted and stable base for a membrane roof system, inclusive of tapered insulation as required.

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and the Contractor.

1. N/A

1.04 RELATED SECTIONS

Division 1	General Requirements
02 41 19	Selective Demolition
06 01 53.01	Rough Carpentry for Roofing
07 53 23	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
07 54 00	Thermoplastic Membrane Roofing
07 72 00	Roof Accessories
22 14 26.13	Roof Drains

1.05 REFERENCES

A. American National Standard Institute/Single Ply Roofing Industry (ANSI/SPRI)
1. IA-1 – 2021 – Standard Field Test Procedure for Verifying the Suitability of Roof Substrates and Adhesives
2. FX-1 – 2011 – Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners

B. American Society of Testing and Materials (ASTM)

1. C168 - Standard Terminology Relating to Thermal Insulation
2. C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
3. C209 – Methods of Testing Insulating Board, Structural and Decorative
4. C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
5. C1289 - Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
6. C 1303 - Standard Test Method for Estimating the Long-Term Change in the Thermal Resistance of Unfaced Closed Cell Plastic Foams by Slicing and Scaling Under Controlled Laboratory Conditions.
7. D1079 - Standard Terminology Relating to Roofing and Waterproofing
8. D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics
9. D 2126 - Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
10. E84 - Standard Test Method for Surface Burning Characteristics of Building Materials
11. E96 - Standard Test Methods for Water Vapor Transmission of Materials

C. Factory Mutual Research (FM)
1. Approval Standard 4450 – Approval Standard for Class 1 Insulated Steel Roof Decks
2. Approval Standard 4470 – Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction
3. Data Sheet 1-29 – Roof Deck Securement and Above Deck Components

D. National Roofing Contractors Association (NRCA)
1. The NRCA Roofing Manual: Membrane Roof Systems.

1.06 DEFINITIONS

A. Terminology: See ASTM D1079, C168, and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this section.

1.07 PERFORMANCE REQUIREMENTS

A. Polyisocyanurate Insulation

1. General: Installed roof insulation, underlayment boards, and cover boards shall serve as a stable base for the roof system installation; and resist specified uplift pressures, thermal and moisture induced movement, and exposure to weather without excessive movement that causes failure of the roof membrane. The roof insulation system and system components shall comply with requirements in FM Approvals of 4450 and 4470, current editions.

2. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by component manufacturer based on testing and field experience.

3. Wind Up-Lift Characteristics: Provide a roofing system that is identical to systems that have been successfully tested in accordance with FM 4474 by a qualified testing and inspecting agency to resist uplift pressures and hail as listed below. The perimeter and corner areas shall be prescriptively enhanced in accordance with the current edition of FM Global Loss Prevention Data Sheet 1-29.

   a. Field Wind Up-Lift Rating: 60 psf

4. Fire-Test Response Characteristics: Provide roofing materials with the fire-test response characteristics indicated as determined by testing identical products per test method indicated below by UL, FM, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

   a. Interior Fire-Test Exposure: Class 1
   b. Flame Spread and Smoke Development: ASTM E-84; <75/<450

1.08 REUTILIZED MATERIALS

A. The following items shall be assumed to be fully salvageable and reusable:

   1. N/A

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

   1. Submit product data sheets for each material specified or required for installation of the insulation system. Include data substantiating that materials comply with requirements of this specification.

   2. Submit specifications, installation instructions, and general recommendations from roof insulation materials manufacturers for type of roof insulation specified.

   3. Submit manufacturer's suggested material handling and material protection requirements.

B. Shop Drawings:

   1. Drawings illustrating tapered insulation layout, method of attachment, intersections with adjacent materials, and other installation details.

C. Product Samples:

   1. Roof Insulation: Sample size 6-inches by 6-inches.
   2. Cover Board: Sample size 6 inches by 6 inches.
   3. Insulation Fasteners: Samples of screw and plate.

4. Vapor Retarder: 12-inch square sample with lap seam and tape.

D. Material Safety Data Sheets (MSDS):

1. Submit an MSDS sheet for each material that will be utilized on-site.

E. Field Testing:

1. Perform fastener pull-out tests in accordance with ANSI/SPRI FX-1 – 2011 for each type of fastener that is required. Submit written evidence of the fastener pull-out tests of deck and/or wall substrate(s) to show compliance with this specification.

1.10 DELIVERY, STORAGE, AND HANDLING

A. All products delivered to the site shall be in the original unopened containers, wrappings, or crating. Storage areas will be defined by Owner or Design Professional.

B. Average live loads on the roof during the work shall not exceed twenty (20) pounds per square foot at any time.

C. Handle all materials to prevent damage.

D. The Contractor shall store the materials to prevent exposure to UV light, precipitation, condensation (i.e. night-time dew or internal condensation within the packaging), and other moisture entry or formation. The following are the minimum storage requirements:

1. Elevate the insulation bundles a minimum of 3” above the ground or finished surface. Storage on paved surfaces is preferred over grass or dirt.
2. Cover the insulation material with a waterproof, breathable cover. The cover must be secured to prevent displacement by wind forces.
3. If recommended by the manufacturer, slit the factory wrappings to allow the product to breathe. The integrity of the bundles must be maintained so that the material can still be handled in full bundles.
4. Long-term storage must be indoors in a dry, well-ventilated building.
5. Regardless of the storage method selected by the Contractor, if the insulation is wet or is water-stained, it shall be replaced at the Contractor’s expense.

E. Store temperature susceptible materials in a dry and heated area between 60 degrees F and 80 degrees F. If exposed to lower temperatures, restore to proper temperature prior to use. Provide certification from the manufacturer indicating that freezing temperatures will not adversely affect the materials use and performance, and that roof system application will not be restricted by low ambient temperatures.

F. Materials determined by the Design Professional to be damaged or to have been subjected to adverse conditions shall be removed and replaced at Contractor’s expense.

G. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Closely follow precautions/instructions outlined on container or supplied by manufacturer/supplier (MSDS sheets).

H. Protect insulation against concentrated loads, and standing loads exerting a force in excess of 50% of the material's compressive strength.

I. Do not expose foam core to excessive heat, sparks, or open flame.

J. Any traffic shall be limited to the workmen installing the material.

1. The Contractor shall plan installation progress to prevent or minimize traffic across completed or partially completed sections. Where traffic across completed or partially completed sections is necessary, Contractor shall provide protection adequate in nature and duration, consistent with requirements of the material manufacturer.

1.11 WEATHER LIMITATIONS ON WORK

A. Proceed with installation only when existing and forecasted weather conditions permit insulation board system to be installed according to manufacturer's written instructions and warranty requirements. Roofing work shall not be done during precipitation and shall not be started in the event there is a high probability of precipitation during the ongoing work.

B. At ambient temperatures of 40 degrees F and below, including wind chill, precautions must be taken to ensure that temperature-susceptible materials maintain their minimum acceptable temperature at the point of application as recommended by the roofing materials manufacturer.

1.12 WORK SEQUENCE

A. Work shall begin at the furthest point from the designated spot where materials are shipped to the roof. Work shall be scheduled to minimize traffic over newly completed or previously renovated roof area.

B. All insulation installed in any one day shall be covered with complete roof system underlayment or roof membrane to prevent any water infiltration.

1.13 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. All methods employed in performing the work, and all equipment, tools, and machinery used for handling materials and executing any part of the work, shall be subject to the approval of the Design Professional before the work is started, and whenever found unsatisfactory, shall be changed and improved as required.

B. Contractor shall implement all necessary precautions to prevent debris or materials/equipment from becoming airborne due to wind conditions anticipated at the site. Contractor shall conform to all regulations and precautions as required by applicable safety organizations.

1.14 MANUFACTURER'S REPRESENTATIVE

A. Contractor shall require the presence of a Technical Representative of the material manufacturer to perform inspections and provide field instructions during the duration of

the work, as required by the manufacturer for a guaranteed job.

B. In addition, Design Professional may require the presence of the Technical Representative of the roofing material manufacturer, as necessitated by the work progress.

C. The Technical Representative shall be employed by the roofing material manufacturer. The roofing material manufacturer shall designate one (1) Technical Representative for the duration of the project.

1.15 GUARANTEE

A. A full system warranty is required for the low-sloped roof areas. The roof system manufacturer shall warrant the entire roof system, inclusive of the roof insulation for the periods as indicated in Section 07 54 00 Thermoplastic Membrane Roofing and Section 07 53 23 Ethylene-Propylene-Diene-Monomer (EPDM) Roofing.

1.16 QUALITY ASSURANCE

A. Contractor Qualifications:

1. Contractor must be trained by the manufacturer in application of insulation system specified and must be approved for this work by manufacturer.

B. Manufacturer Qualifications:

1. Manufacturer shall be a company that regularly manufactures polyisocyanurate and fully assembled nailbase insulation panels in-house with no outside fabrication operations.

PART 2 – MATERIALS

2.01 GENERAL

A. If materials from other manufacturers are proposed, supporting technical literature, drawings, performance data and manufacturers written endorsement of this specific product for use under job conditions must be submitted in accordance with the Instructions to Bidders.

B. Preformed roof insulation boards manufactured or approved by roof system manufacturer. Selected from manufacturer's standard sizes suitable for application of thicknesses indicated and that produce FM Approvals for approved roof insulation.

2.02 POLYISOCYANURATE BOARD INSULATION

A. Flat polyisocyanurate rigid roof insulation with reinforced non-organic biological growth-resistant coated-glass facers shall conform to ASTM C 1289 Type II, Class 2, Grade 3 (25 psi). The minimum LTTR value shall be 5.6 per 1" per ASTM C1303.

B. Tapered polyisocyanurate rigid roof insulation with reinforced non-organic biological growth-resistant coated-glass facers shall conform to ASTM C 1289 Type II, Class 2,

Grade 3 (25 psi). The minimum LTTR value shall be 5.6 per 1" per ASTM C1303.

C. Tapered Edge Strip: Polyisocyanurate rigid roof insulation with reinforced non-organic biological growth-resistant coated-glass facers shall conform to ASTM C 1289 Type II, Class 2, Grade 3 (25 psi). The minimum LTTR value shall be 5.6 per 1" per ASTM C1303.

1. Edge thickness: 0"
2. Slope: 1:12 or 1.5:12
3. Width: 12"

D. Manufacturers

1. H-Shield CG; Hunter Panels, Portland, ME
2. Atlas AC Foam III, SureSlope Tapered Edge Strip; Atlas Roofing Corporation, Atlanta, GA
3. Roof System Manufacturer

2.03 COVER BOARD

A. High-density polyisocyanurate cover board with reinforced non-organic biological growth-resistant coated glass facers shall conform to ASTM C 1289 Type II, Class 4, Grade 1.

1. Thickness: 1/2"

B. Manufacturers

1. H-Shield HD; Hunter Panels, Portland, ME
2. AC Foam HD; Atlas Roofing Corporation, Atlanta, GA
3. Roof System Manufacturer

2.04 VAPOR RETARDER

A. Polyethylene and Polypropylene Vapor Retarder: A 3 ply laminate reinforced film vapor retarder with the following material properties:

1. Permeance (Perm) – ASTM E 96 (Procedure B): 0.13 maximum
2. Thickness: 6 mils (minimum)
3. Fire Retardancy – ASTM E-84: <25 Flame Spread, < 450 Smoke Developed

B. Manufacturers

1. Griffolyn Type-55 FR; Reef Industries, Houston, Texas
2. DURA-SKRIM 6WW; Raven Industries, Sioux Falls, South Dakota
3. WMP-VR; Lamtec Corporation, Mount Bethel, Pennsylvania
4. Roof System Manufacturer

C. Auxiliary Materials

1. Tape: 4" wide self-adhesive pressure sensitive air barrier tape with flame spread

index of 25 or less, smoke-developed index of 50 or less provided by or recommended by vapor retarder manufacturer for sealing seams and penetrations (i.e. curbs).

2. Pipe flashings (with deck flanges): Sized to fit typical penetrations (i.e. water lines, gas lines, drainpipes and vent pipes). Used in conjunction with air barrier system tapes.
3. Butyl Tape: 1.5” to 2.0” wide 35 mil butyl tape used to seal the perimeter edge and penetrations through the air barrier.

2.05 ACCESSORIES

A. Insulation, Substrate, and Cover Board Fasteners

1. General:
   a. Fasteners, inclusive of plates/adhesive system, must conform to the roof or product manufacturer's requirements.
   b. Adhesive to have Factory Mutual approval for application.
   c. Load distribution plates shall conform to FM 4470 for corrosion resistance. Roof systems utilizing mechanically fastened insulation require metal plates, unless an alternate method is specifically approved by the roof system or product manufacturer and the Design Professional.
   d. Fastener pullout resistance must be a minimum of 360 lbs. per fastener.
   e. Adhesive pull test resistance must be a minimum of 90 lbs. per square foot (ribbon spacing 12” o.c.).
   f. All steel fasteners shall be carbon steel with a corrosion-resistant coating that meets or exceeds Factory Mutual Standard 4470 unless noted otherwise.

2. Manufacturers:
   a. SFS/Stadler Inc., Valley City, Ohio
   b. Tru-Fast, Bryan, Ohio
   c. ITW Buildex, Elmhurst, Illinois
   d. OMG Roofing Products, Agawam, Massachusetts
   e. Roof System Manufacturer

3. Steel Deck:

   a. Fasteners to have self-drilling tip. Fastener tip shall be capable of cutting steel deck material of 20-gauge thickness at point of steel deck overlap without damage to the fastener tip.

   b. Fasteners shall be installed in high flute of steel deck with a minimum of one-half inch (1/2”) penetration. Fasteners shall not extend past the bottom of the steel deck (i.e. low rib).

B. Polyurethane Foam Sealant (Spray Foam)

1. Polyurethane foam sealant used to seal perimeter edges, penetrations, and slope transitions. Foam sealant shall be produced by or acceptable to the roofing system/insulation system manufacturer.

2. Manufacturer
   a. Dow Chemical Company; Midland, MI
      - Great Stuff Pro Gaps and Cracks – gaps less than 1/2”
      - Froth Pak Foam Sealant – gaps larger than 1/2”
   b. Convenience Products; Fenton, MO
      - Home Seal – Gaps less than 1/2”
   c. FOMO Products; Norton, OH
      - Extreme – gaps less than 1/2"
      - Handi Foam – gaps larger than 1/2"
   d. Hilti Corporation; Tulsa, OK
      - CF810-Gaps less than 1/2"

C. High Temperature Insulation Fill

4. High temperature ceramic fiber insulation used as a heat separator between inner flue and exterior heat shroud for high temperature penetration flashings. Product shall have a low thermal conductivity, low heat storage, excellent thermal shock resistance, be lightweight and have superior corrosion resistance.
5. Manufacturer
   a. Refractory Specialties, Inc., Sebring, Ohio
   b. McNeil Insulation Co., division of McNeil, Inc., Robbinsville, New Jersey
   c. Ohio Valley Industrial Services, Inc., Coraopolis, Pennsylvania

2.06 REJECTED MATERIALS

A. The Design Professional shall have the right to inspect all materials brought to or stored at the job site. Those materials that do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person designated by the Contractor to be the lead on site supervisor. The verbal notification will be by the Design Professional, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 INSPECTION

A. A Pre-Job conference including the Design Professional, Owner's Representative, the Contractor, the manufacturer's representative and all involved trades shall be conducted prior to commencement of the roofing work.

B. Examine the substrate and the conditions under which the work is to be performed. Do not proceed until unsatisfactory conditions have been corrected as required for the material application and in accordance with the material manufacturer’s specifications and requirements. Surfaces to receive roofing material components are to be clean, even, smooth, dry and free from defects and projections which might adversely affect the application. Verify slope prior to installation.

C. Contractor shall verify that work penetrating the roof deck or which may otherwise affect the roofing has been properly completed.

D. Start of roof insulation installation shall constitute acceptance of substrates by

Contractor.

3.02 PREPARATION

A. General: All surfaces shall be swept or vacuumed prior to commencement of roofing work.

B. Drainage: Contractor, together with Design Professional, shall verify that all drain lines are unblocked before starting work. Any blocked drains shall be cleared by the Owner before starting work. Cover all drains and other openings intended for roof drainage with screens to prevent clogging of the drainage system. During construction, allow for sufficient drainage to prevent ponding with possible structural overloading.

C. Fasteners: Contractor is required to run pullout tests to verify conditions of deck or wall substrate(s) and to confirm pullout values.

3.03 VAPOR RETARDER INSTALLATION

A. The vapor retarder shall be installed to serve as a vapor retarder and air barrier within the roof system, even though it is referenced as a vapor retarder.

B. Vertical control/expansion joints through parapet walls shall be sealed with butyl tape or sealant prior to installation of the vapor retarder.

C. All surfaces to receive the vapor retarder shall be dry prior to installation.

D. Loosely lay vapor retarder film in a single layer over entire roof deck extending to roof edges and to adjacent walls.

E. Side and end lap each sheet a minimum of 2” and 6” respectively.

F. Vapor retarder shall be positively sealed at all edges, penetrations and walls utilizing manufacturer’s vapor retarder accessories.

1. Seal laps with continuous strip of tape recommended by the vapor retarder manufacturer.
2. Penetrations:
   a. Round Pipes: Seal with a pre-manufactured pipe boot if available by the manufacturer of the vapor retarder. If pre-manufactured boots are not available, tape, butyl tape, and/or adhesive shall be used to seal the vapor retarder to the vent pipe.
   b. Curbs: Seal using tape, butyl tape, or adhesive to seal the vapor retarder to the side walls of the curb.
3. Roof Drains: Seal vapor retarder to exterior side of the drain bowl with tape or butyl tape.
4. Seal at roof edges with butyl tape or adhesive.

3.04 ROOF BOARD INSULATION INSTALLATION

A. No more insulation should be installed than can be covered by the roofing system that day, or before inclement weather occurs.

B. Application shall be in accordance with the insulation and roof system manufacturer's instructions, and additional requirements of the project specifications and drawings.

C. All insulation to be in full sheets, carefully fitted against adjoining sheets to form tight joints.

D. On steel roof decks, rigid insulation boards, if rectangular, should be placed with their longer dimension edges supported on the top flanges of the steel roof deck. The insulation boards placed directly over steel roof deck should not cantilever over the open steel deck flutes.

E. Edges of the insulation boards shall be mitered at ridges, hips, valleys, and elsewhere to prevent open joints or irregular surfaces. Edges shall be butted to produce moderate contact but not deformed. Ridge and open joints require full thickness polyisocyanurate spray foam closure.

F. Long joints will be laid continuous and short joints staggered. The joints in each layer shall be offset 12” in order to avoid a vertically continuous joint through the total insulation thickness.

G. The roof insulation shall be adhered and/or mechanically secured to the substrate as indicated on the project drawings, the roof system manufacturer’s requirements, and the submittals as required to comply with the Performance Requirements of the specifications.

H. Mechanically fastened insulation shall be secured to structural roof deck with a minimum number of fasteners indicated on the project drawings and as required by the roof system manufacturer as required to comply with the Performance Requirements of the specifications. The board size shall be a maximum of 4’ x 8’. Provide additional fasteners as required to conform insulation to contours of roof structure in a sound manner.

I. Adhered insulation assemblies shall utilize a two-part adhesive applied to the substrate using a ribbon pattern. The roof insulation, substrate board, and cover boards shall be a maximum of 4’ x 4’. The ribbons shall be a minimum of ¾” wide, and spaced as indicated on the project drawings. Apply deck primer as required by the material manufacturer. As adhesive is applied, allow the adhesive to rise prior to placing the insulation board into wet adhesive, unless otherwise recommended by the adhesive manufacturer. Do not allow the adhesive to “skin over”. Do not use when the substrate or ambient temperature is below 45 degrees Fahrenheit. The insulation board shall be weighted down, as necessary, and walked-in. Walking-in the boards alone is not acceptable. Apply deck primer as required by the adhesive manufacturer.

J. Tapered Insulation Requirements:

1. It is the intent of this section to provide positive roof drainage by way of saddles and crickets, roof sumps, fully tapered insulation system, and other specified areas of tapered insulation as shown on the roof plan. Where fully tapered insulation systems are shown, they shall drain the roof completely within 48 hours after the latest rainfall. The maximum depth of allowable ponding shall be

one-fourth inch (1/4”) at any time, prior to the 48-hour period for complete drainage.

2. Installation of tapered insulation shall meet the minimum design intent as indicated on the project drawings relating to tapered insulation requirements.

3. Roof saddles and crickets shall have a maximum one-eighth-inch (1/8”) step from toe of tapered insulation to substrate insulation. A tapered starter strip of polyisocyanurate tapered insulation is acceptable to complete the transition between flat and tapered insulation.

4. Roof saddles and crickets shall be installed up-slope of rooftop units with a dimension of four feet (4’) or larger, perpendicular to the roof slope.

5. All tapered insulation components shall be compatible with existing roof membrane substrate and new roof membrane system. Where required by the manufacturer, provide slip or separation layers.

6. The tapered insulation system shall provide a smooth, continuous, minimum 1/8” per linear foot slope (high point to drain) in all valley lines, inclusive of saddles and crickets.

3.05 COVER BOARD

A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Butt substrate boards together as recommended by the board manufacturer.

1. Adhere substrate board to roof insulation to resist uplift pressure at corners, perimeter, and field of roof according to roof system manufacturer's written instructions and as required to meet “Performance Requirements”.

3.06 POLYURETHANE FOAM SEALANT (FOAM SPRAY)

A. Install polyurethane foam sealant at the following applicable locations:

1. Between perimeter of insulation board and nailers.
2. Between nailers and vertical walls.
3. Between penetrations and insulation boards.
4. Between voids in insulation boards, inclusive of roof system slope transition conditions.

B. All Voids to be filled to match full thickness of insulation boards or as indicated on project drawings.

C. Provide polyurethane foam sealant produced by or acceptable to the roofing system/insulation system manufacturer.

D. Utilize Great Stuff Pro Application Gun (or equal) with metal extension nozzle for applications requiring products used to fill gaps less than 1/2”. Apply in accordance with manufacturer instructions inclusive of cleaning instructions.

E. Once foam has cured (approximately 5 minutes), remove any overspray with a roofing knife. If additional shaping is required, cut the cured foam with a handsaw.

F. During application, the foam exerts force as it expands. Monitor the amount of foam installed to avoid overfilling restricted spaces.

3.07 HOT STACK PENETRATIONS

A. Completely fill the space between the inner flue and exterior heat shroud of all hot/heated stack penetrations with high temperature ceramic fiber insulation used as a heat separator. Secure in place and provide support utilizing metal wire hangers from below.

3.08 COMPLETION

A. Correction of Work

Work which does not conform to specified requirements including tolerances, slopes and finishes shall be corrected and/or replaced as directed by Design Professional at Contractor's expense without extension of time. Therefore, Contractor shall also be responsible for cost of correction to any work affected by or resulting from corrections to work of this section.

B. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to pre-construction condition.

All landscaped areas affected by construction activities shall be raked clean, seeded, or restored to pre-construction condition.

C. All manufacturers' on-site inspection reports shall be submitted prior to final payment.

D. All guaranties, as required in Part 1 of this specification, shall be submitted for approval prior to final payment.

END OF SECTION 07 22 16 – ROOF BOARD INSULATION

07 24 19
WATER-DRAINAGE EXTERIOR INSULATION AND FINISH SYSTEM

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1 - General Requirements, are included as part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Work of this section shall provide Owner with a functional weathering surface by: 1. Installing an Exterior Insulation and Finish System (EIFS), inclusive of air and moisture barrier and related flashings and 2. Resurfacing an existing EIFS surface to repair minor surface defects, provide a new base coat and reinforcing mesh, and provide a new finish coat to provide a uniform appearance and color.

B. Items covered by this specification section:

1. Air and Moisture Barrier
2. Insulation Board
3. Base Coat
4. Reinforcing Mesh
5. Finish Coat
6. Accessories

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and Contractor.

1. N/A

1.04 RELATED SECTIONS

Division 1	General Requirements
02 41 19	Selective Demolition
06 10 53.01	Rough Carpentry for Roofing
07 31 13	Asphalt Shingles
07 53 23	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
07 54 00	Thermoplastic Membrane Roofing
07 62 00	Sheet Metal Flashing and Trim
07 92 00	Joint Sealants

1.05 REFERENCES

A. American Society of Testing and Materials (ASTM)

1. C297 – Standard Test Method for Flatwise Tensile Strength of sandwich

Constructions
2. C578 - Specification for Preformed, Cellular Polystyrene Thermal Insulation
3. C1063 – Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster
4. C1397 – Standard Practice for Application of Class PB Exterior Insulation and Finish System
5. D1784 - Specification for Rigid Poly (Vinyl Chloride) (PVC) and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
6. D2247 - Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
7. E84 - Test Method for Surface Burning Characteristics of Building Materials
8. E96 - Test Methods for Water Vapor Transmission of Materials
9. E119 - Method for Fire Tests of Building Construction and Materials
10. E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
11. E1233 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Difference
12. C1397 – Standard Practice for Application of Class PB Exterior Insulation and Finish Systems
13. E2110 – Standard Terminology for Exterior Insulation and Finish Systems (EIFS)
14. E2178 – Standard Test Method for Air Permeance of Building Materials
15. E2357 – Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
16. E2430 - Specification for Expanded Polystyrene (EPS) Thermal Insulation Boards for use in Exterior Insulation and Finish Systems (EIFS)
17. E2485 - Standard Test Method for Freeze/Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water Resistive Barrier Coatings
18. G153 - Recommended Practice for Operating Light-and Water-Exposure Apparatus (Carbon-Arc Type) for Exposure of Nonmetallic Materials
19. G155 – Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials

B. EIFS Industry Members Association (EIMA)

1. Guide to Exterior Insulation & Finish System Construction

C. International Code Council (ICC)

1. AC235 – Acceptance Criteria for EIFS Clad Drainage Wall Assemblies

D. National Fire Protection Association (NFPA) Standards

1. NFPA 268: “Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source”
2. NFPA 285: “Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus”

1.06 DEFINITIONS

A. EIFS Terminology: See ASTM E2110 – Standard Terminology for Exterior Insulation and

Finish Systems (EIFS)

B. Impact Resistance:
1. Standard Impact Resistance, 25-49 in-lbs Impact Range
2. Medium Impact Resistance, 50-89 in-lbs Impact Range
3. High Impact Resistance, 90-150 in-lbs Impact Range
4. Ultra-High Impact Resistance, >150 in-lbs Impact Range

1.07 PERFORMANCE REQUIREMENTS

A. Material Compatibility: Provide EIFS materials that are compatible with one another and the substrate as demonstrated by the EIFS manufacturer based on testing and field experience.

B. Moisture Control: Prevent the accumulation of water behind the EIFS, either by condensation or leakage through the wall construction, in the design and detailing of the wall assembly.

1. Provide flashing to direct water to the exterior where it is likely to penetrate components in the wall assembly, including, above window and door heads, beneath window and door sills, at roof/wall intersections, decks, abutments of lower walls with higher walls, above projecting features, and at the base of the wall.

2. Provide continuity of air barrier system at foundation, roof, windows, doors and other penetrations through the system with connecting and compatible air barrier components to minimize condensation and leakage caused by air movement.

C. System to meet the performance and testing requirements of the International Code Council Acceptance Criteria AC 235

D. Wind Resistance: The EIFS assembly shall be installed to resist the following wind loads:

1. Zone 4 (Wall Field Areas) = +20.0/-22.0 psf.
2. Zone 5 (Wall Corner Areas) = +20.0/-27.0 psf.

E. Impact Resistance Classification: Provide impact resistance as follows:

1. Within 6’ of grade = Ultra High Impact Resistance
2. 6’ above grade and higher = Standard Impact Resistance

F. Fire-Test Response Characteristics: Provide EIFS with the fire-test response characteristics indicated as determined by identical products per test method indicated below by UL, NFPA, or other testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. ASTM E84: Flame spread < 25; Smoke Density < 450
2. ASTM E 119: Pass
3. NFPA 268: Pass
4. NFPA 285: Pass

1.08 REUTILIZED MATERIALS

A. The following items shall be assumed to be fully salvageable and reusable:

1. Existing EIFS system where it is not specified for removal and replacement.
2. Existing window system.

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

1. Submit specifications, installation instructions, and general recommendations from EIFS materials manufacturers. Include data substantiating that materials comply with requirements.

B. Shop Drawings:

1. Submit shop drawings showing all EIFS flashing conditions, including but not limited to perimeter conditions, penetration conditions, expansion joints, etc.

C. Product Samples:

1. System Assembly: 12” x 12”
2. Reinforcing Mesh: 6” x 6”
3. Trim Pieces: 6” length
4. Insulation: 6” x 6”

D. Material Safety Data Sheets (MSDS) for all materials.

1. Submit an MSDS sheet for each material that will be utilized on-site.

E. Manufacturer Certification:

1. Submit certification signed by EIFS manufacturer stating that contractor is approved, authorized, or licensed to install EIFS specified and receive the specified warranty.

F. Sample Warranty:

1. Submit copy of the warranty from the EIFS manufacturer.

G. Mock-Up:

1. Build an in-place mock-up to verify flashing conditions. This mock-up shall be inspected by the Design Professional prior to proceeding with additional work. Revise the mock-up until the flashing conditions are satisfactory to the Design Professional and comply with the project requirements.

2. Build 12” x 12” mock-up samples for the selection of finish colors and textures. Retain the mock-up until final completion and acceptance of the project.

1.10 QUALITY ASSURANCE

A. Source Limitations: Obtain air and moisture barrier, insulation adhesive, board insulation, base coat, mesh, finish coat, and accessories from a single manufacturer for each product required, unless approved by the Design Professional.

B. EIFS Standard: ASTM C1397 – Standard Practice for Application of Class PB Exterior Insulation and Finish Systems.

C. Contractor Qualifications:

1. A firm that has been engaged in installing Water-Drainage EIFS for a minimum of five (5) years.
2. Must have attended manufacturer's Educational/Installation Seminar.
3. Must be experienced and competent in installation of plaster-like materials.
4. Employ skilled mechanics who are experienced and knowledgeable in EIFS application, and familiar with the requirements of the specified work.
5. Successful completion of minimum of three (3) projects of similar size and complexity to the specified project.

D. Manufacturer Qualifications: A firm experienced in manufacturing Water-Drainage EIFS for a minimum of ten (10) years. All EIFS assembly materials must be manufactured or sold by a single-source manufacturer and must be purchased directly from the EIFS manufacturer or it's authorized distributor.

E. Environmental Standard: Manufacturer and contractor shall conform to Federal, State, and Local V.O.C. (Volatile Organic Compound) Regulations in area where the project is located. Notify Design Professional in writing if variations to the Contract Documents are required to comply with these regulations.

1.11 DELIVERY, STORAGE, AND HANDLING

A. All products delivered to the site shall be in the original unopened containers with manufacturer's identification intact.

B. Handle all materials to prevent damage. Store materials elevated sufficiently off the ground and fully protected from moisture. Materials shall be secured in a safe manner to prevent damage. Material shall be covered with opaque tarps, secured to prevent displacement by wind forces.

C. Stack all insulation board flat from direct sunlight.

D. Protect coatings (pail products) from freezing and temperatures in excess of 90°F (32° C). Store away from direct sunlight.

E. Materials determined by the Design Professional to be damaged or to have been subjected to adverse conditions shall be removed and replaced at Contractor's expense.

F. Protect Portland cement-based materials (bag products) from moisture and humidity. Store under cover off the ground in a dry location.

1.12 WEATHER LIMITATIONS ON WORK

A. EIFS work shall not be done during precipitation and shall not be started in the event there is a high probability of precipitation during the ongoing work.

B. Maintain ambient and surface temperatures above 40°F (4°C) during application and curing/drying period, minimum 24 hours after application of Air/Moisture barrier and EIFS.

C. Substrate Temperature: Do not apply materials to substrates whose temperatures are below 40° F or contain frost or ice.

D. Sunlight Exposure: Avoid, when possible, installation of the materials in direct sunlight. Application of Acrylic Finishes in direct sunlight in hot weather may adversely affect aesthetics.

E. Materials shall not be applied if ambient temperature exceeds 120°F (49°C) or falls below 40°F (4°C) within 24 hours of application. Protect materials from uneven and excessive evaporation during hot, dry weather.

F. Prior to installation, the substrate shall be inspected for surface contamination, or other defects that may adversely affect the performance of the materials and shall be free of residual moisture.

1.13 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. Protect all surrounding areas and surfaces during application of the wall system.

B. Provide adequate protection on all unfinished wall assemblies to prevent water penetration behind the system.

1.14 MANUFACTURER'S REPRESENTATIVE

A. Contractor shall require the presence of a Technical Representative of the EIFS membrane manufacturer to provide field instructions and supervision during the duration of the work, as required by the manufacturer for a guaranteed job.

B. In addition, Design Professional may require the presence of the Technical Representative of the EIFS manufacturer, as necessitated by the work progress.

C. The Technical Representative shall be employed by the EIFS manufacturer.

1.15 GUARANTEES AND MAINTENANCE

A. Provide Manufacturer’s Standard EIFS System Warranty for covering labor and material for a minimum period of ten (10) years.

PART 2 – MATERIALS

2.01 EXTERIOR INSULATION AND FINISH SYSTEM (EIFS) MANUFACTURERS

A. All components of the EIFS specified shall be obtained from the manufacturer or its approved distributors.

B. Performance Requirements:

1. Accelerated Weathering (ASTM G153/G155): Pass
2. Freeze-Thaw Resistance (ASTM E2485): Pass
3. Water Penetration (ASTM E331): Pass

C. Materials distributed by the following EIFS materials manufacturers and otherwise conforming with these specifications are acceptable:

1. Manufacturers:
   a. Sto Corporation; Atlanta, GA (Basis of Design)
   b. Dry-Vit Systems, Inc.; West Warwick, RI
   c. Parex, Inc., Anaheim, CA

2.02 AIR AND MOISTURE BARRIER

A. A ready-mixed flexible waterproofing air barrier membrane that can be utilized as part of the EIFS assembly and allow the board insulation to be adhered to the air and moisture barrier.

B. Performance Requirements:

1. Durability (ASTM E1233/E72/E331): No cracking or water penetration
2. Water Resistance (ASTM D2247): No deleterious effects
3. Water Vapor Transmission (ASTM E96, Method B): > 10 perms
4. Air Leakage (ASTM E2178): </= 0.004 cfm/ft^2 at 1.57 psf
5. Air Leakage (ASTM E2357): </= 0.04 cfm/ft^2 at 1.57 psf
6. Freeze-Thaw (ASTM E2485): No delamination or surface changes
7. Tensile Bond (ASTM C297): Greater than 15 psi

C. Accessories:

1. Joint Treatment – Manufacturer’s joint treatment used with or without reinforcing mesh.
2. Detail Flashing – Manufacturer’s trowel or knife-grade transition material for use with mesh as transition at flashing, windows, mechanical penetrations and at system terminations.
3. Tape - Fabric-faced, self-adhesive modified asphaltic flashing tape for use with fluid applied waterproof coating for transition at flashing, windows, mechanical penetrations and at system terminations.
4. Fabric - Non-woven fabric tape for use with fluid-applied waterproof air barrier coating as a transition element by embedment of the fabric into fluid-applied coating.

D. Products:
   a. Sto Corporation; Atlanta, GA (Gold Coat or Emerald Coat)
   b. Dry-Vit Systems, Inc.; West Warwick, RI (Backstop NT)
   c. Parex, Inc., Anaheim, CA (WeatherSeal)

2.03 ADHESIVE

A. A lightweight factory blended one-component polymer modified Portland cement based high

build adhesive approved for use with the specified insulation board and air and moisture barrier.

2.04 INSULATION BOARD

A. Expanded Polystyrene (EPS): Insulation board conforming to ASTM E2430 and ASTM C578, Type I requirements.

B. Dimensional Requirements as recommended by EIFS manufacturer.

1. Thickness: 2”, or as required to match the existing EIFS thickness.
2. Edge Trueness: Unless otherwise specified and approved, the insulation and finish system manufacturer, insulation board shall be furnished with true edges. Edges shall not deviate more than 1/32” in 12”.
3. Face Flatness: Insulation board shall be furnished flat and shall not exhibit any bowing of more than 1/32” in the length.
4. Squareness: Insulation board shall not deviate from squareness by more than 1/32” in 12” of total length or width.

2.05 BASE COAT

A. Factory blended one component polymer modified cement based high build base coat.

B. Products
   a. Sto Corporation; Atlanta, GA (BTS Plus or BTS Xtra)
   b. Dry-Vit Systems, Inc.; West Warwick, RI (Genesis DM or Primus DM)
   c. Parex, Inc., Anaheim, CA (Parex 121)

2.06 REINFORCING MESHES

A. Standard Impact Mesh

1. Nominal 4.5 oz./yd^2, symmetrical, interlaced open-weave glass fiber fabric made with alkaline resistant coating for compatibility with EIFS materials.

B. Ultra-High Impact Mesh

1. Nominal 15 oz./yd^2, high impact, double strand, interwoven, open-weave glass fiber fabric with alkaline resistant coating for compatibility with EIFS materials.

C. Specialty Meshes

1. Detail Mesh - Nominal 4.2 oz/yd^2, flexible, symmetrical, interlaced glass fiber fabric, with alkaline resistant coating for compatibility with EIFS materials. Used for standard EIFS backwrapping, aesthetic detailing, and reinforcement of sheathing joints and protection of rough openings with air and moisture barrier.

2.07 PRIMER

A. EIFS manufacturer’s acrylic based tintable primer for spray application. For roller applications a sanded primer can be utilized.

2.08 FINISH COAT

A. Factory blended, 100% acrylic polymer based elastomeric textured finish, integrally colored by EIFS manufacturer.

1. Finish Type: To match existing.
2. Texture: To match existing.
3. Color: To match existing.

B. Products
1. Sto Corporation; Atlanta, GA (Essence DPR)
2. Dry-Vit Systems, Inc.; West Warwick, RI (DPR Finish)
3. Parex, Inc., Anaheim, CA (Standard DPR Acrylic Finish)

2.09 JOB MIXED INGREDIENTS

A. Water: Clean and potable.

2.10 AUXILIARY MATERIALS

A. Drainage Strip: A corrugated high impact polystyrene material, which is used to provide drainage at the base of walls, heads of windows and floor line expansion joints.

2.11 REJECTED MATERIALS

A. The Design Professional shall have the right to inspect all materials brought to or stored at the job site. Those materials which do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person designated by the Contractor to be the lead on-site supervisor. The verbal notification to be by the Design Professional, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 INSPECTION

A. A pre-job conference including the Design Professional, Owner's Representative, Contractor, the manufacturer's representative and all involved trades shall be conducted prior to commencement of the EIFS work.

B. Examine the substrate and the conditions under which the work is to be performed. Do not proceed until unsatisfactory conditions have been corrected as required for the material application and in accordance with the material manufacturer’s specifications and requirements. Surfaces to receive EIFS material components are to be clean, even, smooth, dry and free from defects and projections which might adversely affect the application.

C. Notify the Design Professional in writing to all conditions which may adversely affect the installation and/or performance of the EIFS system prior to commencing with the work. Proceed with installation only after unsatisfactory conditions have been corrected. Application of any part of the EIFS shall indicate acceptance of the wall surface and acknowledgment of full responsibility for the quality and durability of the EIFS.

D. Inclined surfaces shall have a minimum slope of six inches (6”) of vertical rise in 12” of horizontal run. For sloped surfaces, run of slope shall be a maximum of 12”.

E. Contractor shall verify that work penetrating the wall, or which may otherwise affect the EIFS has been properly completed.

3.02 PREPARATION

A. Remove surface contaminants on concrete, concrete masonry, gypsum sheathing, or coated gypsum sheathing surfaces.

B. Level surfaces to comply with required tolerances.

C. Apply conditioner by sprayer or roller to chalking or excessively absorptive surfaces.

D. Fill large gaps between sheathing and voids around pipe, conduit, scupper, and similar penetrations with spray foam and shave flush with surface.

3.03 INSTALLATION

A. General:

1. Installation shall be performed in accordance with EIFS manufacturer’s published instructions.

B. Air and Moisture Barrier Installation:

1. Transition Detailing – Detail transition areas, rough openings, penetrations, etc. with the specified air and moisture barrier system.
2. Sheathing Joint Treatment – Treat all sheathing joints with the manufacturer’s joint treatment material.
3. Fastener Head Treatment – Treat all fasteners heads, if required by the manufacturer, with the manufacturer’s air and moisture barrier flashing material.
4. Air and Moisture Barrier Installation:
   a. Spray or roller apply the air and moisture barrier coating. During the application, the coating wet mil thickness shall be checked periodically with a wet mil thickness gauge.
   b. Protect the air and moisture barrier from weather (i.e. rain, mist, freezing temperatures, etc.) until it has cured.
5. Flashing Conditions – At flashing conditions, after the installation of the flashing component (i.e. sheet metal, PVC, etc.) apply additional air and moisture barrier material and reinforcing mesh over the concealed flange of the flashing material.

C. Backwrapping:

1. Apply a strip of detail mesh to the dry air and moisture barrier at all system terminations (windows, doors, expansion joints, etc.) except where the Starter Track is installed. The mesh must be wide enough to adhere approximately 4 inches of mesh onto the wall, be able to wrap around the insulation board edge and cover a minimum of 2 1/2 inches on the outside surface of the insulation board. Adhere

mesh strips to the air and moisture barrier and allow them to dangle until the backwrap procedure is completed. Alternatively, pre-wrap terminating edges of insulation board.

2. Complete the backwrapping procedure by applying base coat to exposed edges of insulation board and approximately 4 inches onto the face of the insulation board. Pull mesh tight around the board and embed it in the base coat with a stainless-steel trowel. Use a corner trowel for clean, straight lines. Smooth any wrinkles or gaps in the mesh.

D. Insulation Board Installation:

1. Adhesive Application:

a. Application of insulation board shall start at the base of the wall from a level line of support.
b. Apply adhesive to the back of the insulation board with the proper size (as recommended by the EIFS manufacturer) stainless-steel notched trowel. Apply uniform ribbons of adhesive parallel with the SHORT dimension of the board so that when boards are placed on the wall the ribbons will be VERTICAL. Apply adhesive uniformly so ribbons of adhesive do not converge. Make sure ribbons of adhesive are full and reach the edges of the insulation board.
c. Immediately place insulation boards in a running bond pattern on the wall with the long dimension horizontal. Start by inserting the lower edge of the boards inside the starter track at the base of the wall until they contact the bottom of the track. Apply firm pressure over the entire surface of the boards to ensure uniform contact of adhesive. Bridge sheathing joints by a minimum of 6 inches. Interlock inside and outside corners.
d. Butt all board joints tightly together to eliminate any thermal breaks in the EIFS. Care must be taken to prevent any adhesive from getting between the joints of the boards.
e. Cut insulation board in an L-shaped pattern to fit around openings. Do not align board joints with corners of openings.
f. Remove individual boards periodically while the adhesive is still wet to check for satisfactory contact with the substrate and the back of the insulation board, and for spacing between ribbons of adhesive. An equal amount of adhesive must be on the substrate and the board when they are removed, as an indication of adequate adhesion. Do not use nails, screws, or any other type of non-thermal mechanical fastener.
g. Allow insulation board and adhesive to dry for 24 hours.

E. Slivering and Rasping of Insulation Board Surface:

1. EPS insulation board exposed to sunlight will develop a powdery residue on the surface. This residue must be entirely removed by rasping the surface.
2. After insulation boards are firmly adhered to the substrate, fill any open joints in the insulation board layer with slivers of insulation or closed-cell spray foam insulation. Use spray foam that is identified by the spray foam manufacturer as suitable for this use.

3. Rasp the insulation board surface to achieve a smooth, even surface and to remove any ultraviolet ray damage.

F. Trim, Reveals and Projecting Aesthetic Features:

1. Attach features and trim, where designated on drawings, with adhesive to the insulation board or sheathing surface. Slope the top surface of all trim/features minimum 1:2 (27°) and the bottom of all horizontal reveals minimum 1:2 (27°).
2. Cut reveals/aesthetic grooves with a hot-knife, router or groove-tool in locations indicated on drawings.
3. Offset reveals/aesthetic grooves minimum 3 inches from insulation board joints.
4. Do not locate reveals/aesthetic grooves at high stress areas such as corners of windows, doors, etc.
5. A minimum 3/4-inch thickness of insulation board must remain at the bottom of the reveals/aesthetic grooves.

G. Base Coat and Reinforcing Mesh Application:

1. Backwrapping of exposed edges of insulation board shall be completed prior to application of reinforcing mesh and basecoat/adhesive to the field of insulation board.
2. Insulation board shall be flat, clean and free of any deleterious material before base coat is applied.
3. Apply minimum 9” x 12” inch diagonal strips of detail mesh at corners of windows, doors, and all penetrations through the system. Embed the strips in wet base coat and trowel from the center to the edges of the mesh to avoid wrinkles.
4. Apply detail mesh at trim, reveals and projecting architectural features. Embed the mesh in the wet base coat. Trowel from the base of reveals to the edges of the mesh.
5. High impact mesh application (required 6’ above grade and where indicated on project drawings): Apply base coat over the insulation board with spray equipment or a stainless-steel trowel to a uniform thickness of approximately 1/8 inch. Work horizontally or vertically in strips of 40 inches and immediately embed the mesh into the wet base coat by troweling from the center to the edge of the mesh. Butt the mesh at seams. Allow the base coat to dry.
6. Standard mesh application: Apply base coat over the insulation board, including areas with Ultra-High impact mesh, with spray equipment or a stainless-steel trowel to a uniform thickness of approximately 1/8 inch. Work horizontally or vertically in strips of 40 inches, and immediately embed the mesh into the wet base coat by troweling from the center to the edge of the mesh. Overlap mesh not less than 2 1/2 inches at mesh seams and at overlaps of detail mesh. Feather seams and edges. Double wrap all inside and outside corners with minimum 2 ½-inch overlap in each direction. Avoid wrinkles in the mesh. The mesh must be fully embedded so that no mesh color shows through the base coat when it is dry. Re-skim with additional base coat if mesh color is visible.
7. Sloped Surfaces: Trim, reveals, aesthetic bands, cornice profiles, sills or other architectural features that project beyond the vertical wall plane more than 2 inches, apply waterproof base coat with a stainless-steel trowel to the weather exposed sloped surface and minimum four inches above and below it. Embed standard mesh or detail mesh in the waterproof base coat and overlap mesh seams a minimum of 2 1/2 inches.

8. Allow base coat to thoroughly dry before applying primer or finish.

H. Primer Application:

1. Apply primer evenly with brush, roller or proper spray equipment over the clean, dry base coat and allow to dry thoroughly before applying finish.

I. Finish Coat Application:

1. Apply finish directly over the base coat or primed base coat when dry (minimum of 24 hours). Apply finish by spraying or troweling with a stainless-steel trowel, depending on the finish specified on approved samples. Follow these general rules for application of finish:

   a. Avoid application in direct sunlight.
   b. Apply finish in a continuous application, and work to an architectural break in the wall.
   c. Weather conditions affect application and drying time. Hot or dry conditions limit working time and accelerate drying. Adjustments in the scheduling of work may be required to achieve desired results; cool or damp conditions extend working time and retard drying and may require added measures of protection against wind, dust, dirt, rain and freezing. Adjust work schedule and provide protection.
   d. Do not install separate batches of finish side-by-side. Use sufficient manpower and equipment to insure a continuous operation, always maintain a wet edge to insure a uniform appearance.
   e. Do not apply finish into locations where sealant is to be applied or over sealant joints. Apply finish to outside face of wall only.
   f. Do not apply finish over irregular or unprepared surfaces, or surfaces not in compliance with the requirements of the project specifications.

J. Mixing:

1. General: Mix the adhesive, base coat, finish coat, etc. in accordance with the manufacturer's recommendations.

2. Adhesive and Base Coat Mixture: Pre-blended base coat and adhesive shall not have Portland cement added to the mixture. Mix by adding water to a clean mixing pail, the adding the pre-blended material and mix to a uniform consistency and allow to set for approximately 5 minutes. Adjust the mix, if necessary, as recommended by the manufacturer and remix to a uniform trowel consistency. Avoid retempering. Keep mix ratio consistent. Do not exceed the manufacturer's maximum recommended amount of water in the mix ratio.

3. Mix base coat and adhesive per manufacturer's instructions.

4. Wood Adhesive: Mix briefly with 1/2" clean, rust-free paddle until smooth consistency is achieved.

5. Finishes: Mix in original container using 1/2", heavy-duty drill with clean, rust-free paddle until material is uniform. Small amounts of water may be added to assist

workability. Any water added to finish must be measured and repeated with each pail to ensure color and texture consistency. Follow manufacturer's instructions.

K. Protection:

1. Promptly flash and/or seal system terminations to prevent water infiltration. Immediately cover top of walls to prevent water infiltration. Provide protection of installed materials from water infiltration into or behind them.

2. Provide protection of installed materials from dust, dirt, precipitation, freezing and continuous high humidity until they are fully dry.

3.04 EIFS RESURFACING

A. General: Installation shall be performed in accordance with EIFS manufacturer's published instructions.

B. Inspection: Inspect the EIFS surface for any damage or deterioration that requires full depth repairs and notify Design Professional with locations and quantities of damage or deterioration that requires full depth repairs.

C. Cleaning: Remove dirt, algae or any other surface contamination. Generally, a trisodium phosphate detergent shall be utilized to remove dirt with the addition of bleach as necessary to remove algae or mildew. All cleaning shall be completed as recommended by the EIFS manufacturer.

D. Repairs: Prior to the resurfacing the EIFS, repair any minor surface repairs (i.e. cracks, impacts, holes, etc.) per the manufacturer's recommendations.

E. Apply base coat to the entire surface with a stainless-steel trowel to a uniform thickness of approximately 1/8". Work horizontally or vertically in strips of 40" and immediately embed the mesh into the wet base coat by troweling from the center to the edge of the mesh. Overlap mesh not less than 2-1/2" at mesh seams and feather seams and edges. Allow to dry.

F. Apply finish coat with stainless-steel trowel to a rough thickness slightly more than the largest aggregate size. Use the trowel to scrape down to a uniform thickness no greater than the largest aggregate size. Achieve final texture by floating with a trowel in a figure eight motion. Use a plastic float for a rilled texture finish. The finish texture is to match the existing finish texture.

3.05 SEALANT JOINT REPLACEMENT

A. General: Replacement shall be performed in accordance with EIFS manufacturer's and sealant manufacturer's published instructions.

B. Sealant Removal:

1. Slice along the terminating edges of the distressed sealant with a sharp knife to separate the sealant from the EIFS finish or base coat material. Take care not to cut into the EIFS materials.

2. Pull the sealant and backer rod material from the joint. Remove the EIFS finish coat (if present in the joint) by grinding with a handheld grinder or by softening with a water-based gel type paint remover and then scraping to remove it. Take care not to damage the EIFS finish on the face of the wall. Mask the wall surface if using a gel type paint remover.

3. Remove residue of sealant in the joint by grinding with a handheld grinder, taking care not to damage the EIFS finish on the face of the wall, or to grind through the layer of base coat in the joint and damage the EIFS reinforcing mesh.

G. EIFS Repair:

1. Brush or blow away dust on the joint surfaces with oil-free compressed air.

2. Apply skim coat of base coat to the prepared joint surfaces to create a smooth surface free of ridges such that it completely hides the reinforcing mesh color. Avoid heavy applications of base coat. A thin coat, approximately 1/32” is sufficient. Protect base coat from rain and freezing until dry.

H. Sealant Joint Application:

1. Brush or blow the joint surface clean with oil-free compressed air. Mask adjacent EIFS finish on the face of the wall. The prime with the sealant manufacturer’s primer, if required, and allow to dry.

2. Install closed cell backer rod to the proper depth in the joint.

3. Apply sealant joint and tool to ensure intimate contact with the joint surfaces. See Section 07 92 00 Joint Sealants for sealant joint type required.

3.06 WORKMANSHIP, FINISH, AND APPEARANCE AT TIME OF DELIVERY

A. Defects: Insulation board shall have no defects that will adversely affect its service qualities. It shall be of uniform texture, and free from foreign inclusions, broken edges or corners, slits or objectionable odors.

B. Crushing and Depressions: Insulation board shall have no crushed or depressed areas on any surface exceeding 1/16” in depth on more than 5% of the total surface area.

C. Voids: Insulation board shall have no more than 8 voids having dimensions larger than 1/8” x 1/8” per 8 sq. ft. of surface area.

3.07 COMPLETION

A. Correction of Work

1. Work which does not conform to specified requirements including tolerances, slopes and finishes shall be corrected and/or replaced as directed by Owner's Representative at Contractor's expense without extension of time. Contractor shall also be responsible for cost of correction to any work affected by or resulting from

corrections to work of this section.

B. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to pre-construction condition.

All landscaped areas affected by construction activities shall be raked clean, seeded, or restored to pre-construction condition.

C. All manufacturers' on-site inspection reports shall be submitted prior to final payment.

D. All guaranties, as required in Part 1 of this specification, shall be submitted for approval prior to final payment.

END OF SECTION 07 24 19 – WATER-DRAINAGE EXTERIOR INSULATED FINISH SYSTEMS

07 31 13
ASPHALT SHINGLES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1 - General Requirements, are included as part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Work of this section shall provide Owner with (1) functional weathering surface by applying a asphalt shingles over the properly prepared substrate; (2) appropriate flashings at roof perimeter and roof penetration conditions.

B. This Section includes the following:

1. Asphalt shingles.
2. Self-Adhering Underlayments
3. Miscellaneous shingle accessories

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and Contractor.

1. N/A

1.04 RELATED SPECIFICATIONS

Division 1	General Requirements
02 41 19	Selective Demolition
06 10 53.01	Rough Carpentry for Roofing
07 53 23	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
07 54 00	Thermoplastic Membrane Roofing
07 62 00	Sheet Metal Flashing and Trim
07 72 00	Roof Accessories
26 41 13	Lightning Protection for Structures
32 92 00	Turfs and Grasses

1.05 REFERENCES

A. American Society of Testing and Materials (ASTM)

1. A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
2. D225 – Standard Specification for Asphalt Shingles (Organic Felt) Surfaced With Mineral Granules
3. D226 – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing

and Waterproofing
4. D1079 – Standard Terminology Relating to Roofing and Waterproofing
5. D1970 – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
6. D3161 – Standard Test Method for Wind-Resistance of Steep Slope Roofing Products (Fan-Induced Method)
7. D3462 – Standard Specification for Asphalt Shingles Made from Glass and Surfaced with Mineral Granules
8. D4586 – Standard Specification for Asphalt Roof Cement, Asbestos-Free
9. D4869 – Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing
10. D6757 – Standard Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing
11. D7158 – Standard Test Method for Wind Resistance of Asphalt Shingles (Uplift Force/Uplift Resistance Method)
12. E108 – Standard Test Methods for Fire Tests of Roof Coverage
13. F1667 – Standard Specification for Driven Fasteners: Nails, Spikes, and Staples

B. Asphalt Roof Manufacturers Association (ARMA)

1. Residential Asphalt Roofing Manual

C. National Roofing Contractors Association (NRCA)

1. The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing
2. The NRCA Roofing Manual: Steep-Slope Roof Systems

D. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

1. Architectural Sheet Metal Manual.

E. Underwriters Laboratories (UL)

1. UL790 – Standard Test Methods for Fire Tests of Roof Coverings
2. UL2218 – Standard for Impact Resistance of Prepared Roof Covering Materials

1.06 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "*The NRCA Roofing and Waterproofing Manual*" for definitions of terms related to roofing work in this Section.

1.07 PERFORMANCE REQUIREMENTS

A. General: Provide installed asphalt shingle roofing system and flashings that remain watertight; do not permit the passage of water; and resist specified wind speed requirements, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required as demonstrated by roofing shingle manufacturer based on testing and field experience.

C. Wind Up-Lift and Hail Characteristics: Provide a shingle roof system that has been tested in accordance with ASTM D7158 – Classification H OR ASTM D3161 - Classification F.

D. Fire-Test Response Characteristics: Provide roofing materials with the fire-test response characteristics indicated as determined by testing identical products per ASTM E108 or UL790 for the roof slopes on this project. Identify materials with appropriate markings of applicable testing and inspecting agency.

Exterior Fire-Test Exposure: Class A – For the slopes required for this project.

1.08 REUTILIZED MATERIALS

The following items shall be assumed to be fully salvageable and reusable:

1. N/A

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

1. Submit specifications, installation instructions, and general recommendations from roofing materials manufacturers for type of roofing required. Include data substantiating that materials comply with requirements of this specification, inclusive of accelerated weathering data.

B. Shop Drawings:

1. Flashing Conditions: Submit shop drawings showing all roof flashing conditions, including but not limited to gutters, perimeter conditions, roof penetration conditions, expansion joints, etc.

C. Product Samples:

1. Asphalt Shingle: Full size asphalt shingle strip.
2. Self-Adhering Underlayment: 12-inch square sample.
3. Ridge and Hip Caps: Full size ridge and hip cap.
4. Nails: 10

D. Material Safety Data Sheets (MSDS):

1. Submit an MSDS sheet for each material that will be utilized on-site.

E. Manufacturer Certification:

1. Submit certification signed by asphalt shingle manufacturer stating that contractor is approved, authorized, or licensed to install roofing system indicated.

F. Sample Warranty:

1. Submit copy of warranty from the roof system manufacturer.

1.10 QUALITY ASSURANCE

A. Contractor Qualifications:

1. The contractor must be approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product that is eligible to receive the specified warranty.

2. The contractor shall have installed a minimum of three (3) projects within the last five (5) years similar in scope to this project.

B. Manufacturer Qualifications:

1. The roof system manufacturer shall have manufactured the specified roofing materials for a minimum of 10-years.

C. Source Limitations: Obtain each roofing shingles, flashing materials, underlayments, ridge caps, hip caps, and accessories from a single manufacturer for each product required, unless approved by the Design Professional.

D. Roofing Standard: Comply with The NRCA Roofing Manual: Steep-slope Roof Systems and the ARMA – Residential Asphalt Roofing Manual, unless more stringent requirements are required by the Contract Documents.

E. Sheet Metal Standard: Comply with the requirements of the SMACNA Architectural Sheet Metal Manual, unless more stringent requirements are required by the Contract Documents.

1.11 DELIVERY, STORAGE, AND HANDLING

A. All products delivered to the site shall be in the original unopened containers, wrappings, or crating. Storage areas will be defined by Design Professional.

B. Average live loads on the roof during the work shall not exceed twenty (20) pounds per square foot at any time.

C. Handle all materials to prevent damage. Store materials elevated sufficiently off the ground and fully protected from moisture. Materials shall be secured in a safe manner to prevent damage. Roll goods shall be stored on end. Material shall be covered with opaque tarps, secured to prevent displacement by wind forces.

D. Store temperature susceptible materials in a dry and heated area between 60° F and 80° F. If exposed to lower or higher temperatures, the material shall be discarded and new material provided at no cost to the Owner.

E. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Closely follow precautions/instructions outlined on container or supplied by manufacturer/supplier (MSDS sheets).

1.12 WEATHER LIMITATIONS ON WORK

A. Roofing work shall not be done during precipitation and shall not be started in the event there is a high probability of precipitation during the ongoing work.

B. At ambient temperatures of 40 degrees F and below, including wind-chill, precautions must be taken to ensure that temperature-susceptible materials maintain their minimum acceptable temperature at the point of application as recommended by the roofing materials manufacturer.

C. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit asphalt shingles and underlayments to be performed according to manufacturer's written instructions and warranty requirements.

1.13 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. Roofing Contractor shall implement all necessary precautions to prevent debris or materials/equipment from becoming airborne due to wind conditions anticipated at the site. All roof removal materials shall be removed from the roof by an enclosed chute to the ground level. Contractor shall conform to all regulations and precautions as required by applicable safety organizations.

1.14 MANUFACTURER'S REPRESENTATIVE

A. Roofing Contractor shall require the presence of a Technical Representative of the roofing membrane manufacturer to provide field instructions and supervision during the duration of the work, as required by the manufacturer for a guaranteed job.

B. In addition, Design Professional may require the presence of the Technical Representative of the roofing material manufacturer, as necessitated by the work progress.

C. The Technical Representative shall be employed by the roofing material manufacturer. We recommend the roofing material manufacturer designate one (1) Technical Representative for the duration of the project.

1.15 GUARANTEES AND MAINTENANCE

A. Asphalt Shingle Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace asphalt shingles that fail in materials or workmanship within specified warranty period. Material failures include manufacturing defects and failure of asphalt shingles to self-seal after a reasonable time.

1. Labor and Material: The manufacturer's extended labor and material warranty (non-prorated) for a period of 10 years from date of Contract Completion for manufacturing defect coverage. The warranty shall include materials and labor, tear-off, disposal, and workmanship.

2. Material Warranty Period: 50 years from date of Contract Completion, prorated, with first 10 years non-prorated.

3. Wind Speed Warranty Period: Asphalt shingles will resist blow-off or damage

caused by wind speeds up to 130 mph for 15 years from date of Substantial Completion.

4. Algae-Discoloration Warranty Period: Asphalt shingles will not discolor for 25 years from date of Contract Completion.

NOTE: The Effective Date of the Warranties shall not be prior to the date of Substantial Completion.

PART 2 - MATERIALS

2.01 GLASS FIBER REINFORCED ASPHALT SHINGLES

A. Oversized “Slate Appearance” Shingles: Laminated glass fiber reinforced asphalt shingle meeting ASTM D3462 or ASTM D225. The shingles shall be algae resistant granules, and the shingles shall be self-sealing.

1. Wind Resistance: ASTM D7158 – Class H or ASTM D3161 – Class F
2. Weight/Square: 240 lbs.
3. Shingle Size: 18” x 36”
4. Color: Basis of Design - Certainteed – Black Granite
5. Starter Shingle: Basis of Design – CertainTeed - “High-Performance Starter”; GAF - “WeatherBlocker”
6. Hip and Ridge Cap Shingles: Basis of Design – CertainTeed - “Cedar Crest”; GAF – “TimberTex”
7. Manufacturers:
   a. CertainTeed Corporation, Valley Forge, PA – Highland Slate Shingles – Basis of Design
   b. GAF Materials Corporation, Parsippany, NJ - Slateline

2.02 UNDERLAYMENT MATERIALS

A. Self-Adhering Sheet Underlayment: Self-adhering rubberized asphalt with a film laminated to the top surface. The material shall meet ASTM D1970.

1. Thickness: 40 mils
2. Exposure: 90 days, Minimum
3. Surface Color: Manufacturer’s standard
4. Manufacturers:
   a. CertainTeed Corporation, Valley Forge, PA – WinterGuard Pro or Grace Vycor Ice & Water Shield
   b. GAF Materials Corporation, Parsippany, NJ – StormGuard

2.03 AUXILIARY MATERIALS

A. Shingle Nails: 11- or 12-gauge shank diameter roofing nail with 3/8” diameter head with barbed/ring shank. The material shall meet ASTM F1667.
   1. Length: Sufficient to penetrate through wood sheathing a minimum of ¼” or into solid wood a minimum of ¾”
   2. Corrosion Protection: Hot-dipped Galvanized meeting ASTM A153 or Series 300 stainless steel

3. Manufacturers:
   a. Maze Nails, Peru, IL; Storm Guard.
   b. Paslode - Roofers Choice.
   c. Senco Brands, Inc., Cincinnati, OH - Weatherex II

B. Asphalt Roofing Cement: ASTM D4586, Type I or II; asbestos-free.

C. Lead Pipe Flashing: 4-pound lead sleeve sized to slip over and turn down into pipe, soldered to skirt at roof slope and extended 6” onto roof surface.

D. Hot Pipe Flashing: Galvanized steel flashing designed for use at hot-pipe locations and shall be sized for the size of the hot pipe.

E. Metal Lap Sealant; Polyisobutylene; extrudable sealant, non-migratory, nondrying, and non-skinning synthetic elastomer sealant. Comply with ASTM C919, ASTM E90, AAMA 809.2, or Federal Specification TTC-598-b Type 1.

1. Manufacturers
   a. Sika Corporation, Madison Heights, MI; Sikalastomer - 511
   b. Schnee-Morehead, Irving, TX; Acryl-R SM 5430
   c. Pecora Corp., Harleysville, PA – BA-98

F. Sealant: One or two component polyurethane-based, non-sag elastomeric sealant. Comply with ASTM C920, Type S, Grade NS, Class 25.

1. Use Locations: Exposed and concealed exterior sealant joints.

2. Color: To be selected by Owner from manufacturer’s standard colors.

3. Manufacturers:

   a. BASF, Shakopee, MN – MasterSeal NP1 or NP2
   b. Sika Corp., Madison Heights, MI – Sikaflex 1a or 2c
   c. Schnee-Morehead, Irving, TX – Permathane SM 7108
   d. Pecora Corp., Harleysville, PA - DynaTrol I-XL

2.04 REJECTED MATERIALS

The Design Professional shall have the right to inspect all materials brought to or stored at the job site. Those materials which do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person designated by the Contractor to be the lead on-site supervisor. The verbal notification will be by the Design Professional, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 EXAMINATION

A. A pre-job conference including the Design Professional, Owner's Representative, the Contractor, the manufacturer's representative and all involved trades shall be conducted prior to commencement of the roofing work.

B. Examine substrates and conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected as required for the material application in accordance with the material manufacturer's specifications and requirements. Surfaces to receive roofing material components are to be clean, even, smooth, dry, and free from defects and projections which might adversely affect the application.

C. Notify the Design Professional in writing to all conditions which may adversely affect the installation and/or performance of the roof system prior to commencing with the work. Proceed with installation only after unsatisfactory conditions have been corrected. Application of any part of the roof system shall indicate acceptance of the roof surface and acknowledgement of full responsibility for the quality and durability of the roofing.

3.02 PREPARATION

A. All surfaces shall be swept clean prior to commencement of roof installation.

B. Roof Deck: All surfaces to receive new roofing materials shall be smooth and even without any protrusions.

C. Existing Flashing Components: Remove all existing flashing components of the roof's perimeter and penetrations, unless otherwise specified.

3.03 GENERAL

A. Application of the roofing products for installation shall be in accordance with the roofing material manufacturer's recommendations and additional requirements of the project specifications and drawings. Material manufacturer's recommendations related to weather (temperature, moisture, humidity), surface preparation, and shelf life must be observed. The effect on the performance of materials, as well as installation costs and production, must be considered.

B. Only install as much of the new roofing as can be made weather tight each day, including all flashing work.

C. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The building and its contents shall be protected against all risks.

D. All surfaces to receive new membrane or flashings shall be thoroughly dry. Should surface moisture occur, the Contractor shall provide the necessary equipment to dry the surface prior to application.

E. All new and temporary construction, including equipment and accessories, shall be secured in such a manner, at all times, as to preclude wind blow-off or wind damage.

F. Arrange work sequence to avoid use of newly constructed roofing for storage, walking surface, and equipment movement.

G. If any unusual or concealed condition is discovered, stop the work and provide written notification to the Design Professional immediately.

3.04 SELF-ADHERING UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer, if applicable. Install over entire roof area lapped in direction to shed water. Lap sides not less than 4 inches. Lap ends not less than 6 inches staggered 24 inches between courses. Self-adhering underlayment shall be extended vertically up walls 6" and turned down over any roof edges, as specified on the project drawings. Roll laps with roller. Cover underlayment within 90 days.

B. The manufacturer's recommended primer shall be utilized where recommended by the manufacturer or if the self-adhering underlayment is not achieving proper adhesion on the unprimed surface.

C. If the self-adhering underlayment surface film extends past the rubberized asphalt adhesive/waterproofing, it shall be trimmed off at intersecting overlaps to eliminate a point of water entry. In addition, it shall be removed at terminations such as roof edges, curbs, etc. to eliminate any potential noise issues during winds.

3.05 FLASHING INSTALLATION

A. General: Install flashings per the asphalt shingle manufacturer's requirements and recommendations and the Contract Documents.

B. Apron Flashings: Extend lower flange over and beyond each side of downslope asphalt shingles and up the vertical surface.

C. Rake Drip Edges: Install rake drip edge flashings over underlayment and fasten to roof deck.

D. Eave Drip Edges: Install eave drip edge flashings below underlayment and fasten to roof deck.

E. Step Flashings: Install step flashing between shingle courses at all rake-to-wall and curb penetration details.

F. Vent Pipe Flashing: Install pre-formed lead sleeve sized to slip over and turn down into pipe, soldered to flange at roof slope and extended at least 6" onto roof deck.

3.06 ASPHALT SHINGLE INSTALLATION

A. Install asphalt shingles according to manufacturer's installation instructions and the Contract Documents. If there are discrepancies between these requirements, the more stringent required (as determined by the Design Professional) shall govern.

B. Install starter strip along lowest eave edge and rakes with self-sealing strip face up and as recommended by the shingle manufacturer.

C. Extend asphalt shingles 1/2 inch over fascia at eaves and rakes.

D. Install first and remaining courses of asphalt shingles with manufacturer's recommended

offset pattern at succeeding courses, maintaining uniform exposure.

E. Fasten asphalt shingle strips with a minimum of five (5) roofing nails (unless manufacturer recommends a different number of fasteners) located according to manufacturer's written instructions. Fasteners shall be driven so the nail head is flush with surface of shingle.

1. Where slope is greater than 20:12, seal asphalt shingles with asphalt roofing cement spots.

2. When ambient temperature during installation is below 50° F, seal asphalt shingles with asphalt roofing cement spots at the rate recommended by the asphalt shingle manufacturer.

3.07 PROTECTION OF FINISHED WORK

A. Protect finished work.

B. Do not permit traffic over finished roof surface.

3.08 COMPLETION

A. Correction of Work

1. Work that does not conform to specified requirement including tolerances and finishes, shall be corrected and/or replaced as directed by the Design Professional, at Contractor's expense, without extension of time. Therefore, Contractor shall also be responsible for cost of corrections to any Work affected by or resulting from correction to work of this Section.

2. Rejection of Damaged Work

a. Roofing Contractor, jointly with Design Professional and roofing material manufacturer's representatives, shall investigate completed sections of work.
b. Damaged roofing components and work will be rejected.
c. Replace damaged roofing components or work with new brand materials. Replacement will be at Contractor's expense.

B. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to pre-construction condition.

All landscaped areas affected by construction activities shall be raked clean, seeded, or restored to pre-construction condition.

C. All manufacturers' on-site inspection reports shall be submitted prior to final payment.

D. All guaranties, as required in Part 1 of this specification, shall be submitted for approval prior to final payment.

END OF SECTION 07 31 13 - ASPHALT SHINGLES

07 53 23
ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Work of this section shall provide Owner with (1) a functional weathering surface by applying a fully adhered roof membrane system over specified insulation system; (2) appropriate flashings at roof perimeter and roof penetration conditions.

B. Items covered by this specification section:

1. Thermoset Single-Ply Membrane (EPDM)
2. Flashings
3. Fasteners
4. Accessories

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Owner's Representative and the Contractor.

1. N/A

1.04 RELATED SPECIFICATIONS

The work of this part shall be in accordance with the applicable requirements of the following:

Division 1	General Requirements
02 41 19	Selective Structure Demolition
05 30 23.01	Steel Deck Repair
06 10 53.01	Rough Carpentry for Roofing
07 22 16	Roof Insulation
07 24 19	Water-Drainage Exterior Insulation and Finish System
07 31 13	Asphalt Shingles
07 62 00	Sheet Metal Flashing and Trim

1.05 REFERENCES

A. American Society of Civil Engineers (ASCE)

1. Document ASCE 7-16, Minimum Design Loads for Buildings and Other Structures.

B. American Society of Testing and Materials (ASTM)

1. E108 – Standard Test Methods for Fire Tests of Roof Coverings.
2. C920 – Standard Specification for Elastomeric Joint Sealants
3. D1079 – Standard Terminology Relating to Roofing and Waterproofing
4. D4637 –
5. E108 – Standard Test Methods for Fire Tests of Roof Coverings.
6. F1667 – Standard Specification for Driven Fasteners: Nails, Spikes, and Staples

C. FM Global

1. Data Sheet 1-29 – Roof Deck Securement and Above Deck Components
2. Approval Standard 4450 – Approval Standard for Class 1 Insulated Steel Roof Decks
3. Approval Standard 4470 – Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction
4. Approval Standard 4474 – Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures
5. RoofNAV – FM Approvals On-Line Listing of Approved Roofing Products and Assemblies

D. National Roofing Contractors Association (NRCA)

1. The NRCA Roofing Manual: Membrane Roof Systems.

E. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

1. Architectural Sheet Metal Manual.

1.06 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Waterproofing Manual" for definition of terms related to roofing work in this section.

1.07 PERFORMANCE REQUIREMENTS

A. General: Installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure. The roof system and system components shall comply with requirements in FM Approvals of 4450 and 4474, current editions.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. Wind Up-Lift and Hail Characteristics: Provide a membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressures and hail as listed below. The perimeter and corner areas shall be prescriptively enhanced in accordance with the current edition of FM Global Loss Prevention Data Sheet 1-29.

1. Field Wind Up-Lift Rating: 60 psf
2. Hail Resistance: SH

D. Fire-Test Response Characteristics: Provide roofing materials with the fire-test response characteristics indicated as determined by testing identical products per test method indicated below by UL, FM, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and slopes indicated.
2. Interior Fire-Test Exposure: Class 1

1.08 REUTILIZED MATERIALS

The following items shall be assumed to be fully salvageable and reusable:

1. N/A

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

1. Submit specifications, installation instructions, and general recommendations from roofing materials manufacturers for type of roofing required. Include data substantiating that materials comply with requirements of this specification, inclusive of accelerated weathering data.

B. Shop Drawings:

1. Flashing Conditions: Submit shop drawings showing membrane sheet layout, all roof flashing conditions, including but not limited to drains, perimeter conditions, roof penetration conditions, expansion joints, etc. The shop drawings must be reviewed and approved by the roof system manufacturer to ensure the completed installation will meet the manufacturer’s warranty requirements.

2. Wind Uplift Securement: Provide roof plan(s) marked-up to indicate extent of roof corner and roof perimeter areas, inclusive of fastener spacing/density. This drawing must be reviewed and approved by the roof system manufacturer to assure the completed installation will meet the manufacturer’s warranty requirements and the Performance Requirements listed in this specification.

C. Product Samples:

1. Roof Membrane - Sample size 6" x 6".
2. Mechanical Anchors and accessories.
3. Slip or separation layers.
4. Vapor Barriers/Retarders.

5. Prefabricated items.

D. Material Safety Data Sheets (MSDS):

1. Submit an MSDS sheet for each material that will be utilized on-site.

E. Submit the RoofNAV number, DORA assembly number, or other laboratory test reports that shows the roof system complies with the performance requirements listed in the specification.

F. Manufacturer Certification:

1. Manufacturer shall provide written evidence that he has reviewed the project specifications and drawings and will provide a warranty that complies with the requirements listed in Section 1.15 Guarantee upon completion of the project in accordance with the manufacturer's current technical specifications.

2. Submit written approval from roof membrane manufacturer for use, performance, and compatibility of the roof insulation and products in the proposed system.

3. Submit written statement of roof membrane manufacturer that Contractor has experience in the application of specified roof system, and the Contractor is approved by membrane manufacturer to install the roof system and receive the specified warranty. The project foreman and at least two (2) assistants must have attended and passed the manufacturer's installation course.

4. Certify that roof system meets all specified Performance Requirements.

5. The roof system manufacturer shall submit written certification that the roof system manufacturer has reviewed the fastener and/or adhesive field-testing results and the pull-out/pull-off resistance is sufficient to meet the specified wind uplift rating and manufacturer's warranty requirements.

G. Contractor Certification:

1. Contractor shall submit to the Design Builder a copy of the manufacturer's "Pre-installation Notice" (PIN) for review and acceptance prior to ordering materials for the project.

H. Sample Warranty:

1. Submit copy of warranty from the roof system manufacturer.

I. Field Testing:

1. Perform fastener pull-out tests in accordance with ANSI/SPRI FX-1 for each type of fastener that is required. Submit written evidence of the fastener pull-out tests of deck and/or wall substrate(s) to show compliance with this specification.

1.10 QUALITY ASSURANCE

A. Contractor Qualifications:

1. The contractor must be approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product that is eligible to receive a manufacturer's 20 year no-dollar-limit warranty.

2. The contractor shall have installed a minimum of three (3) projects within the last five (5) years.

3. The project foreman and at least two (2) assistants must have attended and passed the manufacturer's installation course. Evidence of completion of the manufacturer's training must be presented prior to the start of the project.

B. Manufacturer Qualifications:

1. The roof system manufacturer shall have manufactured the specified membrane material for a minimum of 10-years without a change in the basic material formulation.

2. The roof system manufacturer shall have a training program that all contractors must attend prior to installing the specified roof system.

3. The manufacturer must demonstrate that they have an adequate warranty fund to cover possible future warranty claims.

1.11 DELIVERY, STORAGE, AND HANDLING

A. All products delivered to the site shall be in the original unopened containers or wrappings.

B. Average live loads on the roof during the work shall not exceed twenty (20) pounds per square foot at any time.

C. Handle all materials to prevent damage. Store materials elevated sufficiently off the ground and fully protected from moisture. Materials shall be secured in a safe manner to prevent damage. Material shall be covered with opaque tarps, secured to prevent displacement by wind forces.

D. Store temperature susceptible materials in a dry and heated area between 60 degrees F and 80 degrees F. If exposed to lower or higher temperatures, the material shall be discarded and new material provided at no cost to the Owner.

E. Materials determined by the Owner's Representative to be damaged or to have been subjected to adverse conditions shall be removed and replaced at Contractor's expense.

F. Membrane rolls shall be stored in a way to prevent roll deformation by excessive stacking.

G. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Closely follow precautions/instructions outlined on container or supplied by manufacturer/supplier (MSDS sheets).

1.12 WEATHER LIMITATIONS ON WORK

A. Roofing work shall not be done during precipitation and shall not be started in the event there is a high probability of precipitation during the ongoing work.

B. At ambient temperatures of 40 degrees F and below, including wind-chill, precautions must be taken to ensure that temperature-susceptible materials maintain their minimum acceptable temperature at the point of application as recommended by the roofing materials manufacturer.

1.13 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. Contractor shall implement all necessary precautions to prevent debris or materials/equipment from becoming airborne due to wind conditions anticipated at the site. All roof removal materials shall be removed from the roof by an enclosed chute to the ground level. Roofing Contractor shall conform to all regulations and precautions as required by applicable safety organizations.

B. All methods employed in performing the work, and all equipment, tools, and machinery used for handling materials and executing any part of the work, shall be subject to the approval of the Design Professional before the work is started, and whenever found unsatisfactory, shall be changed and improved as required.

C. Roofing System:

1. Solvents, adhesives, and primers used in the application of single-ply roofing systems are extremely flammable and/ or toxic. Provide any and all crewmembers with appropriate safety data information and training as provided by the roofing materials manufacturer. Provide each crew member with appropriate training as it relates to the specific chemical compound he/she may be expected to deal with. Each crewmember shall be fully aware of first-aid measures to be undertaken in case of accidents, etc.

2. Various single-ply roofing membranes tend to change their material properties when exposed to sunlight and/or heat. Change in the physical properties can result in elimination or at least reduction of the apparent weld ability of a particular roof membrane material. It is critical to closely follow the roofing material manufacturer's recommendations and requirements as to material seaming.

D. Protection:

1. General: Protection against staining and mechanical damage shall be provided for adjacent roof and other surfaces during the application of the roofing. Provide working platforms and traffic walkways where necessary.

2. Against Loads:

a. Do not store material/equipment on completed work of this section. Where due to work sequence storage of material/equipment on completed sections is required, protect work of this section against damage. Protection shall consist of plywood boards or similar material, and shall take into consideration the material characteristics of both the roof membrane and the

roof insulation.

3. Against Traffic:

a. Traffic is not permitted across completed sections of the roof, except for workmen performing the work.

b. Where, due to work sequencing, traffic is required, traffic paths shall be clearly defined, and completed roofing shall be protected with plywood boards or similar material. Protection shall take into consideration the material characteristics of both the roof membrane and the roof insulation.

c. At locations where the existing roof system will be heavily trafficked, such as pathways for material removal and /or material distribution, the existing roof system shall be protected. Protection shall consist of foam insulation of sufficient thickness to prevent roof membrane punctures. The insulation shall be overlaid with plywood boards. The pathway shall be constructed in a fashion to prevent displacement by wind. Any deviation from this requirement shall be at the Owner/Owner's Representative's absolute discretion.

E. All activities shall be performed in a way to provide Owner with an immediate watertight roof system at all times during construction. It is the Contractor's responsibility to prevent construction-related leaks.

F. The majority of the work is over occupied space. Every precaution must be taken to protect the building occupants, the general public, and the contents/products stored in the building. The removal and replacement of the roof system shall be completed on specific roof sections and/or areas at such times as authorized by the Owner's Representative. All other operations which produce loud noises, and/or have the potential for injury incidents from falling objects, shall also be confined to non-operating hours. All project-related interior debris, interior covering, equipment, etc. shall be removed and the interior shall be brought to like cleanliness condition prior to operating hours, inclusive of cleaning debris from above ceiling tile grids unless other arrangements are made for final cleaning operations. It is the Contractor's responsibility to monitor and protect the interior and occupants of the building at all times during construction.

G. Coordinate all roofing work closely with Design Professional as it relates to work going through the roof deck and/or affecting the roof deck and/or the roof system. Roofing work will be performed where identified in the project specifications and drawings, in strict accordance with the various roofing material manufacturer's installation instruction requirements and recommendations.

H. Closely inspect any uncovered condition and alert Owner or his Representative to any condition which may interfere with the performance of the new roof membrane system, inclusive of flashings. All work and activities shall be completed in such a manner to provide Owner with a watertight roof system.

1.14 MANUFACTURER'S REPRESENTATIVE

A. Contractor shall require the presence of a Technical Representative of the roofing

membrane manufacturer to perform inspections and provide field instructions during the duration of the work, as required by the manufacturer for a guaranteed job.

B. In addition, Owner's Representative may require the presence of the Technical Representative of the roofing material manufacturer, as necessitated by the work progress.

C. The Technical Representative shall be employed by the roofing material manufacturer. We recommend the roofing material manufacturer designate one (1) Technical Representative for the duration of the project.

1.15 GUARANTEE

A. MATERIAL MANUFACTURER'S RESPONSIBILITY:

1. The following warranty shall be in addition to and not in derogation of any other guarantees, warranties, or rights of the Owner against the contractor contained elsewhere in the agreement.

2. The Contractor shall furnish to the Owner, the Manufacturer's FULL SYSTEM 20-Year Warranty/Guaranty (the “Warranty”) against leaks and defects in materials and/or workmanship. The Warranty shall obligate Manufacturer, without cost to the Owner, to repair all leaks and defects in materials and/or workmanship in the Roof System (hereafter defined), including the replacement or repair of any materials and the repairing or restoration of any other part of the Roof System that may be damaged as a result of any such leaks and defects in materials and/or workmanship including, without limitation, wet insulation**(**)** and corroded fasteners. In addition to requirements set forth elsewhere in the Contract Documents, the Warranty shall:

a. include and cover all materials manufactured, sold and/or provided by the Manufacturer for use in connection with the roof membrane and system (e.g. insulation and fasteners), but shall specifically exclude the roof decking, unless such decking is manufactured or provided by Manufacturer (collectively, the “Roof System”).

b. not be pro-rated; shall be without financial limit; shall not be limited due to the Contractor’s failure to install all or any portion of the Roof System in strict compliance with the Manufacturer’s requirements; and shall not be voided or limited as a result of Manufacturer-approved repairs, including work performed by any Manufacturer-authorized Contractor during or subsequent to the initial installation of the Roof System.

b. not be limited to wind forces of less than 90 m.p.h.

c. include Factory Mutual Research Corporation (FMRC) approval rating of Class 1-SH, Severe Hail Damage Resistant and cover roof system damage as a result of hailstones up to 3/4-inch diameter.

d. cover all Manufacturer requirements identified in Sections 07 22 16 and 07 62 00 when Full System Warranty is specified.

e. run to the benefit of and be enforceable and transferable by and among

Owner and all Affiliates without restriction or fee. For purposes of the Warranty, the term “Affiliate” shall mean and include any corporation, partnership, limited liability company, trust, real estate investment trust or other entity, whether heretofore, now, or hereafter existing, created, formed or organized, that directly or indirectly through one or more intermediaries controls, is controlled by or under common control with the current Owner of record at said time of Warranty issuance. Should the Owner of record sell the facility or otherwise transfer the Ownership to a non-affiliate, the Warranty shall be transferable for the Manufacturer’s (at that time) published Warranty transfer charge (not to exceed $1,000.00). The transfer policy shall not require the new Owner to pay for repair items that are covered under the warranty but may require the new Owner to perform and/or pay for non-warranty and maintenance items identified during the Manufacturer’s inspection.

f. commence not prior to the Date of Substantial Completion {the “Effective Date”**(*)**}.

g. provide that any dispute relating to the interpretation, application, scope or enforceability of the Warranty shall be resolved and settled in accordance with applicable law in any court having jurisdiction thereof.

a. for the duration of the Warranty, investigate and repair all leaks within 5 business days of notification thereof (initial notification by telephone, with follow-up by written notification) and, promptly thereafter, complete other such repairs, restoration and/or replacement of the roof system.

h. upon completion of any investigation and repair, the manufacturer shall submit to the Owner adequate documentation (e.g. samples, photographs, etc.) depicting and describing the problem encountered and the probable cause of the leak(s) upon such investigation and repair.

i. The Manufacturer shall inspect the Roof System not later than six (6) months prior to the second, fifth, and tenth anniversary of the Effective Date of the Warranty. The Manufacturer shall correct all leaks and defects in materials and/or workmanship in the Roof System observed during any such inspection. The Manufacturer shall correct all leaks and defects in materials and/or workmanship in the Roof System observed during any such inspection. The methods of repair shall be at the discretion of the Manufacturer and shall be completed with material of the same quality and color as the original roof system so as to minimize any impact on the aesthetic nature of the roof, as visible from within the building or as viewed from the ground level surrounding the facility.

(*) NOTE: The Effective Date of the Warranty(ies) shall not be prior to the date of Substantial Completion.

PART 2 - MATERIALS

2.01 MEMBRANE

A. Thermoset (EPDM) Sheet: Cured non-reinforced EPDM compounded elastomer.

Membrane shall conform to ASTM D4637, Type I.

1. Manufacturers:
   a. Carlisle-Syntec, Carlisle, Pennsylvania
   b. Elevate, Nashville, Tennessee
   c. Johns-Manville, Denver, Colorado

2. Thickness:
   a. 60 mils, minimum

3. Color: Black

2.02 AUXILIARY MATERIALS

A. General: Furnish auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing material.

B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, thickness, and color as sheet membrane.

C. Pressure-Sensitive Flashing/Stripping: Manufacturer's 60 mil uncured EPDM membrane flashing laminated to 30 mil thick pressure sensitive adhesive. The product shall be adaptable for use on irregular shapes or surfaces.

D. Seam Tape: Manufacturer's pressure-sensitive 3" wide tape with clear poly release film.

E. Uncured Flashing: Manufacturer's 60-mil thick uncured EPDM membrane, laminated to a 30-mil thick fully cured, pressure sensitive adhesive. Flashing material can be utilized to flash irregular shapes and surfaces.

F. Pre-Formed Pipe Flashing: Manufacturer's pre-molded, cured EPDM pipe flashings with pre-applied pressure sensitive adhesive.

G. Bonding Adhesive: Manufacturer's standard solvent-based or low VOC adhesive.

H. Reinforced Securement Strip: Manufacturer's 45 mil thick reinforced EPDM strip with 30-mil cured EPDM splice tape (3" wide) laminated along one or both edges.

I. Metal Termination Bars: Manufacturer's standard aluminum bars, approximately 1/8" thick and 1" wide with pre-punched holes 6" o.c.

J. Water Cut-Off/Metal Lap Sealant: Butyl-based, non-curing, non-hardening sealant.

   1. Manufacturers
      a. Sika Corporation, Madison Heights, MI (or approved equal) - Sikalastomer – 511
      b. Schnee-Morehead, Irving, TX - SM 5430 (SSR Sealant)

K. Lap Sealant: Manufacturer's single component, gun grade sealant used to seal the exposed cut edge of reinforced EPDM membrane and edges of uncured flashing.

L. Sealant: 1 or 2 component polyurethane-based sealant meeting ASTM C 920, Type S,

Grade NS, Class 35, Use NT, M, A, G and I. Manufacturer-approved primers are required. Color to be selected by Owner.

1. Manufacturers:
   a. Master Builders Solutions by BASF, Shakopee, MN; MasterSeal NP 1
   b. Sika Corporation, Madison Heights, MI; Sikaflex-1a

M. Tape Sealant: 3/4” wide butyl-based tape sealant.

N. Sealant Primers: Sealant primer is a quick-drying solvent-based primer for priming joints and substrates before the application of sealants.

1. Manufacturers:
   a. BASF, Shakopee, MN; Sonolastic Primer 733
   b. Sika Corporation, Madison Heights, MI; Sikaflex Sealant/Adhesive Primer

O. Nails: ASTM F1667; hot-dipped galvanized steel wire shingle nails, barded or ring shank, minimum 3/8” head diameter; minimum 11- or 12-gauge shank diameter; shank to be of sufficient length to penetrate at least ¾” into solid wood, plywood, or non-veneer wood decking.

P. Pre-Fabricated Corners: 60 mil thick inside and outside corners fabricated from the roof manufacturer’s standard membrane material.

Q. Membrane Stripping: 60 mil thick reinforced thermoplastic membrane consisting of the same material as the roof system.

R. Membrane Securement Plates: Manufacturer’s standard 2” round steel membrane plate that has been tested with their roof system assembly to achieve the specified wind-uplift ratings. All products must meet Factory Mutual 4470 criteria for corrosion resistance.

S. Fasteners: All fasteners shall be factory-coated steel fasteners to meet Factory Mutual 4470 criteria for corrosion resistance. Pull out resistance shall be a minimum of 360 lbs.

1. General:

   The fastener thread penetration into or through the substrate shall be as listed below. Edge and end distances shall be as listed below. The fastener penetration shall exclude any drilling point or tapered point.

   a. Solid Wood Blocking: 6 x Screw Diameter into the substrate and minimum 1-1/4” embedment; edge and end distances as required to prevent splitting.
   b. Plywood or OSB Sheathing: ¾” minimum penetration through the sheathing; edge distance 3/8”
   c. Steel Decking: ¾” through the sheet metal; ½” minimum edge distance.
   d. Concrete: 1” min. embedment; 6 x Screw Diameter edge distance
   e. Masonry or Stone: 1-1/2” min. embedment; 8 x Screw Diameter edge distance.

2. Steel Deck:

a. Fasteners to have self-drilling tip. Fastener tip shall be capable of cutting steel deck material of 20-gauge thickness at point of steel deck overlap without damage to the fastener tip.

b. Fasteners shall be installed in high flute of steel deck with a minimum of one-half inch (1/2") penetration. Fasteners shall not extend past the bottom of the steel deck (i.e. low rib).

c. Pull-out resistance shall be determined based on the mean value of ten (10) pull-outs. Pull-out resistance must be a minimum of 360 lbs. per fastener.

3. All products shall also be approved by membrane manufacturer.

2.03 REJECTED MATERIALS

The Design Professional shall have the right to inspect all materials brought to or stored at the job-site. Those materials that do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person designated by the Contractor to be the lead on-site supervisor. The verbal notification will be by the Design Professional, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 INSPECTION

A. A pre-job conference including the Design Professional, Owner's Representative, Contractor, manufacturer's representative and all involved trades shall be conducted prior to commencement of the roofing work.

B. Examine the substrate and the conditions under which the work is to be performed. Do not proceed until unsatisfactory conditions have been corrected as required for the material application and in accordance with the material manufacturer's specifications and requirements. Surfaces to receive roofing material components are to be clean, even, smooth, dry and free from defects and projections that might adversely affect the application.

C. Notify the Design Professional in writing to all conditions which may adversely affect the installation and/or performance of the roof system prior to commencing with the work. Proceed with installation only after unsatisfactory conditions have been corrected. Application of any part of the roofing system shall indicate acceptance of the roof surface and acknowledgment of full responsibility for the quality and durability of the roofing.

D. Verify slope prior to installation.

E. Contractor shall verify that work penetrating the roof deck or which may otherwise affect the roofing has been properly completed.

3.02 PREPARATION

A. General: All surfaces shall be vacuumed prior to commencement of roofing installation.

B. Drainage: Contractor together with Design Professional shall verify that all drain lines are unblocked before starting work. Any blocked drains shall be cleared by the Owner before starting work. Cover all drains and other openings intended for roof drainage with screens to prevent clogging of the drainage system. During construction, allow for sufficient drainage to prevent ponding with possible structural overloading.

C. Roof Deck: All surfaces to receive new roofing materials shall be smooth and even without any protrusions.

D. Fasteners: Contractor is required to run pullout tests to verify conditions of deck or wall substrate(s) and to confirm pullout values.

E. Existing Flashing Components: Remove all existing flashing components of the roof's perimeter and penetrations. Clean existing surfaces of asphalt or other contaminants where contact with roof membrane surfaces is expected.

F. Work shall begin at the furthest point from the designated spot where materials are shipped to the roof. Work shall be so scheduled to minimize traffic over newly completed or previously renovated roof areas.

3.03 GENERAL

A. Application of the roofing products for installation shall be in accordance with the roofing material manufacturer's recommendations and additional requirements of the project specifications and drawings. Material manufacturer's recommendations related to weather (temperature, moisture, humidity), surface preparations, and shelf life must be observed. The effect on the performance of materials, as well as installation costs and production, must be considered.

B. Only install as much of the new roofing as can be made weathertight each day, including all flashing work.

C. Where possible, roof membrane panels shall be installed in such a fashion to create water-shedding seams.

D. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The building and its contents shall be protected against all risks.

E. All surfaces to receive new insulation, membrane, or flashings shall be thoroughly dry. Should surface moisture occur, the Contractor shall provide the necessary equipment to dry the surface prior to application.

F. All new and temporary construction, including equipment and accessories, shall be secured in such a manner, at all times, as to preclude wind blow-off or wind damage.

G. Temporary water stops shall be installed at the end of each day's work and shall be removed before proceeding with the next day's work. Temporary water stops shall be constructed to withstand protracted periods of inclement weather. Water stops shall be compatible with all materials and shall not emit dangerous or incompatible fumes.

H. The Contractor is cautioned that the roof membrane may be incompatible with certain

substances. Such materials shall not come into contact with the roof membrane at any time. If such contacts occur, the material shall be cut out and discarded. The Contractor shall consult material manufacturer with respect to material compatibility precautions and recommendations.

I. Arrange work sequence to avoid use of newly constructed roofing for storage, walking surface, and equipment movement. Where such access is absolutely required, the Contractor shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. Plywood protection shall be provided for all new and existing roof areas that receive traffic during construction.

J. Liquid materials, such as solvents and adhesives, shall be stored in accordance with requirements of the Safety Data Sheets provided by the respective manufacturer.

K. Contaminants, such as grease, fats, oils, and solvents, shall not be allowed to come into contact with the roofing membrane.

L. If any unusual or concealed condition is discovered, stop the work and notify the Owner's Representative immediately in writing.

3.04 Criteria for Establishing When Insulation is Wet

The definition of "wet" as it pertains to insulation shall be the moisture determined to be in excess of the "Equilibrium Moisture Content" (EMC) as defined by the National Roofing Contractors Association, as "the moisture content of a material stabilized at a given temperature and relative humidity expressed as a percent moisture by weight." When material contains more water than it EMC, it shall be defined as wet. The values of EMC shall be based upon research by Carl G. Cash of Simpson Gumperts & Heger, Inc., of Arlington, Massachusetts (which was presented at the Second International Symposium of Roofing Technology in September 1985, pages 416 through 427 inclusive). The EMC values shall not exceed 100% over Cash's printed values for 90% relative humidity at 68F. Moisture contents of materials above these adjusted values will be considered to be excessive and to have developed from sources other than ambient humidity equilibrium conditions and they shall be classified as wet. These adjusted values (reflecting up to 100% increase over the printed values at 90% relative humidity at 68%) shall be as follows:

	Material	Printed Value	Adjusted Value
1.	Cellular Glass	0.2	0.4
2.	Extruded Polystyrene (XPS)	0.8	1.6
3.	Expanded Polystyrene (EPS)	2.0	4.0
4.	Fiberboard	15.0	20.0(*)
5.	Fiberglass	1.1	2.2
6.	Isocyanurate	3.0	6.0
7.	Perlite	5.0	10.0
8.	Gypsum Fill with Wood	1.7	3.4
9.	Gypsum Fill without Wood	1.6	1.2
10.	Thermo-setting asphalt	0.4	0.8
11.	Vermiculite	6.6	12.0(*)

(*) Less than 100% increase

3.05 ROOF MEMBRANE INSTALLATION

A. Fully adhered roofing systems shall be adhered with membrane manufacturer's approved adhesives, inclusive of manufacturer's required fasteners and additional fastener requirements as indicated on project drawings.

B. Install roof membrane over prepared substrate inclusive of any and all required slip and/or separation layers as required by the roof membrane manufacturer, in compliance with local and national building codes and loss prevention control by the Owner.

C. Position and unroll roof membrane. Extend membrane approximately three inches (3") up on all vertical surfaces, perimeter walls, etc.

D. Determine the direction of water drainage and the low point of the deck. The orientation of both end and side laps shall be such that the direction of water flow is over the laps. The direction of the laps shall change as the direction of the water flow (slope) changes to avoid backwater laps.

E. Cut field membrane around any and all roof projections prior to attaching adjacent roofing membrane sheet.

F. Overlap adjacent roof membrane sheets a minimum of six inches (6") past fastening elements and under seam membrane edges when using liquid seam adhesive. Overlap adjacent roof membrane sheets a minimum of three inches (3") past fastening elements and under seam membrane edges when using preformed cured seam tape adhesive. Liquid splice adhesive shall be one part butyl adhesive. Seam tape splice adhesive shall be pre-formed and cured with a minimum width of three inches (3").

G. The roof membrane shall be secured to nailers which are secured to the structural roof deck with mechanical anchors suitable for the deck type at all building perimeters and all curbed penetrations (see Detail drawings).

H. Attach roof membrane to all flashing components. Installation of the roof membrane system shall be inclusive of all accessory and incidental items to obtain membrane manufacturer's roof warranty to cover both labor and material as specified.

3.06 FLASHING INSTALLATION

A. General:

1. Install flashings for all roof penetrations as shown on accompanying drawings and as required by materials manufacturer, to obtain manufacturer's warranty. Install new flashing as indicated on the accompanying drawings.

2. Raise roof curb heights and/or parapet/perimeter walls as required to meet the minimum base flashing height. All wood nailer exposed to the interior of the building shall be enclosed with 24-gauge Galvalume metal.

3. Secured flashing shall be installed at all intersections of vertical and/or horizontal planes, i.e. roof perimeter and roof penetrations or at locations where the net slope difference exceeds 1:12 inch. Flashing height to be not less than eight inches (8"), unless indicated otherwise on project detail drawings.

4. Flashing shall be the same membrane as the field of the roof, as approved by the manufacturer.

5. Regardless of the type of flashing utilized, the flashing components shall be anchored to the substrate to resist forces a minimum of 150 lbs/ft in any direction. Anchors shall be staggered and appropriate for the encountered substrate condition or as outlined in project drawings.

6. In cases where openings exist between perimeter conditions and roof deck, prior to flashing application, Contractor shall install spray foam insulation material to act as a thermal, air, and vapor barrier.

7. Complete new base flashing and penetration flashing work in conjunction with the installation of the new roof membrane as required to ensure the roof system is left in a watertight condition on a daily basis, and before inclement weather occurs.

8. Where membrane flashing is used, adhere membrane flashing to vertical substrate(s) with approved adhesives. Substrate shall be clean, smooth, non-porous and free of contamination. Vertically adhered membrane flashings shall also require mechanically attached termination and intermediate mechanical attachment at eight inches (8") minimum or 36" maximum intervals. Protect flashing membrane with separation layers as required by manufacturer.

9. Top of flashing shall be mechanically anchored to substrate utilizing a termination bar and approved anchor.

3.07 COMPLETION

A. Correction of Work:

1. Work which does not conform to specified requirements including tolerances, slopes and finishes shall be corrected and/or replaced as directed by Design Professional at Contractor's expense without extension of time. Therefore, Contractor shall also be responsible for cost of correction to any work affected by or resulting from corrections to work of this section.

2. Rejection of Damaged Work

   a. Contractor, jointly with Design Professional and roofing material manufacturer’s representatives, shall investigate completed sections of work.
   b. Damaged roofing components and work will be rejected.
   c. Replace damaged roofing components or work with new brand materials. Replacement will be at Contractor’s expense.

B. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to pre-construction condition.

All landscaped areas affected by construction activities shall be raked clean, seeded, or restored to pre-construction condition.

C. All manufacturers' on-site inspection reports shall be submitted prior to final payment.

D. All guaranties, as required in Part 1 of this specification, shall be submitted for approval prior to final payment.

END OF SECTION 07 53 23 – ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

07 54 00
THERMOPLASTIC MEMBRANE ROOFING

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Work of this section shall provide Owner with (1) a functional weathering surface by applying a fully adhered roof membrane system as required over continuous roof insulation; (2) appropriate flashings at roof perimeter and roof penetration conditions. Roof membrane shall consist of a white, reinforced thermoplastic material with hot-air-welded seams

B. Items covered by this specification section:

1. Thermoplastic (PVC) sheet roofing
2. Flashings
3. Fasteners
4. Accessories

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and the Contractor.

1. N/A

1.04 RELATED SECTIONS

Division 1	General Requirements
02 41 19	Selective Demolition
03 51 13.01	Cementitious Wood Fiber Roof Deck Repair
05 30 23.01	Steel Deck Repair
06 10 53.01	Rough Carpentry for Roofing
07 22 16	Roof Board Insulation
07 24 19	Water-Drainage Exterior Insulation and Finish System
07 62 00	Sheet Metal Flashing and Trim
07 72 00	Roof Accessories
22 14 26.13	Roof Drains
26 41 13	Lightning Protection for Structures
32 92 00	Turfs and Grasses

1.05 REFERENCES

All referenced standards shall refer to the version of the standard referenced by the applicable

building code, or the most current version if the standard is not referenced in the building code.

A. American Society of Civil Engineers (ASCE)
   1. ASCE 7 – Minimum Design Loads for Buildings and Other Structures

B. American Society of Testing and Materials (ASTM)
   1. C920 – Standard Specification for Elastomeric Joint Sealants
   2. D751 – Standard Test Methods for Coated Fabrics
   3. D1079 – Standard Terminology Relating to Roofing and Waterproofing
   4. D4434 – Standard Specification for Poly(Vinyl Chloride) Sheet Roofing
   5. D7635 – Standard Test Method for Measurement of Thickness of Coatings Over Fabric Reinforcement
   6. E108 – Standard Test Methods for Fire Tests of Roof Coverings.
   7. E1980 – Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces
   8. F1667 – Standard Specification for Driven Fasteners: Nails, Spikes, and Staples

C. FM Global/FM Approvals
   1. Data Sheet 1-29 – Roof Deck Securement and Above Deck Components
   2. Approval Standard 4450 – Approval Standard for Class 1 Insulated Steel Roof Decks
   3. Approval Standard 4474 – Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures
   4. RoofNAV – FM Approvals On-Line Listing of Approved Roofing Products and Assemblies

D. National Roofing Contractors Association (NRCA)
   1. The NRCA Roofing Manual: Membrane Roof Systems.

E. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)
   1. Architectural Sheet Metal Manual.

F. Single Ply Roofing Industry (SPRI)
   1. Directory of Roof Assemblies (DORA)
   2. FX-1 – Standard Field Test Procedure for Determining the Withdrawal Resistance of Roofing Fasteners

1.06 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Waterproofing Manual" for definition of terms related to roofing work in this section.

1.07 PERFORMANCE REQUIREMENTS

A. General: Installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure. The roof system and system components shall comply with requirements in FM Approvals of 4450 and 4474, current editions.

B. Material Compatibility: Provide roofing materials that are compatible with one another under

conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. Wind Up-Lift and Hail Characteristics: Provide a membrane roofing system that is identical to systems that have been successfully tested in accordance with FM 4474, UL580, or UL 1897 by a qualified testing and inspecting agency to resist uplift pressures and hail as listed below. The perimeter and corner areas shall be prescriptively enhanced in accordance with the current edition of FM Global Loss Prevention Data Sheet 1-29.

1. Zone 1 Wind Up-Lift Rating: 60 psf
2. Hail Resistance: SH

D. Fire-Test Response Characteristics: Provide roofing materials with the fire-test response characteristics indicated as determined by testing identical products per test method indicated below by UL, FM, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A; ASTM E 108 or UL790, for application and slopes indicated.
2. Interior Fire-Test Exposure: Class 1

E. Reflectivity Characteristics: Provide roofing system with initial Solar Reflectance Index of not less than 75 when calculated according to ASTM E 1980.

1.08 REUTILIZED MATERIALS

A. The following items shall be assumed to be fully salvageable and reusable:

1. N/A

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

1. Submit product data sheets for each material specified or required for installation of the roof system. Include data substantiating that materials comply with requirements of this specification, inclusive of accelerated weathering data.

2. Submit specifications, installation instructions, and general recommendations from roofing materials manufacturers for type of roofing required.

B. Shop Drawings:

1. Flashing Conditions: Submit shop drawings showing all roof flashing conditions, including but not limited to drains, perimeter conditions, roof penetration conditions, expansion joints, etc. The shop drawings must be reviewed and approved by the roof system manufacturer to ensure the completed installation will meet the manufacturer’s warranty requirements.

2. Wind Uplift Securement: Provide roof plan(s) marked-up to indicate extent of roof corner and roof perimeter areas, inclusive of fastener spacing/density. This drawing must be reviewed and approved by the roof system manufacturer to assure the completed installation will meet the manufacturer's warranty requirements and the Performance Requirements listed in this specification.

C. Product Samples:

1. Roof Membrane - Sample size 6" x 6".
2. Mechanical Anchors and accessories.
3. Slip or separation layers.
4. Prefabricated items.

D. Material Safety Data Sheets (MSDS):

1. Submit an MSDS sheet for each material that will be utilized on-site.

E. Submit the RoofNAV number, DORA assembly number, or other laboratory test reports that shows the roof system complies with the performance requirements listed in the specification.

F. Manufacturer Certification:

1. Manufacturer shall provide written evidence that he has reviewed the project specifications and drawings and will provide a warranty that complies with the requirements listed in Section 1.15 Guarantee upon completion of the project in accordance with the manufacturer's current technical specifications.

2. Membrane manufacturer is to certify that the polymer thickness is of the minimum thickness as specified in Part 2 of this specification section. Certification is to be signed by the manufacturer's quality control manager.

3. Submit written approval from roof membrane manufacturer for use, performance, and compatibility of the roof insulation and products in the proposed system.

4. Submit written statement of roof membrane manufacturer that Contractor has experience in the application of specified roof system, and the Contractor is approved by membrane manufacturer to install the roof system and receive the specified warranty. The project foreman and at least two (2) assistants must have attended and passed the manufacturer's installation course.

5. Certify that roof system meets all specified Performance Requirements.

6. The roof system manufacturer shall submit written certification that the roof system manufacturer has reviewed the fastener and/or adhesive field-testing results and the pull-out/pull-off resistance is sufficient to meet the specified wind uplift rating and manufacturer's warranty requirements.

G. Submit manufacturer's "Pre-installation Notice" (PIN).

H. Sample Warranty:

1. Submit copy of warranty from the roof system manufacturer.

I. Field Testing:

1. Perform fastener pull-out tests in accordance with ANSI/SPRI FX-1 for each type of fastener that is required. Submit written evidence of the fastener pull-out tests of deck and/or wall substrate(s) to show compliance with this specification.

1.10 QUALITY ASSURANCE

A. Contractor Qualifications:

1. The contractor must be approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product that is eligible to receive a manufacturer's 20 year no-dollar-limit warranty.

2. The contractor shall have installed a minimum of three (3) projects within the last five (5) years.

3. The project superintendent, foreman and at least two (2) assistants must have attended and passed the manufacturer's installation course.

B. Manufacturer Qualifications:

1. The roof system manufacturer shall have manufactured the specified membrane material for a minimum of 10-years without a change in the basic material formulation.

2. The roof system manufacturer shall have a training program that all contractors must attend prior to installing the specified roof system.

3. The manufacturer must demonstrate that they have an adequate warranty fund to cover possible future warranty claims.

4. The roof system manufacture must manufacture the roof membrane specified; private labeled products are not acceptable.

1.11 DELIVERY, STORAGE, AND HANDLING

A. All products delivered to the site shall be in the original unopened containers or wrappings.

B. Average live loads on the roof during the work shall not exceed twenty (20) pounds per square foot at any time.

C. Handle all materials to prevent damage. Store materials elevated sufficiently off the ground and fully protected from moisture. Materials shall be secured in a safe manner to prevent damage. Material shall be covered with opaque tarps, secured to prevent displacement by wind forces.

D. Store temperature susceptible materials in a dry and heated area between 60 degrees F and 80 degrees F. If exposed to lower or higher temperatures, the material shall be discarded, and new material provided at no cost to the Owner.

E. Materials determined by the Design Professional to be damaged or to have been subjected to adverse conditions shall be removed and replaced at Contractor's expense.

F. Membrane rolls shall be stored in a way to prevent roll deformation by excessive stacking.

G. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Closely follow precautions/instructions outlined on container or supplied by manufacturer/supplier (MSDS sheets).

1.12 WEATHER LIMITATIONS ON WORK

A. Roofing work shall not be done during precipitation and shall not be started in the event there is a high probability of precipitation during the ongoing work.

B. At ambient temperatures of 40 degrees F and below, including wind-chill, precautions must be taken to ensure that temperature-susceptible materials maintain their minimum acceptable temperature at the point of application as recommended by the roofing materials manufacturer.

1.13 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. Contractor shall implement all necessary precautions to prevent debris or materials/equipment from becoming airborne due to wind conditions anticipated at the site. All roof removal materials shall be removed from the roof by an enclosed chute to the ground level. Roofing Contractor shall conform to all regulations and precautions as required by applicable safety organizations.

B. All methods employed in performing the work, and all equipment, tools, and machinery used for handling materials and executing any part of the work, shall be subject to the approval of the Design Professional before the work is started, and whenever found unsatisfactory, shall be changed and improved as required.

C. Roofing System:

1. Solvents, adhesives, and primers used in the application of single-ply roofing systems are extremely flammable and/ or toxic. Provide all crew members with appropriate safety data information and training as provided by the roofing materials manufacturer. Provide each crew member with appropriate training as it relates to the specific chemical compound, he/she may be expected to deal with. Each crewmember shall be fully aware of first-aid measures to be undertaken in case of accidents, etc.

2. Various single-ply roofing membranes tend to change their material properties when exposed to sunlight and/or heat. Change in physical properties can result in elimination or at least reduction of the apparent weld ability of a particular roof membrane material. It is critical to closely follow the roofing material manufacturer's recommendations and requirements as to material seaming and seaming

equipment.

D. Protection:

1. General: Protection against staining and mechanical damage shall be provided for adjacent roof and other surfaces during the application of the roofing. Provide working platforms and traffic walkways where necessary.

2. Against Loads:

a. Do not store material/equipment on completed work of this section. Where due to work sequence storage of material/equipment on completed sections is required, protect work of this section against damage. Protection shall consist of plywood boards or similar material and shall take into consideration the material characteristics of both the roof membrane and the roof insulation.

3. Against Traffic:

b. Traffic is not permitted across completed sections of the roof, except for workmen performing the work.

c. Where, due to work sequencing, traffic is required, traffic paths shall be clearly defined, and completed roofing shall be protected with plywood boards or similar material. Protection shall take into consideration the material characteristics of both the roof membrane and the roof insulation.

d. At locations where the existing roof system will be heavily trafficked, such as pathways for material removal and /or material distribution, the existing roof system shall be protected. Protection shall consist of foam insulation of sufficient thickness to prevent roof membrane punctures. The insulation shall be overlaid with plywood boards. The pathway shall be constructed in a fashion to prevent displacement by wind. Any deviation from this requirement shall be at the Design Professional’s discretion.

E. All activities shall be performed in a way to provide Owner with an immediate watertight roof system at all times during construction. It is the Contractor's responsibility to prevent construction-related leaks.

F. The majority of the work is over occupied space. Every precaution must be taken to protect the building occupants, the general public, and the contents/products stored in the building. The removal and replacement of the roof system shall be completed on specific roof sections and/or areas at such times as authorized by the Design Professional. All other operations which produce loud noises, and/or have the potential for injury incidents from falling objects, shall also be confined to non-operating hours. All project-related interior debris, interior covering, equipment, etc. shall be removed and the interior shall be brought to like cleanliness condition prior to operating hours, inclusive of cleaning debris from above ceiling tile grids unless other arrangements are made for final cleaning operations. It is the Contractor’s responsibility to monitor and protect the interior and occupants of the building at all times during construction. The determination of any work that is to be performed during non-operating hours shall be at the Owner’s discretion.

G. Coordinate all roofing work closely with Design Professional as it relates to work going through the roof deck and/or affecting the roof deck and/or the roof system. Roofing work will be performed where identified in the project specifications and drawings, in strict accordance with the various roofing material manufacturer's installation instruction requirements and recommendations.

H. Closely inspect any uncovered condition and alert Design Professional to any condition which may interfere with the performance of the new roof membrane system, inclusive of flashings. All work and activities shall be completed in such a manner to provide Owner with a watertight roof system.

1.14 MANUFACTURER'S REPRESENTATIVE

A. Contractor shall require the presence of a Technical Representative of the roofing membrane manufacturer to perform inspections and provide field instructions during the duration of the work, as required by the manufacturer for a guaranteed job.

B. In addition, Design Professional may require the presence of the Technical Representative of the roofing material manufacturer, as necessitated by the work progress.

C. The Technical Representative shall be employed by the roofing material manufacturer. We recommend the roofing material manufacturer designate one (1) Technical Representative for the duration of the project.

1.15 GUARANTEE

A. MATERIAL MANUFACTURER'S RESPONSIBILITY:

1. The following warranty shall be in addition to and not in derogation of any other guarantees, warranties, or rights of the Owner against the contractor contained elsewhere in the agreement.

2. The Contractor shall furnish to the Owner, the Manufacturer's FULL SYSTEM 20-Year Warranty/Guaranty (the “Warranty”) against leaks and defects in materials and/or workmanship. The Warranty shall obligate Manufacturer, without cost to the Owner, to repair all leaks and defects in materials and/or workmanship in the Roof System (hereafter defined), including the replacement or repair of any materials and the repairing or restoration of any other part of the Roof System that may be damaged as a result of any such leaks and defects in materials and/or workmanship including, wet insulation (See Part 3 Item “Criteria for Establishing When Insulation is Wet”) and corroded fasteners. The Warranty shall:

a. include and cover all materials manufactured, sold, and/or provided, by the Manufacturer for use in connection with the roof membrane and system (e.g. insulation and fasteners), but shall specifically exclude the roof decking, unless such decking is manufactured or provided by Manufacturer (collectively, the “Roof System”).

b. not be pro-rated; shall be without financial limit; shall not be limited due to the Contractor’s failure to install all or any portion of the Roof System in strict

compliance with the Manufacturer's requirements; and shall not be voided or limited as a result of Manufacturer-approved repairs, including work performed by any Manufacturer-authorized Contractor during or subsequent to the initial installation of the Roof System.

c. not be limited to wind forces of less than 90 m.p.h.

d. include Factory Mutual Research Corporation (FMRC) approval rating of Class 1-SH, Severe Hail Damage Resistant and cover roof system damage as a result of hailstones up to 3/4-inch diameter.

e. cover all Manufacturer requirements identified in Section 07 22 16 and 07 62 00, when Full System Warranty is specified.

f. run to the benefit of and be enforceable and transferable by and among Owner and all Affiliates without restriction or fee. For purposes of the Warranty, the term "Affiliate" shall mean and include any corporation, partnership, limited liability company, trust, real estate investment trust or other entity, whether heretofore, now, or hereafter existing, created, formed or organized, that directly or indirectly through one or more intermediaries controls, is controlled by or under common control with the current Owner of record at said time of Warranty issuance. Should the Owner of record sell the facility or otherwise transfer the Ownership to a non-affiliate, the Warranty shall be transferable for the Manufacturer's (at that time) published Warranty transfer charge (not to exceed $1,000.00) and transfer policy. The transfer policy shall not require the new Owner to pay for repair items that are covered under the warranty but may require the new Owner to perform and/or pay for non-warranty and maintenance items identified during the Manufacturer's inspection.

g. commence not prior to the Date of Substantial Completion. The Effective Date of the Warranty(ies) shall not be prior to the date of Substantial Completion.

h. provide that any dispute relating to the interpretation, application, scope or enforceability of the Warranty shall be resolved and settled in accordance with applicable law in any court having jurisdiction thereof.

i. for the duration of the Warranty, investigate and repair all leaks within 5 business days of notification thereof (initial notification by telephone, with follow-up by written notification) and, promptly thereafter, complete other such repairs, restoration and/or replacement of the roof system.

j. upon completion of any investigation and repair, the manufacturer shall submit to the Owner adequate documentation (e.g. samples, photographs, etc.) depicting and describing the problem encountered and the probable cause of the leak(s) upon such investigation and repair.

k. The Owner, and Manufacturer shall jointly inspect the Roof System not later than six (6) months prior to the second, fifth, and tenth anniversary (and each additional five-year period for the duration the Warranty, inclusive of

any Warranty Alternates accepted by the Owner) of the Effective Date of the Warranty. The Manufacturer shall correct all leaks and defects in materials and/or workmanship in the Roof System observed during any such inspection. The methods of repair shall be at the discretion of the Manufacturer and shall be completed with material of the same quality and color as the original roof system so as to minimize any impact on the aesthetic nature of the roof, as visible from within the building or as viewed from the ground level surrounding the facility.

PART 2 - MATERIALS

2.01 THERMOPLASTIC MEMBRANE

A. Polyvinyl Chloride (PVC) Sheet: Membrane shall conform to ASTM D4434; Classification: Type II or III Fabric Reinforced.

1. Thickness: 60 mils, minimum
2. Exposed Face Color: Manufactuer's Standard White or Off-White
3. Solar Reflective Index (SRI): $\geq$ 75
4. Manufacturers:
   a. Carlisle Syntec; Carlisle, PA (Sure-Flex PVC HP KEE)
   b. Duro-Last; Saginaw, MI (Duro-Tuff)
   c. Seaman Corporation (Fibertite); Wooster, OH (Fibertite SM)
   d. Sika Sarnafil, Inc.; Canton, MA (S327)

B. Membrane manufacturer must certify in writing that product supplied for this project has a minimum polymer thickness as specified. ASTM ± tolerance for membrane thickness is not accepted.

C. Polyester and fiberglass scrim reinforced membrane polymer thickness is to be measured according to ASTM D751.

2.02 AUXILIARY MATERIALS

A. General: Furnish auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing material.

B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, thickness, and color as sheet membrane.

C. Membrane Stripping: 60 mil thick reinforced thermoplastic membrane consisting of the same material as the roof system.

D. Bonding Adhesive: Manufacturer's standard Solvent-based or low VOC bonding adhesive for roof membrane and flashing membrane attachment.

E. Metal Termination Bars: Manufacturer's standard aluminum bars, approximately 1/8" thick and 1" wide with pre-punched holes 6" o.c.

F. Sealant: 1 or 2 component polyurethane-based sealant meeting ASTM C 920, Type S, Grade NS, Class 35, Use NT, M, A, G and I. Manufacturer-approved primers are required. Color to be selected by Owner.

1. Manufacturers:
   a. Master Builders Solutions by BASF, Shakopee, MN; MasterSeal NP 1
   b. Schnee – Morehead, Irving, TX; Permathane
   c. Sika Corporation, Madison Heights, MI; Sikaflex-1a

G. Sealant Primers: Sealant primer is a quick-drying solvent-based primer for priming joints and substrates before the application of sealants.

1. Manufacturers:
   a. BASF, Shakopee, MN; Sonolastic Primer 733
   b. Sika Corporation, Madison Heights, MI; Sikaflex Sealant/Adhesive Primer

H. Metal Lap Sealant for concealed joints shall be polyisobutylene; extrudable sealant, non-migratory, nondrying, and non-skinning synthetic elastomer base material (requires manufacturer-approved primer or approved equal).

1. Manufacturers:
   a. Sikalastomer – 511, Sika Corporation, Madison Heights, MI (or approved equal).
   b. SM 5430 (SSR Sealant), Schnee-Morehead, Irving, TX

I. Perimeter Bar: Manufacturer's standard aluminum bars, approximately 1/8" thick and 1" wide with pre-punched holes 6" o.c.

J. Nails: ASTM F1667; hot-dipped galvanized steel wire shingle nails, barded or ring shank, minimum 3/8" head diameter; minimum 11- or 12-gauge shank diameter; shank to be of sufficient length to penetrate at least 3/4" into solid wood, plywood, or non-veneer wood decking.

K. Walkway Material: Factory-formed, nonporous, heavy-duty, slip-resistant, minimum 30" wide rolls, approximately 3/16" thick reinforced roof membrane.

L. Masonry Anchors: Screw type fastener that requires pilot holes to be pre-drilled. Minimum diameter is 1/4".

1. Manufacturers:
   a. ITW Buildex, Itasca, IL – Tapcon
   b. Powers Fasteners, Brewster, WY – Tapper
   c. Olympic Fasteners, Agawam, MA – Ruff-Nex Concrete Screw

M. Tape Sealant: 3/4" wide butyl-based tape sealant.

N. Prefabricated Corners: 60 mil thick inside and outside corners fabricated from the roof manufacturers' standard membrane material.

O. Laminated (PVC-Coated) Metal: 25 gauge, G90 galvanized steel sheet metal coated with a 20-mil membrane on one (1) side. Color selected from manufacturer's standard colors.

P. Membrane Securement Plates: Manufacturer's standard 2" round steel membrane plate that has been tested with their roof system assembly to achieve the specified wind-uplift ratings. All products must meet Factory Mutual 4470 criteria for corrosion resistance.

Q. High Temperature Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT, M, G, A and O with a service temperature up to 300° F. For use in through-penetrations firestops.

R. Fasteners: All fasteners shall be factory-coated steel fasteners to meet Factory Mutual 4470 criteria for corrosion resistance. Pull out resistance shall be a minimum of 360 lbs.

1. General:

The fastener thread penetration into or through the substrate shall be as listed below. Edge and end distances shall be as listed below. The fastener penetration shall exclude any drilling point or tapered point.

a. Solid Wood Blocking: 6 x Screw Diameter into the substrate and minimum 1-1/4" embedment; edge and end distances as required to prevent splitting.
b. Plywood or OSB Sheathing: ¾" minimum penetration through the sheathing; edge distance 3/8"
c. Steel Decking: ¾" through the sheet metal; ½" minimum edge distance.
d. Concrete: 1" min. embedment; 6 x Screw Diameter edge distance
e. Masonry or Stone: 1-1/2" min. embedment; 8 x Screw Diameter edge distance.

2. Steel Deck:

a. Fasteners to have self-drilling tip. Fastener tip shall be capable of cutting steel deck material of 20-gauge thickness at point of steel deck overlap without damage to the fastener tip.

b. Fasteners shall be installed in high flute of steel deck with a minimum of one-half inch (1/2") penetration. Fasteners shall not extend past the bottom of the steel deck (i.e. low rib).

c. Pull-out resistance shall be determined based on the mean value of ten (10) pull-outs. Pull-out resistance must be a minimum of 360 lbs. per fastener.

3. All products shall also be approved by membrane manufacturer.

2.03 REJECTED MATERIALS

A. The Design Professional shall have the right to inspect all materials brought to or stored at the job site. Those materials which do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person designated by the Contractor to be the lead on-site supervisor. The verbal notification will be by the Design Professional, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 INSPECTION

A. A pre-job conference including the Design Professional, Owner's Representative, the Contractor, the manufacturer's representative and all involved trades shall be conducted prior to commencement of the roofing work.

B. Examine the substrate and the conditions under which the work is to be performed. Do not proceed until unsatisfactory conditions have been corrected as required for the material application and in accordance with the material manufacturer's specifications and requirements. Surfaces to receive roofing material components are to be clean, even, smooth, dry and free from defects and projections which might adversely affect the application.

C. Notify the Design Professional in writing to all conditions which may adversely affect the installation and/or performance of the roof system prior to commencing with the work. Proceed with installation only after unsatisfactory conditions have been corrected. Application of any part of the roofing system shall indicate acceptance of the roof surface and acknowledgment of full responsibility for the quality and durability of the roofing.

D. Verify slope prior to installation.

E. Contractor shall verify that work penetrating the roof deck, or which may otherwise affect the roofing has been properly completed.

3.02 PREPARATION

A. General: All surfaces shall be vacuumed prior to commencement of roofing installation.

B. Drainage: Contractor together with Design Professional shall verify that all drain lines are unblocked before starting work. Any blocked drains shall be cleared by the Owner before starting work. Cover all drains and other openings intended for roof drainage with screens to prevent clogging of the drainage system. During construction, allow for sufficient drainage to prevent ponding with possible structural overloading.

C. Roof Deck: All surfaces to receive new roofing materials shall be smooth and even without any protrusions.

D. Fasteners: Contractor is required to run pullout tests to verify conditions of deck or wall substrate(s) and to confirm pullout values.

E. Existing Flashing Components: Remove all existing flashing components of the roof's perimeter and penetrations. Clean existing surfaces of asphalt or other contaminants where contact with roof membrane surfaces is expected. If the existing surfaces cannot be cleaned, ½" plywood or 24 gauge Galvalume can be installed as a separator.

F. Work shall begin at the furthest point from the designated spot where materials are shipped to the roof. Work shall be so scheduled to minimize traffic over newly completed or previously renovated roof areas.

3.03 GENERAL

A. Application of the roofing products for installation shall be in accordance with the roofing material manufacturer's recommendations and additional requirements of the project specifications and drawings. Material manufacturer's recommendations related to weather (temperature, moisture, humidity), surface preparation, and shelf life must be observed. The effect on the performance of materials, as well as installation costs and production, must be considered.

B. Only install as much of the new roofing as can be made weather tight each day, including all flashing work.

C. Where possible, roof membrane panels shall be installed in such a fashion to create water-shedding seams.

D. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The building and its contents shall be protected against all risks.

E. All surfaces to receive new membrane or flashings shall be thoroughly dry. Should surface moisture occur, the Contractor shall provide the necessary equipment to dry the surface prior to application.

F. All new and temporary construction, including equipment and accessories, shall be secured in such a manner, at all times, as to preclude wind blow-off or wind damage.

G. All insulation installed in any one day shall be covered, with the complete roof installed the same day.

H. Temporary water stops shall be installed at the end of each day's work and shall be removed before proceeding with the next day's work. Temporary water stops shall be constructed to withstand protracted periods of inclement weather. Water stops shall be compatible with all materials and shall not emit dangerous or incompatible fumes.

I. The Contractor is cautioned that the roof membrane may be incompatible with certain substances. Such materials shall not come into contact with the roof membrane at any time. If such contacts occur, the material shall be cut out and discarded. The Contractor shall consult material manufacturer with respect to material compatibility precautions, and recommendations.

J. Arrange work sequence to avoid use of newly constructed roofing for storage, walking surface, and equipment movement. Where such access is absolutely required, the Contractor shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. Plywood protection shall be provided for all new and existing roof areas that receive traffic during construction.

K. Liquid materials such as solvents and adhesives shall be stored in accordance with requirements of the Safety Data Sheets provided by the respective manufacturer.

L. Contaminants, such as grease, fats, oils, and solvents, shall not be allowed to come into contact with the roofing membrane.

M. If any unusual or concealed condition is discovered, stop the work and notify the Design Professional immediately in writing.

3.04 CRITERIA FOR ESTABLISHING WHEN INSULATION IS WET

A. The definition of “wet” as it pertains to insulation shall be the moisture determined to be in excess of the “Equilibrium Moisture Content” (EMC) as defined by the National Roofing Contractors Association, as “the moisture content of a material stabilized at a given temperature and relative humidity expressed as a percent moisture by weight.” When material contains more water than its EMC, it shall be defined as wet. The values of EMC

shall be based upon research by Carl G. Cash of Simpson Gumpertz & Heger, Inc., of Arlington, Massachusetts (which was presented at the Second International Symposium of Roofing Technology in September 1985, pages 416 through 427 inclusive). The EMC values shall not exceed 100% over Cash's printed values for 90% relative humidity at 68º F. Moisture content of materials above these adjusted values will be considered to be excessive and to have developed from sources other than ambient humidity equilibrium conditions and they shall be classified as wet. These adjusted values (reflecting up to 100% increase over the printed values at 90% relative humidity at 68º F) shall be as follows:

	Material	Printed Value	Adjusted Value
1.	Cellular Glass	0.2	0.4
2.	Extruded Polystyrene (XPS)	0.8	1.6
3.	Expanded Polystyrene (EPS)	2.0	4.0
4.	Fiberboard	15.0	20.0*
5.	Fiberglass	1.1	2.2
6.	Isocyanurate	3.0	6.0
7.	Perlite	5.0	10.0
8.	Gypsum Fill with Wood	1.7	3.4
9.	Gypsum Fill without Wood	1.6	1.2
10.	Thermo-setting Asphalt	0.4	0.8
11.	Vermiculite	6.6	12.0*

*Less than 100% increase

3.05 ROOF MEMBRANE INSTALLATION

A. Fully adhered roofing systems shall be adhered with membrane manufacturer's approved adhesives, inclusive of manufacturer's required fasteners and additional fastener requirements as indicated on project drawings.

B. The width of the roof membrane sheet shall be limited to a maximum of ten feet (10').

C. The membrane adhesive shall be installed per the membrane manufacturer's requirements.

Differing insulation facers require specific application methods and quantities of adhesives.

D. Install roof membrane over prepared substrate inclusive of any and all required slip and/or separation layers as required by the roof membrane manufacturer, in compliance with local and national building codes and loss prevention control by the Owner.

E. Position and unroll roof membrane. Extend membrane approximately three inches (3") up on all vertical surfaces, perimeter walls, etc.

F. Determine the direction of water drainage and the low point of the deck. The orientation of both end and side laps shall be such that the direction of water flow is over the laps. The direction of the laps shall change as the direction of the water flow (slope) changes to avoid backwater laps.

G. Cut membrane around any and all roof projections prior to welding roofing membrane sheet to roofing membrane sheet.

H. Overlap adjacent roof membrane sheets a minimum of two inches (2"). Membrane end laps

shall be overlapped a minimum of four inches (4"), or as required by roofing materials manufacturer.

I. The roof membrane shall be secured to nailers which are secured to the structural roof deck with mechanical anchors suitable for the deck type at all building perimeters and all curbed penetrations (see Detail drawings).

J. Attach roof membrane to all flashing components. Installation of the roof membrane system shall be inclusive of all accessory and incidental items to obtain membrane manufacturer's roof warranty to cover both labor and material as specified.

K. Additional Perimeter Securement

1. The membrane manufacturers approved through-membrane fastening system shall be installed at four feet (4') in from the edge of the roof around the entire perimeter of the roof area. Fasteners shall be spaced 12 inches O.C. (see project drawings). Additional mechanical attachment may be required by membrane manufacturer, specifications, and Building Codes.

L. A membrane manufacturer-approved membrane securement system consisting of either a bar fastened 12” O.C. and/or membrane plates fastened 6” O.C. must be installed at locations where greater than a one-quarter inch (1/4”) step occurs and/or at locations where the net slope difference exceeds 1:12 inch (see project specific installation details). An alternate method to prevent voids below the membrane in tapered insulation valley lines is to place the tapered insulation below the flat stock insulation fill layers.

3.06 FLASHING INSTALLATION

A. General

1. Install flashings for all roof penetrations as shown on accompanying drawings and as required by materials manufacturer, to obtain manufacturer's warranty. Install new flashing consisting of laminated metal and/or reinforced roof membrane as indicated on the accompanying drawings.

2. Raise roof curb heights and/or parapet/perimeter walls as required to meet the minimum base flashing height. All wood nailer exposed to the interior of the building shall be enclosed with 24-gauge Galvalume metal.

3. Secured flashing shall be installed at all intersections of vertical and/or horizontal planes, i.e. roof perimeter and roof penetrations or at locations where the net slope difference exceeds 1:12 inch. Flashing height to be not less than eight inches (8"), unless indicated otherwise on project detail drawings.

4. Flashing may consist of reinforced thermoplastic membrane and/or of laminated metal as approved by the roofing materials manufacturer and acceptable to the roof Design Professional.

5. Regardless of the type of flashing utilized, the flashing components shall be anchored to the substrate to resist forces a minimum of 150 lbs/ft in any direction. Anchors shall be staggered and appropriate for the encountered substrate condition or as outlined in project drawings.

6. In cases where openings exist between perimeter conditions and roof deck, prior to flashing application, Contractor shall install spray foam insulation material to act as a thermal barrier and vapor retarder.

7. Complete new base flashing and penetration flashing work in conjunction with the installation of the new roof membrane as required to ensure the roof system is left in a watertight condition on a daily basis, and before inclement weather occurs.

B. Laminated Metal Flashing:

1. Where laminated metal flashing is utilized, the laminated metal segments may be attached to appropriately installed wood nailers utilizing approved nail anchors or to the substrate wall by means of screw anchors, dependent on the substrate conditions.

2. For wall anchorage, the point of attachment shall not exceed two inches (2") above the new roof line. Anchor heads shall be sealed with a piece of roof membrane, or appropriate self-sealing washers. In order to allow for lay-flat of the laminated metal's horizontal flange, the flange shall be slightly under broken with the outside edge broken at a 30-degree angle.

3. For flashing applications where laminated metal flashing is utilized, appropriate expansion joints, per enclosed drawings, shall be constructed. Expansion joints shall be constructed out of un-reinforced material. Distance between expansion joints shall not exceed ten feet (10') in any direction.

4. All flashing segments shall be limited in length to ten feet (10').

5. All metal edges exposed to the elements shall be protected.

6. The installation of cants at the intersection of vertical and horizontal surfaces that form ***inside*** corners is mandatory.

C. Membrane Flashing (Reinforced):

1. Where reinforced membrane flashing is used, attach membrane flashing to horizontal substrate by way of mechanical attachment utilizing nailers and laminated metal, and adhere membrane flashing to vertical substrate with approved adhesives. Substrate shall be clean, smooth, non-porous and free of contamination. Protect flashing membrane with slip/separation layers as required by manufacturer.

2. Top of flashing shall be mechanically anchored to substrate utilizing a termination bar and approved anchor.

3. For flashing heights greater than 36 inches, intermediate flashings attachment is to be the lesser of roof membrane manufacturer’s requirements or 36 inches of maximum spacing.

3.07 ROOF MEMBRANE SEAMING

A. Sealing of seams of overlapping adjacent roof membrane sheets or overlap seams between

flashing components and roof membrane sheets, must be accomplished using hot air equipment specified by the membrane manufacturer for the specific membrane type, in strict compliance with roof membrane manufacturer's requirements and specifications. Width of membrane seams shall be not less than 1.5 inches regardless of seaming technique.

1. CAUTION: WHERE SOLVENTS ARE USED TO CLEAN MEMBRANE SEAMS, ENSURE PRESENCE OF ADEQUATE SAFETY AND FIRST AID INFORMATION. INSTRUCT WELDING OPERATOR AS TO APPROPRIATE AMOUNTS OF HEAT TO BE USED. EXCESSIVE SOLVENT/HEAT WILL CAUSE DAMAGE TO ROOF MEMBRANE AND CERTAIN TYPES OF INSULATION MATERIAL. MINIMIZE SOLVENT DISPERSION ON TOP OF ROOF MEMBRANE.

2. VOLTAGE FLUCTUATIONS AND CLIMATIC CONDITIONS WILL AFFECT THE TEMPERATURE OF THE HEAT WELDING EQUIPMENT AND SUBSEQUENT QUALITY OF THE SEAM. CONTRACTOR MUST TAKE NECESSARY PRECAUTIONS TO ENSURE SEAM QUALITY. CONTRACTOR SHALL MONITOR SEAM QUALITY.

B. Seams shall be probed for integrity and watertightness daily.

C. Where three (3) or more membrane sheets overlap, the T-Joints shall be treated with a handheld hot air seaming tool, or other methods as approved by the roof membrane manufacturer to ensure continued seam integrity at this point.

D. On-site evaluation of welded seams shall be made daily by the Contractor to assure membrane seam weld quality. One-inch (1") wide cross-section samples of welded seams shall be taken at least three (3) times per day. Test cuts shall be taken at each start-up of welding equipment, mid-point, and at each completion of the welding process. Correct welds display failure from shearing of the membrane prior to separation of the weld. Weld quality is essential. Adjust equipment settings as necessary to assure quality welds. Based on test cut findings, appropriate membrane seam remedies must be instituted. All membrane test cut locations shall be documented and membrane test cut samples shall be labeled and provided to the Design Professional with the required Daily Construction Reports. Additional test cuts of suspect membrane seams shall be taken at the direction of the Design Professional or manufacturer’s representative. Each test cut shall be patched by the Contractor at no extra cost to the Owner.

E. Where required by membrane manufacturer and upon completion of the welding and testing process, apply seam sealant along the welded seam. Application of seam sealant shall follow immediately after successful seam testing.

F. Where and when requested by the Design Professional, the Contractor shall remove sections of seams, indicated by the Design Professional, for testing.

3.08 DRAIN FLASHINGS

A. Roof drain flashing shall be fully adhered, without seams located in drain sump, and installed in strict accordance with the membrane manufacturer's requirement and the project drawings.

B. During the flashing operation, drain openings shall be protected against debris, etc. Prior to

roofing activities, Design Professional and Roofing Contractor shall jointly inspect the drainage system to ensure proper drainage. Any defects in drainage shall be corrected immediately and shall be the responsibility of the Owner. During construction, install drain plugs. Plugs must be removed at the end of each workday or during work stoppage.

C. Conventional Drain Flashing:

1. Drain sumps shall be tapered to the drain for a distance noted on drawings. In cases where a tapered insulation system is utilized, incorporate drain and drain flashing into tapered design, to ensure continuity of water flow.

2. Check whether the drain bowl and the drainpipe are attached solidly without cause for leakage.

3. Clamp rings/bolts where distorted, damaged, or corroded, shall be replaced. Where appropriate, cut new threads to secure clamp ring.

4. Drain flashing shall be set in a bed of water cut-off mastic. Water cut-off mastic shall be placed in quantities to prevent overflow into drain.

5. Upon completion of roofing activities, check drainpipe, to ensure that drain line is free of obstruction. Any obstructions will be the responsibility of the Roofing Contractor.

3.09 PRE-FORMED VENT STACK FLASHINGS, VENT STACK & EXHAUST DUCT FLASHING:

A. In cases where the roofing systems manufacturer supplied pre-formed vent stack covers and rain caps, their use is allowable contingent upon the Design Professional’s approval.

B. Ensure that the penetration is clean and free of contaminants and protrusions. The penetration material must be compatible with the flashing material.

C. All vent stack covers must be anchored to an acceptable substrate with a minimum of four (4) corrosion-resistant fasteners. All vent stack covers shall be installed per the roofing system’s manufacturer’s specifications.

D. In the event of a hot or warm penetration through the roof, the Design Professional shall be alerted to the condition. The Contractor shall then consult with the roof system's manufacturer as to the manufacturer's recommended detail(s) for flashing this type of penetration. The Contractor shall submit the flashing detail(s) together, with a written statement by the roofing systems manufacturer, indicating inclusion of the detail condition within the scope of the roof systems warranty, for approval to the Design Professional.

CAUTION: NEVER USE A WRAP AROUND DETAIL OR A PRE-FORMED VENT STACK ON A HOT OR WARM PENETRATION.

E. At existing exhaust vent stack locations, assure functionality of rain caps and rain collars. Where rain caps and rain collars are damaged or missing, replace.

3.10 WALKWAY INSTALLATION

A. Walkways shall be installed around roof top units and at access points where indicated on project drawings.

B. Walkway material shall consist of reinforced thermoplastic membrane sheet with embossed surface for non-skid performance. The walkway membrane material shall be of the same quality as the roof membrane material. Walkway shall be a minimum of 36 inches wide. Walkway membrane shall be attached to the roofing membrane by means of roof-system-manufacturer-approved adhesive and shall have a continuous two-inch (2") wide hot-air weld around the perimeter. Constructed seams shall be of the same quality as seams constructed between roof membrane sheets, inclusive seam sealant, to prevent any ingress of moisture and/or foreign particles between the roof membrane and the walkway membrane.

C. The walkway shall not be installed over membrane seams inclusive of flashing seams. A 4” wide space shall be left at all seam locations in order to allow for the inspection and repair of any seams. In addition, the maximum length of walkway shall be limited to 10’ without a 4” wide space between adjacent walkway sheets. In addition, a 4” wide space shall be provided between adjacent walkway sheets when walkways are installed side-by-side.

3.11 COMPLETION

A. Correction of Work:

1. Work which does not conform to specified requirements including tolerances, slopes and finishes shall be corrected and/or replaced as directed by Design Professional at Contractor's expense without extension of time. Therefore, Contractor shall also be responsible for cost of correction to any work affected by or resulting from corrections to work of this section.

2. Rejection of Damaged Work

    a. Roofing Contractor, jointly with Design Professional and roofing material manufacturer's representatives, shall investigate completed sections of work.
    b. Damaged roofing components and work will be rejected.
    c. Replace damaged roofing components or work with new brand materials. Replacement will be at Contractor’s expense.

B. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to pre-construction condition.

All landscaped areas affected by construction activities shall be raked clean, seeded, or restored to pre-construction condition.

C. All manufacturers’ on-site inspection reports shall be submitted prior to final payment.

D. All guaranties, as required in Part 1 of this specification, shall be submitted for approval prior to final payment.

END OF SECTION 07 54 00 - THERMOPLASTIC MEMBRANE ROOFING

07 62 00
SHEET METAL FLASHING AND TRIM

PART 1 –GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. It is the intent of this specification to provide sheet metal flashing and trim that is integrated with the roof and wall system, to provide a weather-resistant building envelope system. The sheet metal flashing and trim must be able to withstand the applicable live (i.e. wind) and dead loads.

B. Items covered by this specification section:

1. Counterflashings and Receivers
2. Roof Edge Metal Systems
3. Coping Systems
4. Gutters and Downspouts
5. Shingle Roof Sheet Metal Flashings
6. Shingle Roof Vented Wall Flashing
7. Miscellaneous Sheet Metal Flashing

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and the Contractor.

1. N/A

1.04 RELATED SECTIONS

Division 1	General Requirements
02 41 19	Selective Demolition
06 10 53.01	Rough Carpentry for Roofing
07 53 23	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
07 54 00	Thermoplastic Membrane Roofing

1.05 REFERENCES

A. American Society of Civil Engineers (ASCE)
1. Document ASCE 7-16, Minimum Design Loads for Buildings and Other Structures.

B. American Society of Testing and Materials (ASTM)

1. ASTM A755 – Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
2. ASTM A792 – Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

C. American National Standards Institute/Single-Ply Roofing Industry (ANSI/SPRI)
1. ANSI/SPRI ES-1 - Wind Design Standard for Edge Systems Used with Low Slope Roof Systems

D. FM Global
1. Data Sheet 1-49 – Perimeter Flashing

E. National Roofing Contractors Association (NRCA)
1. NRCA Guidelines for Architectural Metal Flashings

F. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)
1. Architectural Sheet Metal Manual.

1.06 DEFINITIONS

A. Shop or Field-Formed Sheet Metal: Include components that will be formed or fabricated in the field or at the contractor's shop. Fabrication of sheet metal flashing and trim is predominantly by press brake-forming.

B. Prefabricated or Manufactured Sheet Metal: Items that are plant manufactured and ready for installation upon receipt.

1.07 PERFORMANCE REQUIREMENTS

A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.

B. Wind Resistance: Fabricate and install flashings to comply with recommendations of FM Global Loss Prevention Data Sheet 1-49 and ASCE 7 for the following zones:

1. Zone 1 (Field Areas) = +20.0/-38.0 psf.
2. Zone 2 (Perimeter Areas) = +20.0/-50.0 psf.
3. Zone 3 (Corner Areas) = +20.0/-55.0 psf.
4. Zone 4 (Wall Field Areas) = +20.0/-21 psf.
5. Zone 5 (Wall Corner Areas) = +20.0/-26.0 psf.

All roof edge metal systems must be tested per ANSI/SPRI ES-1 to verify that the system can withstand the specified wind pressures with a factor of safety of 2.0. All other components shall be fabricated and installed to withstand the specified wind pressures with a factory of safety of 2.0.

C. Thermal Movement: Provide sheet metal flashing and trim that allows for thermal movements resulting from the following maximum change in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of

components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 degrees F., ambient and 200 degrees F., material surfaces.

D. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration into the building in driving rain conditions.

1.08 REUTILIZED MATERIALS

The following items shall be assumed to be fully salvageable and reusable:

1. N/A

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

1. Submit manufacturer's product data, installation instructions, color chart, and general recommendations for each type of material, accessory, and product specified.

B. Shop Drawings:

1. Identify material, thickness, and finish for each item and location in project.
2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions. Note: These are reviewed only for conformance with the specification requirement. The contractor is responsible to verify the field conditions.
3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
4. Collector Box – Submit shop drawing for the size and configuration of each collector box. Collector box to be sized and shaped based on required field conditions.

C. Product Samples:

1. Sheet Metal Color Samples: Provide physical samples of the material with painted finish for color selection.
2. Shop-Formed Material: Provide 6" square material sample for each material that is to be an exposed finish.
3. Manufactured Sheet Metal: Provide a 12" long assembly sample for each item.

D. Product Test Reports:

1. Provide report showing the proposed edge metal system has been tested by an independent testing lab per ANSI/SPRI ES-1 to pressures exceeding the pressures specified in 1.07 Performance Requirements of this specification section.

E. Sample Warranty:

1. Provide sample warranty per the project specification.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Protect materials from weather, deformation, and other damage during delivery, storage, and handling.

B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack materials on platforms or pallets, covered with opaque tarps to prevent condensation. Do not store sheet metal flashings and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

D. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing and trim installation. Remove strippable protective covering after installation is complete.

1.11 WARRANTY

A. Material Manufacturer Responsibility:

1. Finish Warranty: The material manufacturer shall agree to repair finish or replace manufactured roof accessories that show evidence of deterioration of factory-applied finishes within the specified warranty period.

a. Kynar 500 Finish: Deterioration includes, but is not limited to, the following:

i. Color fading more than 5 Hunter units when tested according to ASTM D-2244.
ii. Chalking in excess of a No. 8 rating when tested according to ASTM D-4214.
iii. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

b. Warranty Period: 20-years

2. Wind Resistance Warranty: The coping cap and edge metal system shall be supplied by the Roof System Manufacturer and included in the Full-System Warranty for the Thermoplastic Membrane Roofing as specified in Section 07 54 00 or Ethylene-Propylene-Diene-Monomer (EPDM) Roofing as specified in Section 07 53 23.

1.12 QUALITY ASSURANCE

A. Source Limitations: Obtain sheet metal materials, edge metals, and accessories from a single manufacturer for each product required, unless approved by the Design Professional.

B. Sheet Metal Standard: SMACNA – Architectural Sheet Metal Manual and NRCA Guidelines for Architectural Metal Flashings.

C. Contractor Qualifications: A firm that has been engaged in sheet metal for a minimum of five (5) years.

D. Manufacturer Qualifications: A firm that has been engaged in sheet metal fabrication for a minimum of ten (10) years.

E. Environmental Standard: Manufacturer and contractor shall conform to Federal, State, and Local V.O.C. (Volatile Organic Compound) Regulations in area where the project is located. Notify Design Professional in writing if variations to the Contract Documents are required to comply with these regulations.

PART 2 – PRODUCTS

2.01 SHEET METALS

A. Pre-Painted Steel Sheets and Finishes for Manufactured Systems: Steel sheets coated by the hot-dip process and prepainted by the coil coating process to comply with ASTM A-755.

1. Aluminum Zinc Alloy-Coated Steel Sheet (Galvalume): ASTM A-792, Class AZ50 coating designation, Grade 40 (Class AZM150 coating designation, Grade 275); structural quality.
2. Material Thickness: 24-Gauge Minimum, unless noted otherwise.
3. Exposed Finish:

    a. High Performance Organic Finish: Prepare, pre-treat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's written instructions.

    b. Fluoropolymer 2-Coat System: Manufacturer's standard 2-coat, thermo-cured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with physical properties and coating performance requirements of AAMA 2605, except as modified below:

        i. Humidity Resistance: 2,000 hours
        ii. Salt Spray Resistance: 2,000 hours

    c. Color: Selected by Owner from Manufacturer's Standard Colors

B. Laminated Sheet Metal

1. Base Metal: 25-gauge steel with G-90 galvanized coating.
2. Thermoplastic Coating: Roof system manufacturer's thermoplastic membrane material permanently bonded to substrate.
3. Color: Selected by Owner from Manufacturer's Standard Colors
4. Manufacturers:

a. Roof System Manufacturer

2.02 SHINGLE ROOF FLASHINGS

A. Apron Flashings: Fabricate in lengths not exceeding 10 feet with a lower flange of 4 inches (minimum) and vertical flange of 6 inches.

B. Drip Edges: T-Type Drip Edge fabricated in lengths not exceeding 10 feet with minimum 4-inch flange over roof deck, a 1" T, and a 3-inch fascia flange with minimum 3/8-inch drip at lower edge. Fascia height to be modified based on field conditions.

C. High Side Flashing: Shop-fabricated sheet metal flashing and continuous cleat.

D. High Side Vent: Shop-fabricated sheet metal components and flashing. Perforated metal to be 0.050" aluminum with 3/16" round holes on ¼" staggered centers to provide a net free area of 51%.

E. Valley Flashing: W-shaped valley fabricated in lengths not exceeding 10 feet. Width of sheet shall be a minimum of 24". Inverted vee or center rib shall be a minimum of 1" high. Edges of valley flashing shall be hemmed.

1. Accessories: 2" wide metal cleats.

F. Step Flashing: 5" wide x 5" height x 10" length (Step flashing length may vary based on roof system manufacturer. In addition, a larger starter step flashing may be required in some instances. Verify with shingle manufacturer.)

1. Length shall be a minimum of exposure + 2"

G. Curb Flashing: Shop formed sheet metal flashing with a drip edge and continuous cleat at the base.

H. Pan Flashing: 0.063" Aluminum Pan Flashing, Fully Welded with Powder Coat Finish complying with AAMA 2605.

2.03 ROOF EDGE FLASHING

A. Manufactured Edge Metal System:

1. Continuous Cleat: 24-gauge Galvalume steel.
2. Fascia: 24-gauge Galvalume
3. Accessories: Provide manufacturer's standard accessories for the edge metal system.

4. Manufacturers:
   a. Metal-Era; Waukesha, Wisconsin (One Drip Edge – Kynar Version)
   b. W.P. Hickman Company; Asheville, North Carolina (Drip Edge Fascia – Kynar Version)

2.04 COPING CAPS

A. Manufactured Coping System – Cantilevered coping cap system designed to cantilever over EIFS, brick, and other façade systems with fastening only required in the top of the wall.

1. Retainer Clip: 12” wide, 20-gauge Galvanized anchor clips and 16-gauge Galvanized Saddle Clip locked to anchor clip.
2. Coping Cap: 22-gauge Galvalume. Curved coping shall be aluminum (thickness as required by manufacturer for welding) and shall have welded corners. The coping cap shall be sloped to the interior of the roof.
3. Accessories: Provide manufacturer’s standard accessories for the edge metal system. The accessories shall include, but not limited to, welded corner units, welded curved coping, extenders, and closures.
4. Manufacturers:
   a. Metal-Era, Waukesha, Wisconsin (Perma-Tite Cantilever Coping – Saddle Version Tapered)
   b. W.P. Hickman Company; Asheville, North Carolina (Permasnap Cantilever Coping – Saddle Version)

2.05 SHINGLE ROOF VENTED WALL FLASHING

A. Manufactured Shingle Roof Vented Wall Flashing – A manufactured high-side wall ventilation flashing designed to be installed with a shingle roof system and provide attic ventilation. Vented Wall Flashing System shall be tested per TAS 100 for water infiltration resistance.

1. Continuous Z-Brackets: 20 Gauge, G90 Galvanized Steel
2. Ridge Vent Cover Material: 24-gauge Galvalume.
3. Perforated Metal Support Screen: 0.050” aluminum
4. Net Free Area Required: Minimum 12 sq. in. per linear foot
5. Accessories: Provide manufacturer’s standard accessories for the vented wall flashing system. The accessories shall include, but not limited to, cover plates, supports, welded end caps, etc.
6. Manufacturers:
   a. Metal-Era, Waukesha, Wisconsin (Hi-Perf Ridge Vent)
   b. Or Approved Equal

2.06 GUTTERS

A. Manufactured Gutter System:

1. Gutter:
   a. Material: 24-gauge Galvalume
   b. Length: 50 feet minimum, continuous between expansion joints.
   c. Size: 7”

d. Profile: Back of gutter to be a minimum of 1” higher than front.

2. Gutter Straps:
   a. Material: 18-gauge galvanized
3. Expansion Joints: To be provided where indicated and not more than 50 feet on-center.
4. Accessories: Gutter baffles.
5. Manufacturers:
   a. Dimensional Metals Incorporated (DMI); Reynoldsburg, Ohio (Continuous Gutter – CG70)
   b. Metal Panel Systems, Inc.; Cincinnati, Ohio (Mig7)

2.07 DOWNSPOUTS

B. Manufactured Downspout:

1. Downspout
   a. Material: 24-gauge Galvalume, corrugated
   b. Length: 10 feet minimum
   c. Size: As indicated on the project drawings or match existing.

2. Support Brackets
   a. Material: 24 Gauge Galvalume,
   b. Finish: Painted to match downspout color.
   c. Profile: Both edge hemmed, and U-shaped.
   d. Spacing: 5 feet on center maximum.

3. Accessories: Provide elbows, outlet tubes, and other accessories as required to complete the installation. Fasteners attaching the downspout to the downspout bracket shall be Series 300 stainless steel.

4. Manufacturers:
   a. Dimensional Metals Incorporated (DMI); Reynoldsburg, Ohio
   b. Metal Panel Systems, Inc.; Cincinnati, Ohio

2.08 COLLECTOR BOX

A. Fully-welded 0.063 aluminum collector box.

B. Finish: Post-fabrication powder coat finish complying with AAMA 2605.

C. Color: To match fascia system

D. Size: To fit field conditions. Contractor to provide submittal for proposed size and configuration.

E. Manufacturer:
1. Metal-Era, Waukesha, Wisconsin
2. W.P. Hickman Company, Asheville, North Carolina

2.09 COUNTERFLASHING

A. Shop-Formed Counterflashing:

1. Material: 24-gauge Galvalume with Kynar 500 finish
2. Length: 10 feet

B. Receivers:

1. Material: 24-gauge Galvalume
2. Finish: Kynar 500 finish
3. Length: 10 feet

2.10 STORM COLLAR

A. 26-gauge stainless steel flashing with soldered seams. Flashing shall provide a perimeter skirt to provide a minimum 3” overlap of a curb cover of roof flashing.

1. Material: 26-gauge stainless steel
2. Finish: Mill
3. Manufacturer:
   a. SBC Industries; Opa Locka, FL (Umbrella Bell Cap)
   b. Or Approved Equal

2.11 ACCESSORIES

A. General: Provide materials and types of fasteners, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.

B. Fasteners: Same metal as flashing or sheet metal, or other non-corrosive metal. Match finish of exposed heads with material being fastened. Provide wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
   a. Masonry Fasteners: 1/4” screw-type masonry anchor.
   b. Sheet Metal Fasteners: #14 Self-drilling, self-tapping, stainless steel screws.
   c. Blind Fasteners: 1/8” stainless steel pop-rivet.
   d. Wood Fasteners: #10 pancake head screw or 1-1/2” ring-shanked hot-dipped galvanized roofing nails for areas where membrane is installed over the fasteners.
   e. Gutter Brackets: Stainless steel #10 pancake head ultra-low profile fastener.
   f. Where fasteners will be in contact with treated wood with preservative chemicals, provide fasteners and anchorage that are stainless steel or with a coating recommended by the manufacturer for use with treated woods and pass FM 4470 for corrosion resistance.
   g. Expanding type anchors are not permitted.

C. Sealing Washers: Composite stainless-steel washer with 0.060” EPDM bonded to the washer. These shall be utilized at all exposed fastener locations.

D. Metal Lap Sealant: Polyisobutylene; extrudable sealant, non-migratory, nondrying, and non-skinning synthetic elastomer sealant. Comply with ASTM C919, ASTM E90, AAMA 809.2, or Federal Specification TTC-598-b Type 1.

1. Use Locations: Concealed metal overlap joints.
2. Primer:
3. Manufacturers:

    a. Sika Corp., Madison Heights, MI – Sikalastomer 511
    b. Triangle Fastener Corp., Pittsburgh, PA – TFC Butyl
    c. Pecora Corp., Harleysville, PA – BA-98

E. Sealant: A one or two component polyurethane-based, non-sag elastomeric sealant. Comply with ASTM C920, Type S, Grade NS, Class 25.

1. Use Locations: Exposed and concealed exterior sealant joints.
2. Color: To be selected by Owner from manufacturer's standard colors.
3. Primer: Manufacturer's primer to be utilized on all joints submerged in water and on substrate materials recommended by the sealant manufacturer.
4. Manufacturers:
    a. BASF, Shakopee, MN – MasterSeal NP1 or NP2
    b. Sika Corp., Madison Heights, MI – Sikaflex 1a or 2c
    c. Pecora Corp., Harleysville, PA - DynaTrol I-XL

F. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size and gauge required to resist the specified loads.

G. Tape Sealant: A 100% solids, asbestos-free butyl tape sealant that is highly rubbery, tacky, reinforced compound designed for sealing metal lap joints. Complying with AAMA 804.3, AAMA 807.3, or Federal Specification TT-C-1796A, Type II, Class B.

1. Use Locations: Concealed metal overlap joints.
2. Size: ¾" wide x 3/16" thick min.
3. Primer: Manufacturer's primer to be utilized on all joints submerged in water and on substrate materials recommended by the sealant manufacturer.
4. Manufacturers:
    a. Schnee-Morehead, Irving, TX – Tacky Tape
    b. GSSI Sealants, Harleysville, PA – MB-10A Sealant Tape
    c. Tremco Commercial Sealants & Waterproofing, Beachwood, OH - ET 675 Tape

H. High Temperature Sealant: One component, fire-rated elastomeric neutral, moisture cure silicone sealant for use in through-penetrations firestops. Complying with ASTM C920, Type S, Grade NS, Class 25.

1. Use Locations: Exposed exterior joints exposed to high temperatures.
2. Color: To be selected by Owner from manufacturer's standard colors.
3. Primer: Manufacturer's primer to be utilized on all joints submerged in water and on substrate materials recommended by the sealant manufacturer.
4. Manufacturers:

a. Sika Corp., Madison Heights, MI – Sikasil WS-295
b. Pecora Corp., Harleysville, PA – 864 NST
c. Rectorseal, Houston, TX – Metacaulk 835+

PART 3 – EXECUTION

3.01 INSPECTION

A. Examine all substrates to receive sheet metal flashings and trim. If any unsatisfactory conditions exist, the Design Professional shall be notified and no work shall proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Coordinate all work closely with Design Professional as it relates to the installation of the sheet metal flashing and trim. Sheet metal flashing and trim will be installed as identified in the project specifications and drawings.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by providing a permanent separation layer as recommended by the material manufacturers.

3.03 INSTALLATION

A. General:

1. Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations, with SMACNA – "Architectural Sheet Metal Manual", and NRCA Guidelines for Architectural Metal Flashings.
2. Install work with provisions for thermal expansion of gutters, flashings, gravel stops, coping, fascia, and other items exposed for more than 10 feet continuous length. Maintain a watertight installation at expansion joint seams. Locate gutter expansion joints where indicated, or if not indicated, at a maximum of 50' on-center.
3. Torch cutting or abrasive grinding of sheet metal flashing and trim is not permitted.
4. Sheet metal work shall be watertight and weathertight; lines, breaks, and angles sharp and true, plain surfaces free from waves and buckles. Workmen shall be experienced in the trade and thoroughly capable of performing the work in accordance with these requirements.
5. Seal joints with metal lap sealant as required for watertight construction.

B. Shingle Roof Flashings

1. Valley Flashing: Valley shall be installed over underlayment. Secure top edge of the valley with fasteners 3" O.C. The edges of the valley are to be secured with cleats installed 24 inches O.C. Overlap joints shall be minimum 12 inches and bedded in 2 rows of metal lap sealant. Metal valley installation shall also follow the requirements of the shingle manufacturer and the project drawings.
2. Apron Flashing: Extend lower flange a minimum of 4" beyond each side of down slope asphalt shingles. Apron flashing shall hook onto a cleat secured over the

shingle roof surface. Cleat shall be set in sealant. Apron flashing shall be secured to vertical wall surfaces 12" O.C.

3. Drip Edges: Install eave drip edge under underlayment and rake drip edge over underlayment and fasten to roof deck 8" O.C. slightly staggered. Overlap joints shall be a minimum of 4".
4. Step Flashing: Install step flashing between shingle courses at all rake-to-wall and curb penetration details. Step flashing shall overlap underlying step flashing a minimum of 2". Top edge of step flashing shall be secured to the roof deck with a minimum of 2 fasteners.

C. Roof Edge Flashing:

1. Install as recommended by the manufacturer.
2. The top of all walls shall be covered with waterproofing membrane prior to the installation of the edge metal system.
3. If fasteners penetrate the horizontal portion of the membrane, tape sealant shall be installed on the membrane at each fastener location.
4. The base clip shall be set in a bead of sealant in order to prevent water from penetrating under the roof edge flashing.
5. Provide splice plates and other accessories required for complete installation.

D. Coping Caps:

1. Install as recommended by the manufacturer.
2. The top of all walls shall be covered with waterproofing membrane prior to the installation of the edge metal system.
3. If fasteners penetrate the horizontal portion of the membrane, tape sealant shall be installed on the membrane at each fastener location.
4. Provide splice plates and other accessories required for complete installation.

E. Gutters:

1. For non-moving seams, seal overlaps with metal lap sealant and rivet 2" on-center. The interior of the gutter shall be sealed with a sealant joint (bridge type joint) at the joints. Provide expansion joints between downspouts, but not exceeding 50 feet apart.
2. Install gutter support straps at 24" on-center.
3. Provide pre-manufactured outlet tube sections extending 3" into downspouts.
4. Gutter laps 4" minimum and set in sealant as required.
5. Gutter Baffles: Shall be same material and color as the gutter. Shall be fabricated per SMACNA Figure 1-24A. Extend 6 inches above the front edge of the gutter. Install at all locations where there is a concentrated flow of water (i.e. ends of valleys, downspouts from upper roofs, etc.). The baffle shall extend a minimum of 24" from the center line of the concentrated flow of water in each direction. Secure to the gutter bead and provide support brackets at each gutter support strap.

F. Downspouts:

1. Provide downspout support brackets at 1' from the top and bottom of the downspout. Additional support brackets shall be located at 5' on-center.

2. Elbows and splash blocks shall be located at the end of each downspout.
3. The downspouts shall be terminated at 6” above the surface of the lower roof or elevation, connected into underground receiver pipe.

G. Counterflashing:

1. Counterflashings shall be installed as a removable, slip-type, surface mounted or reglet type counterflashing. Surface-mounted counterflashings are only to be used with permission of Design Professional.
2. Counterflashing shall be fabricated and installed to prevent horizontal surfaces that can pond water.
3. Counterflashing shall extend a minimum of 4” below top of base flashing and overlap 4” at the vertical joints.
4. Slip-type counterflashings shall extend vertically behind the existing flashing components a minimum of 3” to prevent wind-driven rain. Slip-type counterflashings shall be secured 16” on-center with the appropriate fastener with sealing washer.
5. Reglet-type counterflashing shall extend into the reglet a minimum of 1-1/2”. The counterflashing shall be secured with the appropriate type fastener with sealing washers at 16” on-center.
6. Surface mounted counterflashings shall be installed into tape sealant and secured 12” on-center with the appropriate fastener with sealing washer.
7. Removable counterflashings shall be installed into a receiver and shall be secured 16” on-center.
8. The bottom edge of the counterflashing shall be formed tight against the roofing material but shall not cut into the roof material.
9. The counterflashing shall have end caps installed at all terminations.

H. Miscellaneous Metal Flashing:

1. Overlap joints a minimum of 4 inches and bed laps in metal lap sealant.
2. Seal work projecting through or mounted on roofing with roof system manufacturer-approved sealant materials and make weathertight.

3.04 COMPLETION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean off excess sealants.

C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removal of unused fasteners, metal filings or cuttings, pop rivet stems, and pieces of metal flashing. Maintain a clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

E. Work that does not conform to specified requirement including tolerances and finishes, shall be corrected and/or replaced as directed by the Design Professional, at

Contractor's expense, without extension of time. Contractor shall also be responsible for cost of corrections to any Work affected by or resulting from correction to work of this Section.

END OF SECTION 07 62 00 – SHEET METAL FLASHING AND TRIM

07 72 00
ROOF ACCESSORIES

PART 1 –GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Items covered by this specification section:

1. Roof Hatch
2. Roof Access Ladders
3. Splash Blocks
4. Accessories

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and Contractor.

1. N/A

1.04 RELATED SPECIFICATIONS

Division 1	General Requirements
02 41 19	Selective Demolition
07 22 16	Roof Board Insulation
07 54 00	Thermoplastic Membrane Roofing

1.05 REFERENCES

A. American Institute of Steel Construction (AISC)
1. S342L – Load and Resistance Factor Design Specification for Structural Steel Buildings

1.06 DEFINITIONS

1 Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Waterproofing Manual" for definition of terms related to roofing work in this section.

1.07 PERFORMANCE REQUIREMENTS

A. Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

1.08 REUTILIZED MATERIALS

The following items shall be assumed to be fully salvageable and reusable:

1. N/A

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

1. Submit manufacturer's product data for each type of accessory and product specified.

B. Material Safety Data Sheets (MSDS):

1. Submit an MSDS sheet for each material that will be utilized on-site.

C. Closeout Submittals:

1. Operation and Maintenance Data: For roof accessories to include in operation and maintenance manuals.
2. Warranty: Special warranty specified in this Section.

1.10 QUALITY ASSURANCE

A. Source Limitations: Obtain each material and accessories from a single manufacturer for each product required, unless approved by the Design Professional.

B. Where manufactured systems are specified, other field fabricated or shop/field fabricated substitutions will not be accepted, unless otherwise approved by the Design Professional.

C. Environmental Standard: Manufacturer and contractor shall conform to Federal, State, and Local V.O.C. (Volatile Organic Compound) Regulations in area where the project is located. Notify Design Professional in writing if variations to the Contract Documents are required to comply with these regulations.

1.11 DELIVERY, STORAGE, AND HANDLING

A. All products delivered to the site shall be in the original unopened containers, wrappings, or crating. Storage areas will be defined by Design Professional.

B. Material shall be located on site in manner that overloading of any of the individual framing members does not occur.

C. Handle all materials to prevent damage. Materials shall be secured in a safe manner to prevent damage.

D. Store temperature susceptible materials in a dry and heated area between 60° F and 80° F. If exposed to lower or higher temperatures, the material shall be discarded and new

material provided at no cost to the Owner.

E. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Closely follow precautions/instructions outlined on container or supplied by manufacturer/supplier (MSDS sheets).

1.12 WEATHER LIMITATIONS ON WORK

A. At ambient temperatures of 40 degrees F and below, including wind-chill, precautions must be taken to ensure that temperature-susceptible materials maintain their minimum acceptable temperature at the point of application as recommended by the roofing materials manufacturer.

1.13 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. Contractor shall implement all necessary precautions to prevent debris or materials/equipment from becoming airborne due to wind conditions anticipated at the site. All roof removal materials shall be removed from the roof by an enclosed chute to the ground level. Contractor shall conform to all regulations and precautions as required by applicable safety organizations.

PART 2 – PRODUCTS

2.01 SPLASH BLOCKS

A. Material Properties:
- Compressive Strength: 6,500 psi
- Unit Weight: 150 lbs/ft3
- Dimensions: 2-3/8” thick, 24” long, and 12” wide.

B. Manufacturers:
- Sunny Brook Pressed Concrete Co., Kent, OH
- Oberfield’s Inc., Delaware, OH
- Hanover Architectural Products
- Oldcastle Precast, Inc.
- Modern Precast, Inc.
- Wilbert Precast, Inc.

2.02 ROOF HATCH

A. Material Properties:
1. 14 gauge G-90 Galvanized steel cover and frame.
2. Cover: Break-formed, hollow-metal design with 1” concealed fiberglass insulation, fully welded corners and internally reinforced to support a 40 psf live load.
3. Gasket: Extruded EPDM permanently adhered to the cover.
4. Hinges: Heavy-duty pintle hinges with 3/8” type 316 stainless steel hinge pins.
5. Latch: Slam latch with interior and exterior turn handles and padlock hasps.
6. List Assistance: Compression spring operators enclosed in telescopic tubes. Automatic hold open arm with grip handle release.
7. Size: 36” x 30”

8. Finish: Factory Applied Powder Coat Finish – Safety Yellow

B. Manufacturers:
1. Bilco – New Haven, CT – Type S
2. Babcock-Davis, Brooklyn Park, MN
3. Milcor by Hart & Cooley, Inc., Grand Rapids, MI

2.03 ROOF ACCESS LADDERS

A. Vertical Fixed Ladder with Parapet Platform – Lightweight aluminum roof access ladder designed. Ladder system to be designed and manufactured to meet or exceed OSHA 1910.23.

B. Material Properties:
1. Material: 6160-T6 Aluminum
2. Finish: Mill
3. Ladder Width: 23-1/2". Walk-Through Width: 24"
4. Base: Non-penetrating load distributing aluminum base plate for bearing on the roof surface.

C. Manufacturers:
1. Kattsafe, Whitestown, IN (Model RL32)
2. Or Approved Equal

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine the available construction drawings and field verify all member sizes, spacing, and locations.

B. Notify the Design Professional of any conditions that will affect the installation of the accessory immediately. Do not proceed with work until the deficiency has been corrected.

3.02 INSTALLATION

A. Install all roof accessories per the manufacturer's installation instructions and the Contract Documents.

3.03 COMPLETION

A. Clean all exposed surfaces in accordance with manufacturer's instructions. Touch up damaged finishes.

B. Provide the Owner's operating instructions and accessories for all systems.

END OF SECTION 07 70 00 ROOF ACCESSORIES

07 92 00
JOINT SEALANTS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS:

A. The provisions of the General Conditions and the Sections included under Division 1 - General Requirements, are included as part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Work of this section shall provide Owner with a functional weathering surface by applying Joint Sealants within properly prepared joints.

B. Items covered by this specification section:

1. EIFS Control Joints
2. Building Expansion Joints
3. Accessories

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Owner's Representative and Contractor.

1. N/A

1.04 RELATED SPECIFICATIONS

Division 1 General Requirements
07 24 19 Water-Drainage Exterior Insulation and Finish System

1.05 REFERENCES

A. American Architectural Manufacturers Association (AAMA)

1. AAMA 800 (804.3 and 807.3) – Voluntary Specifications and Test Methods for Sealants

B. American Society of Testing and Materials (ASTM)

1. C920 – Standard Specification for Elastomeric Joint Sealants
2. C1193 – Standard Guide for Use of Joint Sealants
3. C1248 – Standard Test Method for Staining of Porous Substrate by Joint Sealants

C. Federal Specifications

1. TT-C-1796A – Caulking Compounds, Metal Seam and Wood Seam

1.06 DEFINITIONS

A. Adhesive Failure: Failure of the bond between the sealant and the substrate.

B. Cohesive Failure: Failure characterized by the rupture within the sealant.

C. Initial Cure: The time period recommended by the sealant manufacturer before the sealant can be exposed to precipitation.

D. Concealed Locations: Locations where the sealant joint will to be exposed to UV light, but may be exposed to moisture.

E. Exposed Locations: Locations where the sealant joint will be exposed to UV light and moisture.

F. High Temperatures: Temperatures over 160° F.

1.07 PERFORMANCE REQUIREMENTS

A. General: Installed sealant shall remain watertight, do not permit the passage of water, and remain flexible in order to withstand thermally induced movement without failure.

B. Material Compatibility: Provide sealant materials that are compatible with one another under conditions of service and application required, as demonstrated by sealant manufacturer, based on testing and field experience.

C. Movement Capability: Provide sealant material with the following minimum joint movement capabilities:

Exterior Sealant Joints: +/- 50% Hybrid.

D. Staining: Provide sealant materials that do not bleed into or stain the substrate.

1.08 REUTILIZED MATERIALS

The following items shall be assumed to be fully salvageable and reusable:

1. N/A

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

1. Submit specifications, installation instructions, and general recommendations from sealant material manufacturers for each type of sealant specified. Include

data substantiating that materials comply with requirements of this specification, inclusive of accelerated weathering data.

B. Product Samples:

1. Sealant – Full range of manufacturer's standard colors.
2. Backer rod
3. Bond breaker tape

C. Material Safety Data Sheets (MSDS):

1. Submit an MSDS sheet for each material that will be utilized on-site.

D. Manufacturer Certification:

1. Submit written statement from sealant manufacturer that Contractor has experience in the application of specified sealant system, and the Contractor is approved by sealant manufacturer to install the system and receive the specified warranty.

E. Sample Warranty:

1. Submit copy of warranty from the sealant manufacturer.

F. Field Testing:

1. Submit test reports summarizing the results of the preconstruction field adhesion testing as outlined in the Quality Assurance section of this specification.

G. Mock-Up: Install a 5' section of sealant for each type of sealant joint for review by the Design Professional prior to proceeding with the work.

1.10 QUALITY ASSURANCE

A. Source Limitations: Obtain sealant materials and accessories from a single manufacturer for each product required, unless a different material is approved by the Design Professional.

B. Sealant Standard: Comply with Sealant, Waterproofing & Restoration Institute – Sealants: The Professionals' Guide. ASTM C1193 – Standard Guide for Use of Joint Sealants.

C. Contractor Qualifications: Contractor shall be experienced with projects similar in material, design, and extent to those indicated for this project and shall be approved by the sealant manufacturer.

D. Manufacturer Qualifications: Manufacturer shall be experienced with the manufacturer of the specified sealant system for a minimum of 10 years.

E. Preconstruction Field-Adhesion Testing: Before installing sealants, perform adhesion field tests for each type of sealant and joint substrate.

1. Locate test joints as directed by Design Professional.
2. Notify Design Professional seven (7) days in advance of dates and times when test joints will be installed.
3. Arrange for tests to take place with joint sealant manufacturer's technical representative present.
4. Test Method: Test joint sealants by hand-pull method described below:

    a. Install joint sealants in 60-inch-long joints using same materials and methods for joint preparation and joint sealant installation required for completed work. Allow sealants to cure fully before testing.
    b. Make knife cuts from one (1) side of joint to the other, followed by two (2) cuts approximately 2 inches long at sides of joint and meeting cross cut at one end. Place a mark 1 inch from cross-cut end of 2-inch piece.
    c. Use fingers to grasp 2-inch piece of sealant between cross-cut and 1 inch mark; pull firmly at a 90 degree angle or more in direction of side cuts while holding a ruler alongside of sealant. Pull sealant out of joint to a distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.
    d. For joints with dissimilar substrates, check adhesion to each substrate separately by extending cut along one side, checking adhesion to opposite side, and then repeating this procedure for opposite side.
    e. After the adhesion has been check for the maximum movement capability, the sealant shall be pulled to failure.

5. After the initial preconstruction adhesion tests, conduct number of field adhesion tests for each type of sealant and each type of substrate as follows:

    a. Not less than 10 tests for the first 1,000 feet of installed sealant and 1 test for each additional 1,000 feet of sealant installed. Additional tests may also be required by the Design Professional and shall be performed at no additional costs to the Owner.
    b. The test locations shall be determined by the Design Professional.

6. Document results of field adhesion tests and record results in field adhesion test log.
7. Include in log data on pull distance used to test each joint sealant.
8. Include data on joints where material connected with pull portion of sealant failed to adhere to joint substrate or tore cohesively.
9. Inspect joints and record data for the following:

    a. Joint width
    b. Sealant thickness at the center of the joint
    c. Sealant thickness at substrate

10. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
11. Evaluation of Preconstruction Field Adhesion Test Results: Sealants not

evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

12. Repair sealant test areas by removing damaged materials and applying sealant to test area using same procedure used to originally install the sealant.

F. Field Color and Workmanship Samples: Install a section of sealant joint (in the work) a minimum of 5' in length for each joint configuration at least seven (7) days prior to the start of work for review by the Design Professional. When approved, the sample shall be used as a standard of comparison for the remainder of the work.

1.11 DELIVERY, STORAGE, AND HANDLING

1. Deliver all materials in unopened containers and/or packages bearing the manufacturer's name and brand identification.

2. Handle all materials to prevent damage. Store temperature susceptible materials in a dry heated area between 60° F and 80° F. If exposed to temperatures above or below the manufacturer's recommended storage temperature, the contractor shall properly dispose of the improperly stored material and provide new materials at Contractor's expense. Prior to use the sealant shall be conditioned to approximately 70° F and maintained until just prior to use.

3. Materials determined by the Design Professional to be damaged or to have been subjected to adverse conditions shall be removed and replaced at Contractor's expense.

4. All flammable materials shall be stored in a cool, dry area away from sparks and open flames.

1.12 WEATHER LIMITATIONS ON WORK

A. Do not install sealant system during precipitation and shall not be started in the event there is a high probability of precipitation during the on-going work or prior to initial cure.

B. Install sealants when ambient temperatures are between 40° F and 100° F.

1.13 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. Do not apply over damp surfaces.

B. Protect sealant joints from precipitation prior to initial cure.

C. Do not apply when a moisture vapor transmission condition exists from the substrate as this can cause bubbling within the sealant.

1.14 MANUFACTURER'S REPRESENTATIVE

A. Contractor shall require the presence of a Technical Representative of the material manufacturer to provide field instructions and recommendations as required by the project.

1.15 GUARANTEES AND MAINTENANCE

A. The Effective Date of the Warranty/Guarantee shall not be prior to the date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this section within specified warranty period.

1. Warranty Period: Vertical Joints: Ten (10) years

PART 2 - MATERIALS

2.01 JOINT SEALANT – HYBRID

A. A one component silicone/polyurethane hybrid, non-sag elastomeric sealant. Comply with ASTM C920, Type S, Grade NS, Class 50.

B. Use Locations: Exposed and concealed exterior sealant joints.

C. Color: To be selected by Owner from manufacturer’s standard field tintable colors (min. 40 colors to choose from).

D. Manufacturers:

1. Sika Corp., Madison Heights, MI – Sikaflex-HY150
2. Pecora Corp., Harleysville, PA - DynaTrol I-XL FTH

2.02 BUILDING EXPANSION JOINT

A. Pre-fabricated, factory-applied, low-modulus silicone with open-cell polyurethane foam infused with a water-based, non-drying acrylic dispersion backer designed to be installed in a high movement joint (+/- 50%) and be free of tensile stress on the bond line.

B. Manufacturers:
1. Emseal Joint Systems, Ltd, Westborough, MA (Seismic Colorseal)
2. Nystrom, Minneapolis, MN (SES)
3. Balco, Wichita, KS (Pre-Compressed Primary Seal)

2.03 AUXILARY MATERIALS

A. Primer: Primer to be high-solid, low-VOC, solvent-based primer for priming joints and substrates before application of sealant.

B. Backer Rod: Closed cell foam backer rod sized to the opening. At fillet joint locations provide a triangular or one-quarter round backer rod.

C. Bond Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials,

or joint surfaces at the back of the joint.

2.04 REJECTED MATERIALS

The Design Professional shall have the right to inspect all materials brought to or stored at the job site. Those materials that do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person designated by the Contractor to be the lead on site supervisor. The verbal notification will be by the Design Professional, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 INSPECTION

A. A pre-job conference, including the Design Professional, Owner, and Contractor, shall be conducted prior to commencement of the Caulking or sealing Work.

B. Examine substrates and conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected as required for the material application in accordance with the material manufacturer’s specifications and requirements.

C. Notify the Design Professional in writing to all conditions which may adversely affect the installation and/or performance of the sealant system prior to commencing with the work. Proceed with installation only after unsatisfactory conditions have been corrected. Application of any part of the sealant system shall indicate acceptance of the existing conditions and acknowledgement of full responsibility for the quality and durability of the sealant.

D. Contractor shall verify that investigation of all Work that may affect the General Public, Owner, and Owner's tenants has been completed, and adequate precautions have been implemented.

3.02 PREPARATION

A. Contractor shall investigate all air intake ventilators, HVAC, open windows, and related equipment in the immediate and downwind area of the Work. Equipment or openings which may allow debris, dust, dirt, and fumes into the interior of the building shall be shut down and/or sealed. Contractor shall coordinate the closing of HVAC equipment with the Owner.

B. Removal of existing caulking and sealing materials shall be performed in a way to provide Owner with a watertight system at all times during construction.

C. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust paints (except permanent, protective coatings tested and approved for adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

D. Porous Substrates: Clean surfaces by brushing, grinding blast cleaning, mechanical abrading, or a combination of these methods to produce clean, sound substrate capable

of developing optimum bond with joint sealers. Remove loose particles remaining by vacuuming or blowing out joints with oil-free compressed air.

E. Nonporous Substrates: Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

F. Concrete: Remove laitance and form-release agents from concrete.

G. Joint Priming: Prime joints where recommended by the sealant manufacturer or where the Preconstruction Field-Adhesion Testing shows that a primer is needed. Prime all joints (i.e. gutter laps, below grade joints, horizontal surfaces, etc.) to be immersed under water.

Primer shall be confined to areas where joint sealant will be applied. Do not allow primer to migrate to surfaces that will remain exposed after sealant joint installation.

H. Joint Backing:

1. Install backer rod or bond breaker tape in joints to prevent 3-sided bonding, which will cause the joint to fail prematurely.

2. Backer rods shall be sized to 25% to 50% larger than the joint.

3. Install backing to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

4. Do not leave gaps between ends of sealant backings.

5. Do not stretch, twist, braid, puncture, or tear sealant backings.

6. Remove absorbent sealant backings that have become wet before sealant installation and replace them with dry materials.

I. Protection of Adjacent Surfaces: 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. Where adequate grooves for caulking have not been provided, grooves shall be prepared by cutting and cleaning out the mortar to the minimum depth and by grinding to the minimum width, taking care that adjoining metal work is not reduced in section.

J. Where a suitable mortar backstop has not been provided, the back of joint grooves shall be packed tightly with backer rod.

3.03 GENERAL

A. Application of the sealant systems shall be in accordance with the sealant manufacturer’s recommendations and additional requirements of the project specifications and drawings. Material manufacturer's recommendations related to

weather (temperature, moisture, and humidity), surface preparation, and shelf life must be observed.

B. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The building and its contents shall be protected against all risks.

3.04 INSTALLATION OF JOINT SEALANTS

A. Install sealants so they directly contact and fully wet joint substrates.

B. Completely fill recesses provided for each joint configuration.

C. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

D. Sealant Tooling:

1. Immediately after sealant application and before skinning or curing begins, tool sealants to form a smooth, uniform joints; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

2. Remove excess sealants from surfaces adjacent to joint.

3. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

4. Provide concave joint configuration unless otherwise specified.

E. Install joint sealants in accordance with ASTM C 1193 as applicable to materials, applications, conditions indicated, and with the following profile configurations:

1. Fillet: Figure 5.
2. Bridge: Figure 6.
3. Butt: Figure 8A (concave tooling), generally hour-glass shape with 2:1 width-to-depth ratio.

F. Protection: Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of substantial completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

3.05 BUILDING EXPANSION JOINT INSTALLATION

A. Remove the existing building expansion joint and prepare the sealant joint substrate as outlined in this specification and repairing any existing substrate joint damage.

B. Install expansion joint material per the manufacturer’s recommendations and installation instructions.

C. Apply sealant along edge of pre-applied sealant facing and tool.

D. All corners and transitions shall be completed utilizing the manufacturer's typical details and installation requirements.

E. Protection: Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of substantial completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

3.06 CLEANING

A. The surfaces of all materials adjoining caulked joints shall be cleaned of smears of compound or other soiling resulting from caulking application.

B. On non-porous surfaces, excess uncured sealing material shall be removed with a solvent moistened cloth immediately.

C. On porous surfaces, excess sealing material shall be allowed to cure overnight, then removed by lightly wire brushing or sanding.

D. Clean adjacent surfaces free of sealing material or soiling resulting from this work as work progresses. Use solvent or cleaning agent as recommended by sealing material manufacturer. All finish work shall be left in a neat, clean condition.

E. Remove all covers and masking from equipment, etc., only after danger of fumes entering the building has passed.

3.07 COMPLETION

A. Correction of Work

Work which does not conform to specified requirements including tolerances, slopes and finishes shall be corrected and/or replaced as directed by Design Professional at Contractor's expense without extension of time. Therefore, Contractor shall also be responsible for cost of correction to any work affected by or resulting from corrections to work of this section.

B. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to pre-construction condition.

All landscaped areas affected by construction activities shall be raked clean, seeded, or restored to pre- construction condition.

C. All manufacturers' on-site inspection reports shall be submitted prior to final payment.

D. All guaranties, as required in Part 1 of this specification, shall be submitted for approval prior to final payment.

END OF SECTION 07 92 00 – JOINT SEALANTS

08 51 13
ALUMINUM WINDOWS

PART 1- GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

Work of this section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.02 SCOPE OF WORK

A. Work of this section shall provide Owner with functional aluminum framed windows that do not allow air leakage or water penetration through the window system.

B. Section includes:

1. Aluminum windows.
2. Accessories – trim, shims, etc.

1.03 UNIT PRICES – N/A

The following work shall be added or deleted on a unit price basis in accordance with the requirements of Bid Proposal. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Owner's Representative and Contractor. If an agreement cannot be reached, the Design Professional's opinion shall control.

1.04 RELATED SPECIFICATIONS

The work of this part shall be in accordance with the applicable requirements of the following:

DIVISION 1	General Requirements
02 41 19	Selective Demolition
07 42 13	Metal Wall Panels

1.05 REFERENCES

A. American Architectural Manufacturers Association (AAMA)

1. AG-13 – AAMA Glossary
2. CW-10 – Care and Handling of Architectural Aluminum from Shop to Site
3. 101/I.S.2/A440 – Standard/Specification for Windows, Doors, and Unit Skylights
4. 507 – Standard Practice for Determining the Thermal Performance Characteristics of Fenestration Systems in Commercial Buildings
5. 520 – Voluntary Specification for Rating the Severe Wind-Driven Rain Resistance of Windows, Doors, and Unit Skylights
6. 800 – Voluntary Specifications and Test Methods for Sealants

7. 904.1 – Friction Hinges
8. 907 – Voluntary Specifications for Corrosion Resistant Coatings on Carbon Steel Components Used in Windows, Doors, and Skylights
9. 910 – Voluntary “Life Cycle” Specifications and Test Methods for AW Class Architectural Windows and Doors
10. 1503 – Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections
11. 2605 – Voluntary Specification, Performance Requirements and Test Procedure for Superior Performing Organic Coatings on Aluminum Extrusions and Panels

B. American Society of Civil Engineers (ASCE)

1. ASCE 7 – 16 – Minimum Design Loads for Buildings and Other Structures

C. American Society for Testing and Materials (ASTM)

1. C 1036 – Standard Specification for Flat Glass
2. C 1048 – Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass
3. E 283 – Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
4. E 330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
5. E 331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
6. E 547 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference
7. E 1105 – Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference
8. E 2112 – Standard Practice for Installation of Exterior Windows, Doors and Skylights

D. National Fenestration Rating Council (NFRC)

1. 100 – Procedure for Determining Fenestration Product U-Factors
2. 102 – Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems

E. Screen Manufacturers Association (SMA)

1. 1004 - Specifications for Aluminum Tubular Frame Screens for Windows

1.06 DEFINITIONS

A. Definitions: For fenestration industry standard terminology and definitions to American Architectural Manufacturers Association (AAMA) – AAMA Glossary (AAMA AG-13).

1.07 PERFORMANCE REQUIREMENTS

A. General Performance: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and

minimum standards of performance, materials, components, accessories, and fabrication, unless more stringent requirements are indicated. Provide aluminum windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified, and that are of minimum test size indicated below:

1. Required Size: 36" x 72"
2. Performance Class and Grade: AW-80, minimum.

B. Structural Performance: Provide aluminum windows capable of withstanding the following wind loads, based on testing unit's representative of those indicated for the project that pass AAMA/WDMA/CSA 101/I.S.2/A440, Uniform Structural Load Test:

1. Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour at 33 feet above grade, according to ASCE 7, based on the maximum window height above ground level for this project.

    a. Basic Wind Speed: 90 mph
    b. Building Classification: III
    c. Importance Factor: 1.15
    d. Exposure Category: B
    e. The design wind pressure for this Project shall not be less than the pressures calculated according to ASCE 7, but also not less than 20 psf positive and negative in the field of the wall and 25 psf positive and negative at corner areas.

2. Deflection: Design glass framing system to limit lateral deflections of glass edges to less than l/175 of glass-edge length or ¾", whichever is less, at design pressure based on testing performed according to AAMA/WDMA 101/I.S. 2/NAFS, Uniform Load Deflection Test or structural computations when tested in accordance to ASTM E330.

    All structural components, including meeting rails, mullions and anchors shall be designed accordingly, complying with deflections and structural requirements of this specification.

3. Uniform Load Test:

    a. Unit to be tested at 1.5 x design test pressure, both positive and negative, acting normal to plane of wall in accordance with ASTM E330.
    b. No glass breakage; permanent damage to fasteners, hardware parts, or anchors; damage to make windows inoperable; or permanent deformation of any main frame or ventilator member in excess of 0.2% of its clear span.

4. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

a. Temperature Change (Range): 120° F, ambient; 180° F material surface.
b. Windows must be designed to accept differential movement, including deflection at heads.

5. Air and Water Performance Requirements:

a. When tested in accordance with specified test procedure, windows shall meet or exceed the following performance criteria, as well as those indicated in AAMA/WDMA/CSA 101/I.S. 2/A440 for Architectural (AW) Performance Class Windows, unless otherwise noted.
1. Test units shall not be smaller in either width or height than the "Gateway Test Size" specified in AAMA/WDMA/CSA 101/I.S. 2/A440 for AW performance class.
2. "Downsize" testing to meet Optional Performance Class requirements specified herein shall not be permitted.
3. Test units shall employ manufacturer's standard sealing, lock spacing, and anchorage.

b. Air Test Requirements:
1. Air infiltration maximum 0.1 cfm per square foot at 6.24 psf pressure differential when tested in accordance with ASTM E283.

c. Water Test Requirements:
1. No uncontrolled water leakage at 15.0 psf static pressure differential, with water application rate of 5 gallons/hr./sq. ft. when tested in accordance with both ASTM E331 and ASTM E547.
2. Complete successful Category 10 pulsed pressure differential testing at 14 psf to 42 psf, with water application rate of 5 gallons/hr./sq. ft. when tested in accordance with ASTM 2268 and AAMA 520.

6. Life Cycle Testing: When tested in accordance with AAMA 910-10, there is to be no damage to fasteners, hardware parts, support arms, activating mechanisms or any other damage that would cause the window to be inoperable at the conclusion of testing.

7. Thermal Transmittance Requirements: Perform thermal tests in accordance with NFRC 102 and AAMA 1503, or provide finite element computer thermal modeling and calcuations per NFRC 100 or AAMA 507, using DOE/LBL Therm 5.2 and Window 5.2 software. Calculation shall be based on average window size of window specified on the project.

a. Maximum U-Factor: 0.55

8. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC of 0.40.

9. Condensation-Resistance Factor (CRF): Provide aluminum windows frame and glass tested for thermal performance according to AAMA 1503, showing a CRF of 54.

1.08 REUTILIZED MATERIALS

The following items shall be assumed to be fully salvageable and reusable:

1. N/A

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

1. Submit window product data for each type of window and window hardware.
2. Submit installation instructions for each type of window, inclusive of installation instructions for field mulled windows.

B. Shop Drawings:

1. Submit shop drawings that include elevation, sections, details, operational clearances, and installation details.

2. For coordination purposes, the shop drawings shall show adjacent air and/or moisture barrier materials and how they interact with the window system.

3. Delegated Design Submittal: For aluminum- windows indicated to comply with Performance Requirements and design criteria, including analysis data signed and sealed by qualified professional engineer licenses by the state of the project location responsible for their preparation. This analysis shall include the attachment of the window system to the structure.

C. Product Samples:

1. Submit samples of factory applied finishes.
2. Submit samples of hardware and accessories involving color selection.

D. Material Safety Data Sheets (MSDS):

1. Submit an MSDS sheet for each material (when applicable) that will be utilized on-site.

E. Test Reports:

1. Submit product test reports for each type of window system, showing that the proposed window system complies with the specified Performance Requirements.

F. Manufacturer Certification:

1. Submit certification signed by the window manufacturer that the contractor is approved, authorized, or licenses to install the window system.

G. Contractor Certification:

1. Submit list of at least three (3) projects where the installer has successfully installed the specified window system in the last five (5) years.

H. Sample Warranty:

1. Submit copy of warranty from window system manufacturer.

I. Field Testing:

1. Submit window system manufacturer reports from any field inspections that they perform.
2. Submit field air and water penetration test reports, as specified.

J. Maintenance Data:

1. Submit window system manufacturer recommended maintenance instructions.

K. Mock-Up:

1. Install a mock-up window and complete air and water penetration testing prior to the manufacturer and installation of the remaining windows.

1.10 QUALITY ASSURANCE

A. Source Limitations: Obtain window materials, glazing, gaskets, sealants, and other accessories from a single manufacturer for each product, unless an alternate manufacturer is approved by the Design Professional.

B. Fenestration Standard: Comply with AAMA/WDMA 101/I.S. 2/NAFS, “North American Fenestration Standard Voluntary Performance Specification for Windows, Skylights and Glass Doors,” for definitions and minimum standards of performance, materials, components, accessories, and fabrication. Comply with more stringent requirements if indicated.

C. Glazing Publications: Comply with published recommendations of glass manufacturers and GANA’s “Glazing Manual” unless more stringent requirements are indicated.

D. Installer Qualifications: Installer shall have successful experience installing the specified window system for a minimum of five (5) years.

E. Manufacturer Qualifications: Manufacturer shall have successful experience manufacturing the specified window system for a minimum of five (5) years. The manufacturer shall have their window systems tested to verify that they meet or exceed Performance Requirements specified.

F. Environmental Standard: Manufacturer and contractor shall conform to Federal, State, and Local V.O.C. (Volatile Organic Compound) Regulations in area where the project is located. Notify Design Professional in writing if variations to the Contract Documents are required to comply with these regulations.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be packed, loaded, shipped, unloaded, stored and protected in accordance with AAMA CW-10.

B. Handle all materials to prevent damage. All windows shall be stored inside a secure storage container. Outdoor storage is not permitted.

C. Store temperature susceptible materials in a dry and heated area between 60° F and 80° F. If exposed to lower or higher temperatures, the material shall be discarded and new material provided at no cost to the Owner.

D. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Closely follow precautions/instructions outlined on container or supplied by manufacturer/supplier (MSDS sheets).

1.12 WEATHER LIMITATIONS ON WORK

A. Window replacement shall not be completed during precipitation, unless temporary protection is installed to prevent water entry into the building.

B. Window replacement shall not be completed when the exterior temperature conditions are below 50 degrees F.

C. At ambient temperatures of 40 degrees F and below, including wind-chill, precautions must be taken to ensure that temperature-susceptible materials maintain their minimum acceptable temperature at the point of application as recommended by the roofing materials manufacturer.

1.13 PROJECT CONDITIONS

A. Field Measurements: The contractor shall field verify actual dimensions of the openings before fabrication and shop drawings. The contractor shall make allowances for the installation of related air, vapor, and/or moisture barriers into the opening so that these materials are not damaged during the window installation due to the lack of clearance.

1.14 MANUFACTURER'S REPRESENTATIVE

A. Contractor shall require the presence of a Technical Representative of the window manufacturer to provide field instructions and supervision, as required by the manufacturer for a guaranteed job.

B. In addition, Design Professional may require the presence of the Technical Representative of the window manufacturer, as necessitated by the work progress.

C. The Technical Representative shall be employed by the window manufacturer. We recommend that the window manufacturer designate one (1) Technical Representative for the duration of the project.

1.15 WARRANTY

A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of wood-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Structural failures including, but not limited to, excessive deflection, attachment, etc.
   b. Noise or vibration caused by thermal movements.
   c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   d. Adhesive or cohesive sealant failures.
   e. Water leakage through fixed glazing and framing areas.
   f. Failure of operating components.
   g. Failure of the hermetic seal in the insulating glazing.

2. Warranty Period: 10 years.

B. Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering.

1. Warranty Period: 10 years.

1.16 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Store and handle window, mullions, panels, hardware, and all appurtenant items in strict compliance with the manufacturer's instructions.

B. Protect units adequately against damage from the elements, construction activities, and other hazards before, during, and after installation.

C. Identify each window unit with individual opening numbers as designated on shop drawings, using temporary, removable or concealed markings.

PART 2 - PRODUCTS

2.01 ALUMINUM WINDOW SYSTEM

A. Aluminum windows shall be casement, inside glazing type units. Provide units with minimum 3-1/4" jamb width.

B. Manufacturers: Basis-of Design: YKK AP America, Austell, GA (350T)

1. Manko Window Systems, Inc. – Manhattan, KS (3527)
2. Graham Architectural Products – York, PA (6800 Series)
3. Kawneer Company, Inc. – Norcross, GA (AA-4325)
4. Capitol Aluminum & Glass Corp. – (325ES-I)

C. Materials, General:

1. Frame and Sash: Aluminum extrusion complying with AAMA/WDMA/CSA 101/I.S. 2/A440.

   a. Main frame and sash sections shall have a minimum aluminum wall thickness of 0.080" extruded from 6063-T5 or T6 alloy with a tensile strength of 22,000 psi in all structural areas.
   b. Thermally Broken Construction: Fabricate frames, sashes, and muntins with an integral, concealed, low-conductance thermal barrier located between exterior materials and window members exposed on interior side of a manner that eliminates direct metal-to-metal contact.
   c. Provide interior extruded polystyrene insulation within the frame in order to provide maximum thermal efficiency.
   d. Finish: Dark Bronze Anodized – 2 step, Class I – AA-M12-C22-A44

2. Fasteners: Shall be aluminum, nonmagnetic stainless steel, or other material that is noncorrosive and compatible with the aluminum window members, trim, hardware, and other components of the window units. Cadmium-plated steel fasteners are not permitted.

   a. Exposed Fasteners: Unless unavoidable for applying hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.

3. Trim: Anchors, clips, sills, jambs, and other accessories shall be of configuration indicated on the drawings, and exposed surfaces shall match finish of window units.

   a. Provide trim of sufficient strength to withstand specified design pressures.

      i. Manufacturer shall provide installation materials including steel strap anchor, or snap trim clip, or receptor system with subsill as indicated for a complete installation. Attachment through window frame into blocking is not an approved installation method.

   b. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel complying with ASTM B633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure specified.

4. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B456 for Type SC 3 severe service conditions, or zinc-coated steel complying with ASTM B633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure specified.

5. Caulk Stop: Continuous channel shaped vinyl extrusion provided by window manufacturer.

6. Compression Type Weather Stripping: Provide compressible weather stripping designed for permanently resilient sealing under bumper or wiper action, and completely concealed when aluminum window is closed.

7. Sealant:

a. All sealants shall comply with applicable provisions of AAMA 800 and/or Federal Specifications FS-TT-001 and 002 series.
b. Frame joinery sealants shall be suitable for application specified and as tested and approved by window manufacturer.

2.02 GLAZING

A. General: Insulating glass units certified through the Insulating Glass Certification Council as conforming to the requirements of IGCC. Provide dual sealed units consisting of polyisobutylene primary seal and silicone secondary seal. Provide metal spacers with bent or soldered corners, containing desiccant.

B. High-Performance Low-E4 Glass, Argon Blend Filled Insulating Glass Units:

1. Glass: Insulating glass units consisting of an outboard lite of clear tempered glass conforming to ASTM C 1036, Type 1, Class 1, q3 and an inboard lite of clear tempered glass conforming to ASTM C 1048, Type 1, Class 1, q3.

2.03 WINDOW FRAMES

A. Frames: Frame members shall be mechanically joined. Thickness of material shall not be less than 0.080". Frames shall be same configuration as frames for operable units.

1. All windows units shall be factory glazed.

2.04 INSECT SCREENS

A. General: Design windows and hardware to accommodate screens in a tight fitting, removable arrangement, with a minimum of exposed fasteners and latches. Provide for each operable exterior sash or ventilator.

1. Comply with SMA 1004, "Specifications for Aluminum Tubular Frame Screens for Windows," for minimum standards of appearance, fabrication, and attachment of screen fabric, hardware, and accessories unless more stringent requirements are specified.

B. Aluminum Insect Screen Frames: Manufacturer's standard aluminum alloy complying with SMA 1004. Fabricate frames with mitered or coped joints, concealed fasteners, adjustable rollers, and removable PVC spline/anchor concealing edge of frame.

1. Aluminum Tubular Framing Section and Cross Braces: Roll formed from aluminum sheet with minimum wall thickness as required for class indicated.

a. Where frames project beyond face of window frames must be rounded exposing no sharp edges.

2. Finish: Match aluminum window members.

C. Glass-Fiber Mesh Fabric: Not acceptable.

D. Aluminum Wire Fabric: 18 by 16 mesh of 0.011” diameter, coated aluminum wire, complying with FS RR-4-365, Type VII.

1. Wire Fabric Finish: Black

E. Wickets: Provide hinged wickets, framed and trimmed for a tight fit and durability during handling.

2.05 ACCESSORIES

A. Subsills: Thermally broken, extruded aluminum subsills in configurations indicated on Drawings.

B. Hinges: Stainless steel 4-bar hinges with adjustable limit stop.

C. Insect Screens:

D. Shims: Provide U-shaped plastic shims for installation of window openings. Do not use wood shims.

E. Interior Trim: Extruded-aluminum profiles in sizes and configurations indicated or required to conceal installation clip.

1. Interior Trim, Closures and Angles: As detailed, of extruded shapes no less than 0.062” nominal wall thickness.
2. Snap Trim: Apply in full length without splices and attach with clips spaced no more than 18 inches on-center. Clips shall be no less than 3 inches long. No exposed screws will be allowed on interior trim.

F. Factory Glazed Fabrication: Glaze aluminum windows in the factory where practical and possible for applications indicated. Comply with requirements of AAMA/NWWDA 101/I.S. 2/NAFS.

2.06 FABRICATION

A. General: Fabricate aluminum windows, in sizes indicated, that comply with AAMA/NWWDA 101/I.S. 2 for performance class and performance grade indicated. Include a complete system for assembling components and anchoring windows.
1. No bolts, screws or fastenings shall impair independent frame movement, or bridge the thermal barrier, unless such bridging was also present in thermal test units and thermal models.
2. Fabricate to allow for thermal movement of materials when subject to a temperature differential of -30 degrees F to +180 degrees F.

B. Glaze aluminum windows in the factory. Fabricate aluminum windows that are reglazable without dismantling sash or ventilator framing.

C. Weather strip each operable sash to provide weathertight installation.

D. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior. Under glass weeps not permitted.

E. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.

2.07 REJECTED MATERIALS

A. The Owner's Representative shall have the right to inspect all materials brought to or stored at the job site. Those materials which do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person designated by the Contractor to be the lead on-site supervisor. The verbal notification to be by the Owner's Representative, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine openings, substrates, structural support, anchorage conditions for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure coordinated, weather-tight framed aluminum storefront system installation.

If any conditions exist that could be detrimental to the window installation, the contractor shall notify the Design Professional in writing and not proceed with work until the deficiencies have been corrected.

B. Start of the window installation shall constitute acceptance of substrates by the Contractor.

3.02 INSTALLATION

A. General: Comply with manufacturers written instructions for installing windows, hardware, accessories, and other components; shop drawings, and the AAMA Commercial Window and Door Installation Manual. Install in accordance with method indicated or if not indicated as recommended by manufacturer to meet Performance Requirements.

1. Do not penetrate flashing or air barrier.
2. Use only skilled tradesmen with work done in accordance with specified requirements.
3. For installation procedures and requirements not addressed in manufacturer’s written instructions, comply with installation requirements in ASTM E2112.

B. Install window system level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent components to produce weathertight construction.

1. Adequately anchor to maintain positions permanently when subjected to normal thermal movement, specified building movement, and specified wind loads.
2. Erection Tolerances: Install windows to comply with the following maximum tolerances (unless more stringent tolerances are required by the manufacturer):

a. Plumb: 1/8 inch in 10 feet.

b. Level: 1/8 inch in 20 feet.
c. Alignment:
   i. When surfaces abut in line or are separated by reveal or protruding element up to ½ inch wide, limit offset from true alignment to 1/16 inch.
   ii. Where surfaces are separated by reveal or protruding element from ½ to 1 inch wide, limit offset from true alignment to ¼ inch.
   iii. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.
d. Location: Limit variation from plane to 1/8 inch in 12 feet; ½ inch over total length.

C. The adjacent and underlying air and moisture barrier components shall not be damaged during the installation. If the components are damaged, the contractor shall notify the contractor that installed these materials so that they can be properly repaired.

D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

E. Vent Windows: install to maintain plumb, square and level, to one-half of the shimming tolerances cited in the "AAMA Commercial Window and Door Installation Manual," for proper weathering and operation.

F. Set sill members and other members in a bed of compound or with joint fillers or gaskets to provide weathertight construction. Coordinate installation with wall flashing and other components of the work.

G. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.

3.03 FIELD QUALITY CONTROL

A. Testing Agency: Owner may engage a qualified testing agency (or Design Professional) to perform field tests and inspections and to prepare test reports.

B. Testing Services: Testing and inspecting the installed windows shall take place as follows:

1. Testing Method: ASTM E1105 – Water Penetration Test with Static Air Pressure Difference. Test at a minimum static air pressure differential specified for laboratory testing in "Performance Requirements" without reduction and shall not evidence water penetration.
2. Testing Frequency: A mock-up opening shall be installed and tested. After the mock-up opening has been installed and successfully passes the water infiltration test, three (3) additional openings shall be tested and shall be randomly selected by the Design Professional at approximately 10% completion, 40% completion, and 70% completion.

C. At each failed test location, the contractor shall investigate the cause of the leakage in the presence of the testing agency and Design Professional in order to determine the source of the leakage.

1. If the source of the leakage is determined to be the result of improper installation, the window shall be repaired in accordance with the manufacturer's installation instructions and retested.
2. If the source of the leakage is determined to be the result of a deficiency in factory-assembled window system, the manufacturer shall investigate and provide written instructions on how to repair the window assembly or provide a new properly assembled window assembly.
3. After the repairs or replacement of the window system has been completed and adequate time has been permitted for sealant curing, the window system shall be retested.
4. The contractor shall be responsible for the costs of retesting.

3.04 ADJUSTING

A. Adjust operating sashes and ventilators, screens, hardware, operators, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.

3.05 CLEANING

A. Clean surfaces promptly after installation of windows as recommend by the window manufacturer, exercising care to avoid damage to protective coatings and finishes. Any damaged surfaces shall be replaced, or new coating shall be applied as required by Design Professional. Remove excess glazing and sealant compounds, dirt, and other substances.

B. Clean glazing promptly after installation of windows. Remove glazing and sealant compound, dirt, and other substances.

C. Initiate all protection and other precautions required to ensure that window units will be without damage or deterioration (other than normal weathering) at time of acceptance.

D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

3.06 COMPLETION

A. Send to Design Professional, with copy to Owner, written recommendations for maintenance and protection of windows following Substantial Completion of replacement window work.

B. Correction of Work

Work which does not conform to specified requirements including tolerances, slopes and finishes shall be corrected and/or replaced as directed by Design Professional at Contractor's expense without extension of time. Therefore, Contractor shall also be responsible for cost of correction to any work affected by or resulting from corrections to work of this section.

C. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to pre-construction condition.

D. Any manufacturers' on-site inspection reports shall be submitted prior to final payment.

E. All guarantees, as required of this specification, shall be submitted for approval prior to final payment.

END OF SECTION 08 51 13 – ALUMINUM WINDOWS

08 91 19
FIXED LOUVERS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1 - General Requirements, are included as part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Work of this section shall provide Owner with fixed blade aluminum louvers to help prevent water penetration into the HVAC plenum.

B. Items covered by this specification section:

1. Fixed, Drainable Blade, Extruded Aluminum Louvers
2. Accessories

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and Contractor.

1. N/A

1.04 RELATED SPECIFICATIONS

Division 1	General Requirements
07 62 00	Sheet Metal Flashing and Trim

1.05 REFERENCES

A. Air Movement & Control Association International (AMCA)
1. AMCA 501 – Louver Application Manual and Design Guide
2. AMCA 500-L – 23 – Laboratory Methods of Testing Louvers for Rating

B. American Society of Civil Engineers (ASCE)
1. Document ASCE 7-16, Minimum Design Loads for Buildings and Other Structures.

C. American Society of Testing and Materials (ASTM)
1. D2244 – Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates
2. D4214 – Standard Test Methods for Evaluating Degree of Chalking of Exterior Paint Films

D. American Welding Society (AWS)
3. AWS D1.2/D1.2M – Structural Welding Code – Aluminum
4. AWS D1.3/D1.3M – Structural Welding Code – Sheet Steel

5. AWS D1.6/D1.6M – Structural Welding Code – Stainless Steel

1.06 DEFINITIONS

A. Louver Terminology: Definitions of terms for metal louvers contained in AMCA 501 apply to this Section unless otherwise defined in this Section or in referenced standards.

B. Horizontal Louver: Louver with horizontal blades (i.e. the axis of the blades are horizontal).

C. Vertical Louver: Louver with vertical blades (i.e. the axis of the blades are vertical).

D. Drainable-Blade Louver: Louver with blades having gutters that collect water and drain it to channels in jambs and mullions, which carry it to bottom of unit and away from opening.

E. Wind-Driven-Rain-Resistant Louver: Louver that provides specified wind-driven-rain performance, as determined by testing according to AMCA 500-L.

F. Windborne-Debris-Impact-Resistance Louver: Louver that provides specified windborne-debris-impact resistance, as determined by testing according to AMCA 540.

1.07 PERFORMANCE REQUIREMENTS

A. Structural Performance: Louvers shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver-blade rattle or flutter, or permanent damage to fasteners and anchors. Wind pressures shall be considered to act normal to the face of the building.

1. Wind Loads: +/- 30 psf (allowable stress design)

B. Louver Performance Ratings: Provide louvers complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width according to AMCA 500-L.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

D. SMACNA Standard: Comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" for fabrication, construction details, and installation procedures.

1.08 REUTILIZED MATERIALS

The following items shall be assumed to be fully salvageable and reusable:

6. N/A

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

1. Submit specifications, installation instructions, and general recommendations from louver manufacturers for each louver.
2. Submit product test reports showing compliance with the specified requirements.

B. Shop Drawings:

1. Include plans, elevations, sections, details, and attachments to other work. Show frame and blade profiles, angles, and spacing.
2. Show weep paths, gaskets, flashings, sealants, and other means of preventing water intrusion.
3. Show mullion profiles and locations.

C. Product Samples: For each type of metal finish required.

D. Sample Warranty:

1. Submit copy of warranty from the louver manufacturer.

1.10 QUALITY ASSURANCE

A. Source Limitations: Obtain louvers and accessories from a single manufacturer for each product required, unless approved by the Design Professional.

B. Louver Standard: AMCA 501.

C. Manufacturer Qualifications: A firm experienced in manufacturing aluminum louvers for a minimum of ten (10) years.

D. Environmental Standard: Manufacturer and contractor shall conform to Federal, State, and Local V.O.C. (Volatile Organic Compound) Regulations in area where the project is located. Notify Design Professional in writing if variations to the Contract Documents are required to comply with these regulations.

1.11 DELIVERY, STORAGE, AND HANDLING

A. All products delivered to the site shall be in the original unopened containers, wrappings, or crating. Storage areas will be defined by Design Professional.

B. Handle all materials to prevent damage. Store materials elevated sufficiently off the ground and fully protected from moisture. Materials shall be secured in a safe manner to prevent damage.

C. Store temperature susceptible materials in a dry and heated area between 60° F and 80° F. If exposed to lower or higher temperatures, the material shall be discarded and new material provided at no cost to the Owner.

D. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Closely follow precautions/instructions outlined on container or supplied by

manufacturer/supplier (MSDS sheets).

1.12 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. Contractor shall implement all necessary precautions to prevent debris or materials/equipment from becoming airborne due to wind conditions anticipated at the site. All roof removal materials shall be removed from the roof by an enclosed chute to the ground level. Contractor shall conform to all regulations and precautions as required by applicable safety organizations.

1.13 GUARANTEES AND MAINTENANCE

A. Special Finish Warranty: Manufacturer agrees to repair or replace components on which finishes fail in materials or workmanship within specified warranty period.

1. Deterioration includes, but is not limited to, the following:
   a. Color fading more than 5 Hunter units when tested according to ASTM D2244.
   b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
   c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - MATERIALS

2.01 FIXED-BLADE, DRAINABLE BLADE, EXTRUDED-ALUMINUM LOUVERS

A. Horizontal, Wind-Driven-Rain-Resistant Louver: Units to be marked with AMCA Certified Ratings Seal.

1. Louver Depth: 5 inches (Contractor to Field Verify Depth of Existing Louver)
2. Frame and Blad Nominal Thickness: Not less than 0.060” for blades and 0.080” for frames.
3. Louver Performance Ratings:
   a. Free Area: Not less than 47 percent for 48” wide by 48” tall louver.
   b. Air Performance: Not more than 0.10” wg static pressure drop at 800-fpm free-area intake velocity.
   c. Wind-Driven Rain Performance: Not less than 99 percent effectiveness to a rainfall rate of 8 inches per hour and a wind speed of 50 mph at a core-area intake velocity of 400 fpm.
4. Manufacturers:
   a. Ruskin Company; Kansas City, MO (EME520DD)
   b. Greenheck Fan Corporation; Schofield, WI
   c. Airolite Company, LLC; Schofield, WI

2.02 LOUVER SCREENS

A. General: Provide screen at each exterior louver.
   1. Screen Location for Fixed Louvers: Interior face.
   2. Screening Type: Bird screening.
   3. Material: Flattened, expanded aluminum, 5/8” by 0.040 inch thick.

B. Secure screen frames to louver frames with stainless-steel machine screws, spaced a maximum of 6 inches from each corner and at 12 inches o.c.

C. Louver Screen Frames: Fabricate with mitered corners to louver sizes indicated.
   1. Metal: Same type and form of metal as indicated for louver to which screens are attached.
   2. Finish: Same finish as louver frames to which louver screens are attached.
   3. Type: No-rewireable, U-shaped frames.

2.03 MATERIALS

A. Aluminum Extrusions: ASTM B221, Alloy-T5, T52, or T6.

B. Aluminum Sheet: ASTM B209, Alloy 3003 or 5005, with temper as required for forming, or as otherwise recommended by metal producer for required finish.

C. Fasteners: Use types and sizes to suit unit installation conditions.

   1. Use Phillips flat-head screws for exposed fasteners unless otherwise indicated.
   2. For fastening aluminum, use aluminum or 300 series stainless-steel fasteners.
   3. For color-finished louvers, use fasteners with head to match color of louvers.

D. Post-Installed Fasteners for Concrete and Masonry: Torque-controlled expansion anchors, fabricated from stainless-steel components, with allowable load or strength design capacities calculated according to ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing according to ASTM E488 conducted by a qualified testing agency.

E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187.

F. Finish: 70 percent PVDF finish shall be applied at 1.2 mil total dry film thickness. Coating shall conform to AAMA 2605.

   1. Finish louvers after assembly.

2.04 FABRICATION

A. Factory assembly louvers to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

B. Maintain equal louver blade spacing to produce uniform appearance.

C. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.

   1. Frame Type: Channel unless otherwise indicated.

D. Include supports, anchorages, and accessories required for complete assembly.

E. Provide vertical mullions of type and at spacing indicated, but not more than is recommended by manufacturer, or 72 inches o.c., whichever is less.

   1. Exposed Mullions: Where indicated, provide units with exposed mullions of same width and depth as louver frame. Where length of louver exceeds fabrication and handling

limitations, provide interlocking split mullions designed to permit expansion and contraction.

F. Provide subsills made of same material as louvers or extended sills for recessed louvers.

G. Join frame members to each other and to fixed louver blades with fillet welds concealed from view, threaded fasteners, or both, as standard with louver manufacturer unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.

2.05 REJECTED MATERIALS

A. The Design Professional shall have the right to inspect all materials brought to or stored at the job site. Those materials which do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person designated by the Contractor to be the lead on-site supervisor. The verbal notification to be by the Design Professional, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 INSPECTION

A. A pre-job conference including the Design Professional, Owner's Representative, Contractor, the manufacturer's representative and all involved trades shall be conducted prior to commencement of the louver installation.

B. Examine the substrate and the conditions under which the work is to be performed. Do not proceed until unsatisfactory conditions have been corrected as required for the material application and in accordance with the material manufacturer’s specifications and requirements.

C. Notify the Design Professional in writing to all conditions which may adversely affect the installation and/or performance of the louver system prior to commencing with the work. Proceed with installation only after unsatisfactory conditions have been corrected. Application of any part of the louver system shall indicate acceptance of the field conditions and acknowledgment of full responsibility for the quality and durability of the louver.

3.02 PREPARATION

A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.03 INSTALLATION

A. Locate and place louvers level, plumb, and at indicated alignment with adjacent work.

B. Use concealed anchorages where possible. Provide sealing washers where required to protect metal surfaces and make a weathertight connection.

C. Form closely fitted joints with exposed connections accurately located and secured.

D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.

E. Protect unpainted Galvanized and nonferrous-metal surfaces that are in contact with concrete, masonry, or dissimilar metals from corrosion and galvanic action by applying a heaving coating of bituminous paint or by separating surfaces with waterproof gaskets or nonmetallic flashing.

F. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required.

3.04 COMPLETION

A. Correction of Work

1. Work which does not conform to specified requirements including tolerances, slopes and finishes shall be corrected and/or replaced as directed by Design Professional at Contractor's expense without extension of time. Therefore, Contractor shall also be responsible for cost of correction to any work affected by or resulting from corrections to work of this section.

B. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to pre-construction condition.

All landscaped areas affected by construction activities shall be raked clean, seeded, or restored to pre- construction condition.

C. All manufacturer's on-site inspection reports shall be submitted prior to final payment.

D. All guaranties, as required in Part 1 of this specification, shall be submitted for approval prior to final payment.

END OF SECTION 08 91 19 – FIXED LOUVERS

22 14 26.13
ROOF DRAINS

PART 1 –GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Work of this section shall provide Owner with new roof drains at existing drain locations, repair of deteriorated drains, and to provide roof drain extensions. The roof drains shall be connected into the existing interior storm drainage system.

B. Items covered by this specification section:

1. Roof Drains
2. Drain Extensions
3. Accessories

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and the Contractor.

1. N/A

1.04 RELATED SECTIONS

Division 1	General Requirements
02 41 19	Selective Demolition
05 30 23.01	Steel Deck Repair
07 22 16	Roof Board Insulation
07 54 00	Thermoplastic Membrane Roofing

1.05 REFERENCES

A. American Society of Mechanical Engineers (ASME)

1. A112.6.4 – Roof, Deck, and Balcony Drains
2. A112.36.2M – Cleanouts

B. American Society for Testing and Materials (ASTM)

1. A48 – Standard Specification for Gray Iron Castings
2. A74 – Standard Specification for Cast Iron Soil Pipe and Fittings
3. A653 – Standard Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-

Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process
4. C564 – Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings
5. D2665 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings

C. Cast Iron Soil Pipe Institute (CISPI)

1. 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.

D. National Fire Protection Association (NFPA)

1. NFPA 255 – Standard Test Method of Test of Surface Burning Characteristics of Building Materials

1.06 REUTILIZED MATERIALS

A. The following items shall be assumed to be fully salvageable and reusable:

1. The existing storm drainage piping system.

1.07 SUBMITTALS

A. Product Data:

1. Submit manufacturer's product data for each type of drain, piping, accessory, and product specified.
2. Submit manufacturer's installation instructions for each type of drain, piping, accessory, and product specified.

1.08 DELIVERY, STORAGE AND HANDLING

A. Protect flanges and fittings from moisture and dirt by inside storage and enclosure or by packaging with durable, waterproof wrapping.

B. All materials susceptible to moisture damage shall be stored to prevent water infiltration.

C. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

1.09 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. Interruption of Existing Storm-Drainage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify Design Professional no fewer than two (2) days in advance of proposed interruption of storm-drainage service.
2. Do not proceed with interruption of storm-drainage service without Design

Professional's written permission.

1.10 QUALITY ASSURANCE

A. Source Limitations: Obtain each plumbing components from a single manufacturer for each product required, unless approved by the Design Professional.

B. Plumbing Standard: Ohio Building Code.

C. Contractor Qualifications: A firm that has been engaged in plumbing work for a minimum of five (5) years. The contractor performing the plumbing work shall be licensed by the authority having jurisdiction (if required).

D. Environmental Standard: Manufacturer and contractor shall conform to Federal, State, and Local V.O.C. (Volatile Organic Compound) Regulations in area where the project is located. Notify Design Professional in writing if variations to the Contract Documents are required to comply with these regulations.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Materials distributed by the following manufacturers and otherwise conforming with these specifications are acceptable:

1. Zurn Industries, LLC; Erie, PA
2. Jay R. Smith Mfg. Co.; Montgomery, AL
3. Tyler Pipe, Wade Div.; Tyler, TX

2.02 ROOF DRAINS

A. General-Purpose Roof Drains

1. Basis-of-Design Product: Subject to compliance with requirements, provide Zurn Plumbing Products Group; Specification Drainage Operation; Z100 or comparable product by one of the listed manufacturers.
2. Standard: ASME A112.6.4, for general-purpose roof drains.
3. Body Material: Cast iron
4. Dimension of Body: Nominal 14-inch diameter.
5. Drain Pipe Connection: No hub connection.
6. Combination Flashing Ring and Gravel Stop: Not required.
7. Flow-Control Weirs: Not required.
8. Outlet: Bottom.
9. Static Extension Collars: Required
10. Adjustable Extension Assembly: Required
11. Underdeck Clamp: Not required.
12. Expansion Joint: Not required.
13. Sump Receiver Plate: Required.
14. Dome Material: Cast iron.
15. Perforated Gravel Guard: Not required.
16. Vandal-Proof Dome: Not required.

17. Water Dam: 2” required for overflow or secondary drains.

2.03 ROOF DRAIN EXTENSIONS

A. One or two-piece, cast-iron, static and/or adjustable roof drain extension that is attached to the existing drain bowl utilizing a gasketed connection.

2.04 ROOF DRAIN CLAMPING RINGS

A. Cast-iron with corrosion resistant coating and sized to fit the existing roof drain.

2.05 INTERIOR ABOVE GRADE PIPING

A. Pipe shall be Schedule 40 (DWV), PVC complying with ASTM D2665. Joints shall be solvent welded.

B. Connections: Standard No-Hub couplings designed for connecting no-hub piping and conforming to CISPI 310. Gaskets shall be elastomeric compound that meets the requirements of ASTM C564.

2.06 INSULATION

A. Composite insulation assemblies shall not exceed maximum flame spread of 25 and smoke development of 50 as established by NFPA 255 test methods.

B. The insulation thickness (including roof drain piping and drain bowls) shall be 1” in compliance with ASHRAE 90.1.

C. Pipe insulation shall be factory-molded, tubular fiberglass with “all service” jacket having an integral vapor barrier. Longitudinal joints of the jacket shall be overlapping with factory-applied adhesive. Butt joints shall be sealed with 3” wide ASJ pressure-sensitive tape.

1. Manufacturers:
    a. Owens-Corning; Toledo, OH
    b. Knauf Insulation; Shelbyville, IN
    c. Johns Manville; Denver, CO

2.07 ACCESSORIES

A. Pipe Hangers: Adjustable Clevis Hanger

1. Material: Carbon Steel
2. Finish: None
3. Insulation Protection: Sheet Metal Shield Formed to Insulation Shape
4. Manufacturers:
    a. Anvil International; Portsmouth, NH
    b. B-Line; Highland, IL
    c. Erico; Solon, OH

B. Zinc-Coated Steel Sheet: ASTM A653, with 0.20 percent copper content and 0.04-inch

minimum thickness unless otherwise indicated. Include G90 hot-dip galvanized, mill-phosphatized finish for painting if indicated.

C. Fasteners: Metal compatible with material and substrate being fastened.

D. Metal Accessories: Sheet metal strips, clamps, anchoring devices, and similar accessory units required for installation; matching or compatible with material being installed.

2.08 REJECTED MATERIALS

A. The Design Professional shall have the right to inspect all materials brought to or stored at the job-site. Those materials that do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person designated by the Contractor to be the lead on-site supervisor. The verbal notification will be by the Design Professional, which will be followed by written confirmation.

PART 3 – EXECUTION

3.01 INSPECTION

A. The contractor shall determine the exact drain installation location based on the lowest point on the roof surface and below deck obstructions.

B. Closely inspect any uncovered condition and alert Design Professional to any condition that may interfere with the performance of the new roof drainage system.

3.02 PREPARATION

A. Coordinate all work closely with Design Professional as it relates to the installation of the roof drain(s). Roof drains shall be installed where identified in the project specifications and drawings. Roof drainage system shall be completed according to local and state building code requirements by licensed contractors.

3.03 ROOF DRAIN BOWL REPLACEMENT

A. General:

1. Install the roof drain bowl and related piping and accessories per the manufacturer’s written installation instructions, applicable building code requirements, and industry standards.

B. Drain Bowl Replacement:

1. Remove the existing roof drain bowl and related piping and accessories, as necessary, per Section 02 41 19 Selective Demolition.

2. Install the roof drain bowl (and overflow drain bowl) at the deck surface or slightly recessed. At concrete deck areas, this will require the concrete opening to be modified to accept the new roof drain bowl.

3. If a temporary roof system is being utilized, the temporary roof system membrane shall be flashed into the new drain bowl. At overflow drain locations, a clamping ring with a 2” high water dam shall be utilized to prevent storm water from draining into the overflow drain, unless the primary system becomes plugged. After the completion of work each day, all drains shall be functional, inclusive of roof drain strainers.

4. Drains shall be securely fastened to the structural roof decking by means of an under deck clamp or top set deck plate supplied by the roof drain manufacturer.

5. Install roof and/or temporary roof flashing (inclusive of required sealant and/or mastic, gaskets, etc.) into the roof drain bowl and secure with clamping ring and/or extension accessory(ies) to prevent leakage between the drain and adjoining roof materials.

6. Install expansion joints, if indicated, in roof drain outlets.

3.04 ROOF DRAIN EXTENSION INSTALLATION

A. Install static and/or adjustable drain extensions, with required sealing gaskets, on the drains indicated in order to allow for a smooth transition into the drain bowl from the roof insulation. Field tapering the roof insulation is not permitted. Coordinate total height of adjustable and/or static drain extension with the roof insulation thickness at the drain.

3.05 PIPE INSTALLATION

A. Install pipe, tube, and fittings in accordance with recognized industry practices which will achieve permanent leak-proof piping systems, capable of performing without piping failure. Insulation shall be installed on all newly installed (or on existing piping where insulation was removed to perform the work related to this section) drain pipe, elbows, fittings, and roof drain bowls.

B. Install each run with minimum joints and couplings.

C. Align pipe accurately at connections within 1/16-inch misalignment tolerance. Install horizontal runs parallel with walls and column lines.

D. Pipe hangers shall be installed at each pipe joint or fitting and shall not exceed ten (10) feet on center.

E. Piping shall be installed with a minimum fall of one-eighth inch (1/8”) per linear foot and not more than one-fourth inch (1/4”) per linear foot from the new roof drain to the existing down pipe.

F. Clean-outs shall be installed so as to provide adequate service ports. There shall not be over one (1) 90º elbow between clean-outs. All clean-outs shall be line size up to and including four inches (4”) and installed in accessible locations.

G. Pressure testing for piping shall be as follows or as required by the Local Code Authority:

1. Seal the section of piping to be tested. Pressurize the system to a gauge pressure of five pounds per square inch (psi). This pressure shall be held for a test period of at least 15 minutes without any pressure loss.

3.06 INSULATION INSTALLATION

A. Install all insulation materials and accessories in accordance with manufacturer's published instructions and recognized industry practices to ensure that it will serve its intended purpose.

B. Insulate each continuous run of piping with full-length units of insulation, with single cut piece to complete run. Do not use cut pieces or scraps abutting each other. Butt insulation joints firmly to ensure complete, tight fit over all piping surfaces.

C. Maintain the integrity of factory-applied vapor barrier jacketing on all pipe insulation, protecting it against puncture, tears or other damage.

3.07 PROTECTION

A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.

B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

3.08 COMPLETION

A. Correction of Work

1. Work which does not conform to specified requirements including tolerances, slopes and finishes shall be corrected and/or replaced as directed by Design Professional at Contractor's expense without extension of time. Contractor shall also be responsible for cost of correction to any work affected by or resulting from corrections to work of this section.
2. Damage resulting from tests or installation shall be repaired or damaged materials replaced, to satisfaction of Design Professional, and at no cost to Owner.

B. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to pre-construction condition.

All landscaped areas affected by construction activities shall be raked clean, seeded, or restored to pre-construction condition.

C. All testing reports shall be submitted to the Design Professional.

END OF 22 14 26.13 – ROOF DRAINS

26 41 13
LIGHTNING PROTECTION FOR STRUCTURES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The provisions of the General Conditions and the Sections included under Division 1 - General Requirements, are included as part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. The intent of this specification is to remove the existing lightning protection system and install a new lightning protection system on roof areas that are being replaced. Provide new down conductor flashing components, but the existing down conductors and below roof components are to be re-utilized.

B. Items covered by this specification section:

1. Air terminals and bases
2. Conductor
3. Roof penetrations
4. Pre-Fabricated Stainless Steel Coping Brackets
5. Accessories

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Design Professional and Contractor.

1. N/A

1.04 RELATED SPECIFICATIONS

Division 1	General Requirements
02 41 19	Selective Demolition
07 31 13	Asphalt Shingles
07 53 23	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
07 54 00	Thermoplastic Membrane Roofing
07 62 00	Sheet Metal Flashing and Trim

1.05 REFERENCES

A. Lightning Protection Institute (LPI)

1. 175 – Lightning Protection Installation Code

B. National Fire Protection Association (NFPA)

1. 780 – Standard for Installation of Lightning Protection Systems

C. Underwriters Laboratories Inc. (UL)

1. UL96 – Lightning Protection Systems Standards for Components
2. UL96A – Installation Requirements for Lightning Protection Systems

1.06 PERFORMANCE REQUIREMENTS

A. General: Installed lightning protection system shall be installed per UL96A and NFPA 780. If a complete system is not specified, the components that are installed are installed in accordance with these standards.

B. Material Compatibility: Provide lightning protection materials (i.e. adhesive, protection mats, lightning protection material, etc.) that are compatible with one another (and the roof system) under conditions of service and application required.

1.07 REUTILIZED MATERIALS

The following items shall be assumed to be fully salvageable and reusable:

2. Existing ground electrodes.
3. Existing down conductors.

1.08 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data:

1. Submit specifications, installation instructions, and general recommendations from lightning protection materials manufacturers for each lightning protection component required.

B. Shop Drawings:

1. Submit shop drawings showing the location of the lightning protection system aerials, conductor cables, through roof penetrations, and attachment methods as required to comply with the current lightning protection standard.
2. If additional down conductors area required, contractor shall indicate these on the shop drawings and provide a letter outlining the need for additional down conductors as part of the project submittals.

C. Material Safety Data Sheets (MSDS):

1. Submit an MSDS sheet for each material that will be utilized on-site.

D. Contractor Certification:

1. Submit written statement from Contractor indicating three (3) years of successful experience with installation of lightning protection systems, including project name and location, type of roofing, and scopes of work which are equivalent to work of this

section.

E. Close-Out Submittal:

1. Submit written photographic documentation of the concealed lightning protection system components that were installed as part of this project.

1.09 QUALITY ASSURANCE

A. Source Limitations: Obtain masonry units, flashing materials, and accessories from a single manufacturer for each product required, unless approved by the Design Professional.

B. Contractor Qualifications: A firm that has been engaged in the design and installation of lightning protection systems for a minimum of five (5) years.

C. Manufacturer Qualifications: A manufacturer regularly engaged in the production of lightning protection equipment. The manufacturer shall be listed by UL as a manufacture of lightning protection components.

D. Lightning Protection System Inspection: The Contractor shall apply for inspection of the completed system by UL field representatives. The system is to be inspected by Underwriters Laboratories Inc., or other ANSI certified testing agency for compliance with NFPA 780. The system shall be without deviation and the UL field representative will issue a “UL Master Label Certificate of Inspection for Lightning Protection Systems” or “Letter of Findings” at completion of the installation.

E. Environmental Standard: Manufacturer and contractor shall conform to Federal, State, and Local V.O.C. (Volatile Organic Compound) Regulations in area where the project is located. Notify Design Professional in writing if variations to the Contract Documents are required to comply with these regulations.

1.10 DELIVERY, STORAGE, AND HANDLING

A. All products delivered to the site shall be in the original unopened containers, wrappings, or crating. Storage areas will be defined by Design Professional.

B. Handle all materials to prevent damage. Materials shall be secured in a safe manner to prevent damage.

C. Store temperature susceptible materials in a dry and heated area between 60° F and 80° F. If exposed to lower or higher temperatures, the material shall be discarded and new material provided at no cost to the Owner.

D. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Closely follow precautions/instructions outlined on container or supplied by manufacturer/supplier (MSDS sheets).

1.11 WEATHER LIMITATIONS ON WORK

A. At ambient temperatures of 40 degrees F and below, including wind-chill, precautions must be taken to ensure that temperature-susceptible materials maintain their minimum

acceptable temperature at the point of application as recommended by the roofing materials manufacturer.

1.12 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. Contractor shall implement all necessary precautions to prevent debris or materials/equipment from becoming airborne due to wind conditions anticipated at the site. Contractor shall conform to all regulations and precautions as required by applicable safety organizations.

PART 2 - MATERIALS

2.01 MATERIALS

A. All materials used in the installation shall be new and shall comply with weight, size, and composition as required by UL 96A and NFPA 780 and shall be labeled or listed by Underwriters Laboratories Inc. for use in lightning protection systems. The system furnished under this specification shall be the standard product of a manufacturer.

B. Material Requirements:

1. Class I materials shall be used on structures or portions of structures that do not exceed 75 feet in height above grade level. Class II materials shall be used on structures that exceed 75 feet in height above grade level.
2. Copper materials shall not be mounted on aluminum, Galvalume, Galvanized steel, or zinc surfaces. This includes those materials that have been painted.
3. Aluminum materials shall not come in contact with earth or where rapid deterioration is possible. Aluminum materials shall not come into contact with copper surfaces or where exposed to runoff from copper surfaces. Aluminum materials shall not be attached to surfaces covered with alkaline-based paint, embedded in concrete or masonry, or installed in a location subject to excessive moisture.

2.02 AIR TERMINALS

A. Air terminals shall extend a minimum of ten inches above the object or area they are to protect. Air terminals shall be located at intervals not exceeding 20’-0” along ridges of pitched roofs and along the perimeter of flat or gently sloping roofs (flat or gently sloping roofs include roofs that have a pitch less than 3:12). Flat or gently sloping roofs exceeding 50’-0” in width shall be provided with additional air terminals located at intervals not exceeding 50’. Air terminals shall be located within two feet (2’) of the ends of ridges, roof edges and outside corners of protected areas.

B. Air terminals shall be installed on stacks, flues, mechanical units and other objects not located within a zone of protection. Permanent metal objects on the structure having an exposed metal thickness 3/16” or greater may be substituted for air terminals and shall be connected to the lightning protection system as required by the specified standards using main size conductor and bonding plates having a minimum of 3 square inches of surface contact area.

C. Air terminal bases shall be securely fastened to the structure in accordance with the specified standards. Fasteners may include stainless steel screws, bolts, anchors or

adhesive. Adhesive shall be compatible with the surface on which it is used. Any protective sheets or pads that may be required shall be supplied and installed by the roofing contractor.

D. Main conductors shall be sized as Class I or Class II materials in accordance with the specified standards. Conductors shall provide two way, horizontal or downward path from each strike or air terminal to connections to the lightning protection ground electrode system. Conductors shall be free of excessive splices and no bend of a conductor shall form an included angle of less than 90 degrees nor have a radius of less than 8 inches.

E. Conductors shall be securely fastened to the structure on which they are placed at intervals not exceeding 3'. Fasteners shall be of the same material or of a material equally resistant to corrosion as that of the conductor. Any protective sheets or pads that are required shall be installed by the roofing contractor.

F. Connector fittings shall be listed for the purpose and of the same material as the conductor or of electrolytically compatible materials.

G. Down conductors shall be sized as Class I or Class II materials in accordance with the specified standards. Class II conductors from a higher portion of the structure shall continue to connections to the lightning protection ground electrode system. Down conductors shall be spaced at intervals averaging not more than 100 feet around the perimeter of the structure. In no case shall a structure have fewer than two down conductors. Where down conductors are installed exposed on the exterior of a structure and are subject to physical damage or displacement, guards shall be used to protect the conductor a minimum of 6' above grade. Metallic guards shall be bonded at each end.

H. In case of structural steel frame construction, down conductors may be omitted and roof conductors shall be connected to the structural steel frame at intervals not exceeding 100 feet along the perimeter of the structure.

2.03 ROOF PENETRATIONS

A. Roof penetrations required for down conductors or for connection to structural steel framework shall be made using thru-roof assemblies with solid riser bars or conduits and appropriate roof flashing. Conductors shall not pass directly through the roof.

B. The required roof flashing must be completed by the roofing contractor.

2.04 PRE-FABRICATED STAINLESS STEEL COPING BRACKETS

A. 14 Ga. stainless steel bracket designed to be attached to the top of the parapet wall and extend down under the coping cap to the inside of the parapet wall to support the lightning protection cable and lightning rod bases. Width of each component as recommended by the bracket manufacturer.

B. Manufacturers:

1. allG Fabrication, Argyle, TX
2. Or Approved Equal

2.05 REJECTED MATERIALS

A. The Design Professional shall have the right to inspect all materials brought to or stored at the job site. Those materials which do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person designated by the Contractor to be the lead on-site supervisor. The verbal notification to be by the Design Professional, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 INSPECTION

A. A pre-job conference including the Design Professional, Owner's Representative, Contractor, the manufacturer's representative and all involved trades shall be conducted prior to commencement of the lightning protection work.

B. Examine the substrate and the conditions under which the work is to be performed. Do not proceed until unsatisfactory conditions have been corrected as required for the installation and in accordance with the material manufacturer’s specifications and specified standards.

C. Notify the Design Professional in writing to all conditions which may adversely affect the installation and/or performance of the lightning protection system prior to commencing with the work. Proceed with installation only after unsatisfactory conditions have been corrected. Application of any part of the lightning protection system shall indicate acceptance of the roof surface and acknowledgment of full responsibility for the quality and durability of the roofing.

3.02 PREPARATION

A. General: The roof installation shall be complete in the area where the lightning protection system is to be installed.

B. Through roof penetrations shall be installed during the roof replacement and all flashing work shall be completed by the roofing contractor.

3.03 INSTALLATION

A. The installation of the lightning protection system shall be done in a neat and workmanlike manner.

B. The lightning protection system shall be installed by or under the supervision of a UL listed lightning protection installer.

C. The installers shall have completed factory training and be so certified by the manufacturer.

D. Install the lightning protection system in accordance with the approved shop drawings and the referenced lightning protection installation standards. Any deviations shall be brought to the immediate attention of the manufacturer so as to not delay certification.

E. Coordinate the installation of the lightning protection system with other trades.

3.04 PROJECT DOCUMENTATION

A. Photo document all concealed portions of the lightning protection system as they are being installed. This includes lightning protection system grounding electrodes, connections to structural metal, connections to underground metal piping entering the structure, connections to electrical and electronic service grounds, ground rings, etc. This documentation shall be provided as a Close-Out submittal.

B. Maintain accurate “As-Built” drawings throughout the entire installation of the lightning protection system.

3.05 INSPECTION, CERTIFICATION, AND MAINTENANCE

A. At completion of the installation of the lightning protection system, the contractor shall apply for inspection of the system by UL field representative. The system is to be inspected for compliance with NFPA 780.

B. The Contractor shall provide the Letter of Findings of the UL inspection for the portion of the project where the lightning protection system was installed and/or modified.

C. Any issues, that part of this project, identified during the UL inspection shall be corrected by the Contractor at no cost to the Owner. Written notice shall be provided to the Owner’s Representative and Design Professional for any issues that are identified during the UL inspection and are beyond the scope of this project.

3.06 COMPLETION

A. Correction of Work

1. Work which does not conform to specified requirements or standards shall be corrected and/or replaced at Contractor's expense without extension of time. Therefore, Contractor shall also be responsible for cost of correction to any work affected by or resulting from corrections to work of this section.

B. Site clean-up, including both interior and exterior building areas that have been affected by construction, shall be restored to pre-construction condition.

All landscaped areas affected by construction activities shall be raked clean, seeded, or restored to pre- construction condition.

C. All manufacturer's on-site inspection reports shall be submitted prior to final payment.

D. All guaranties, as required in Part 1 of this specification, shall be submitted for approval prior to final payment.

END OF SECTION 26 41 13 – LIGHTNING PROTECTION FOR STRUCTURES

32 92 00
TURFS AND GRASSES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS:

A. The provisions of the General Conditions and the Sections included under Division 1 - General Requirements, are included as part of this Section as though bound herein.

1.02 SCOPE OF WORK

A. Work of this section shall provide Owner with: 1. Properly graded lawn areas that properly drain; 2. Grass surfaces that are equal to the preconstruction condition.

B. Items covered by this specification section:

1. Lawn maintenance during construction (contractor work areas).
2. Lawn renovation.
3. Replacement of shrubs damaged during construction.

1.03 UNIT PRICE WORK

A. The following work shall be added or deleted on a unit price basis in accordance with the requirements of Section 00 41 13. Where required, the scope of work per unit price shall be jointly assessed and agreed upon between the Owner's Representative and Contractor.

1. N/A

1.04 RELATED SPECIFICATIONS

02 41 19 Selective Demolition

1.05 REFERENCES

A. American Society of Testing and Materials (ASTM)

1. C602 – Standard Specification for Agricultural Lime
2. D5268 – Standard Specification for Topsoil Used for Landscaping Purposes

1.06 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilizing organic soil amendments to produce topsoil or planting soil.

C. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.

D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

E. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

1.07 PERFORMANCE REQUIREMENTS

A. Lawn Maintenance: In construction areas that cannot be accessed by the Owner's personnel for mowing, the contractor shall periodically mow the lawn in order to prevent excessive grass height.

B. Lawn Renovation: Areas of the existing lawn that were damaged during construction activities shall be restored to the preconstruction condition.

C. Shrub Replacement: Shrubs that are damaged during construction activities shall be restored to the preconstruction condition.

1.08 REUTILIZED MATERIALS

The following items shall be assumed to be fully salvageable and reusable:

1. Existing soil – where not extensively contaminated with construction debris.

1.09 SUBMITTALS

Submit in accordance with Section 01 33 00:

A. Product Data: For each type of product specified.

B. Material Safety Data Sheets (MSDS):

1. Submit an MSDS sheet for each material that will be utilized on-site.

C. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

D. Contractor Qualification: Submit qualification information for the landscaping installer.

E. Product Certificates: For soil amendments and fertilizers from product manufacturer.

F. Planting Schedule: Indicating anticipated planting dates for each type of planting.

1.10 QUALITY ASSURANCE

A. Source Limitations: Obtain materials and accessories from a single manufacturer for each product required, unless a different material is approved by the Design Professional.

B. Installer Qualifications: A qualified landscape installer whose work has resulted in successful lawn establishment.

C. Seeds: Packages of seed shall bear official State or Federal stamps or certificates indicating type, quality, and content of seed packages. Deliver packages unopened. Do not open until observed by Design Professional.

D. Requirements of Regulatory Agencies: Comply with all Federal and State laws governing fertilizers.

1.11 DELIVERY, STORAGE, AND HANDLING

1. Seed: Deliver seed in original sealed, labeled, and undamaged containers.

2. Bulk Materials

   a. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.

   b. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.

   c. Accompany each delivery of bulk fertilizers, lime, and soil amendments with appropriate certificates.

1.12 WEATHER LIMITATIONS ON WORK

A. Seeding operations shall be conducted under favorable weather conditions.

1.13 PROJECT CONDITIONS (CAUTIONS AND WARNINGS)

A. Seeding operations shall not be started until the construction work has progressed to the point that traffic across the lawn is no longer required.

B. Irrigation: Do not begin operations until some type of irrigation system is in place and operating to provide uniform coverage of all areas to receive seed.

PART 2 - MATERIALS

2.01 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species: Seed of grass species as follows, with not less than 85 percent germination, not less than 98 percent pure seed, not more than 0.05 percent weed seed:

   1. 40% Perennial rye grass (lolium perenne)
   2. 30% Kentucky bluegrass (Poa pratensis)

3. 30% Creeping red fescue (Festuca rubra)

2.02 FERTILIZER

A. Fertilizer: Commercial fertilizer shall be used for initial preparation and shall conform to applicable state fertilizer laws. Use of organic lawn fertilizer shall be used for surface application after grass is up. Fertilizer shall be uniform in composition, dry and free flowing, and shall be delivered to site in original, unopened containers, each bearing manufacturer's guaranteed analysis. Fertilizer, which becomes caked or otherwise damaged, making it unsuitable for use, will not be acceptable. Commercial-grade complete fertilizer of neutral character, consisting of fast and slow release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium.

2.03 REJECTED MATERIALS

The Design Professional shall have the right to inspect all materials brought to or stored at the job site. Those materials that do not comply with the above requirements shall be removed from the Owner's premises within two (2) hours of verbal notification to the person designated by the Contractor to be the lead on site supervisor. The verbal notification will be by the Design Professional, which will be followed by written confirmation.

PART 3 - EXECUTION

3.01 INSPECTION

A. A pre-job conference, including the Design Professional, Owner, and Contractor, shall be conducted prior to commencement of the Turf and Grasses Repair Work.

B. Examine substrates and conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected as required for the material application in accordance with the material manufacturer's specifications and requirements.

C. Notify the Design Professional in writing to all conditions which may adversely affect the installation and/or performance of the sealant system prior to commencing with the work. Proceed with installation only after unsatisfactory conditions have been corrected. Repair of any part of the turfs and grasses shall indicate acceptance of the existing conditions and acknowledgement of full responsibility for the quality and durability of the sealant.

D. Contractor shall verify that investigation of all Work that may affect the General Public, Owner, and Owner's tenants has been completed, and adequate precautions have been implemented.

3.02 PREPARATION

A. Contractor shall investigate all air intake ventilators, HVAC, open windows, and related equipment in the immediate and down wind area of the Work. Equipment or openings which may allow debris, dust, dirt, and fumes into the interior of the building shall be shut down and/or sealed. Contractor shall coordinate the closing of HVAC equipment with

the Owner.

B. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

C. Remove foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oil, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing debris, or acid that has been deposited in the soil from the construction work. Any foreign matter shall be properly disposed of in accordance with all applicable laws.

D. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.

E. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.

F. Uniformly moisten excessively dry soil that is not workable and which is too dusty.

3.03 LAWN PREPARATION

A. Limit lawn subgrade preparation to areas to be planted.

B. Unchanged Subgrades: If lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations, prepare surface soil as follows:

1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
2. Loosen surface soil to a depth of at least 6 inches. Apply fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.
3. Remove stones larger than ½" in any dimension and sticks, roots, trash, and other extraneous matter.
4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.

C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus ½" of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.

D. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

E. Before planting, restore areas if eroded or otherwise disturbed after finish grading.

3.04 SEEDING

A. Sow seed with spreader or brillion seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

1. Do not use wet seed or seed that is moldy or otherwise damaged.

2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow seed at a total rate of 5 to 8 lb./1,000 sq.ft.

C. Rake seed lightly into top 1/8” of soil, roll lightly, and water with fine spray.

D. Protect seeded areas with slopes exceeding 1:4 with erosion-control blankets and 1:6 with erosion-control fiber mesh installed and stapled according to manufacturer’s written instructions.

E. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

3.05 LAWN RENOVATION

A. Rutted Areas:

1. If required, remove topsoil containing foreign materials resulting from contractor’s operations and replace with new topsoil.

2. Till area to be renovated to a depth of 6”.

3. Apply initial fertilizers required for establishing new lawns and mix thoroughly into top 4” of existing soil. Provide new planting soil to fill low spots and meet finish grades.

4. Grade the area to be renovated.

5. Apply seed and protect with straw mulch.

B. Moderate to Heavily Trafficked Areas:

1. If required, remove topsoil containing foreign materials resulting from contractor’s operations and replace with new topsoil.

2. Till area to be renovated to a depth of 6”.

3. Apply initial fertilizers required for establishing new lawns and mix thoroughly into top 4” of existing soil. Provide new planting soil to fill low spots and meet finish grades.

4. Grade the area to be renovated.

5. Apply seed and protect with straw mulch.

C. Light to Moderate Trafficked Areas:

1. Mow, dethatch, core aerate, and rake the existing lawn.

2. Apply fertilizer to the area to be renovated.

3. Overseed the area by broadcasting 3 to 4 lb./1,000 square feet of renovation area.

D. Short-Term Material Storage Areas:

1. Mow, dethatch, core aerate, and rake the existing lawn.

2. Apply fertilizer to the area to be renovated.

3. Overseed the area by broadcasting 3 to 4 lbs/1,000 square feet of renovation area.

E. Long-Term Material Storage Areas:

1. If required, remove topsoil containing foreign materials resulting from contractor's operations and replace with new topsoil.

2. Till area to be renovated to a depth of 6".

3. Apply initial fertilizers required for establishing new lawns and mix thoroughly into top 4" of existing soil. Provide new planting soil to fill low spots and meet finish grades.

4. Grade the area to be renovated.

5. Apply seed and protect with straw mulch.

3.06 LAWN MAINTENANCE – DURING CONSTRUCTION

A. In contractor traffic paths and material storage areas, the contractor shall periodically mow the grass to maintain the height of the grass to a reasonable height.

3.07 SHRUB REPLACEMENT

A. Remove the existing shrub and root ball of any trees and shrubs damaged during the course of the project.

B. Provide new trees and shrubs to match existing species and size. Plant new trees and shrubs as recommended by the planting instructions.

C. On trees provide tree stakes and guy wire supports to prevent displacement in high winds.

D. Water the shrubs at least twice a week until they are established.

3.08 COMPLETION

A. Correction of Work

Work which does not conform to specified requirements including tolerances, slopes and finishes shall be corrected and/or replaced as directed by Design Professional at

Contractor's expense without extension of time. Therefore, Contractor shall also be responsible for cost of correction to any work affected by or resulting from corrections to work of this section.

B. All guaranties, as required in Part 1 of this specification, shall be submitted for approval prior to final payment.

END OF SECTION 32 92 00 – TURFS AND GRASSES