

Contract Documents for:

# **Bus Maintenance Facility Twin Valley Community Local Schools**

100 Education Drive  
West Alexandria, OH 45381

Prepared for:



**Twin Valley Community Local School District  
100 Education Drive  
West Alexandria, OH 45381**

Prepared by:



7945 Washington Woods Drive  
Dayton, Ohio 45459  
937.610.3440

**BID SET  
February 24, 2023**

Documents contain herein are for use solely with respect to this project. Documents shall only be reproduced by the client or participants in the bidding/construction activities on this project. Documents are not to be provided to any other party or use in whole or part on any other project without written consent from RDA Group Architects, LLC, COPYRIGHT 2023 UNAUTHORIZED REPRODUCTIONS OR USE MAY RESULT IN PENALTIES.

**THIS SHEET LEFT INTENTIONALLY BLANK**

## DOCUMENT 00 01 10 - TABLE OF CONTENTS

00 01 10 Table of Contents

### BIDDING REQUIREMENTS

00 21 13 Instructions to Bidders  
Bid Guaranty and Contract Bond Form  
Property Tax Disclosure Form  
AIA A305 Contractor's Qualification Statement  
BF Bid Form

### CONTRACT DOCUMENTS

OCA Owner-Contractor Agreement Sample  
AIA A201 General Conditions of the Contract for Construction  
SC Statement of Claim Form  
CWR Contractor's Waiver and Release Affidavit  
SWR Subcontractors, Suppliers Waiver and Release Affidavit  
CFWR Contractor's Final Waiver and Release Affidavit  
SFWR Subcontractors, Suppliers Final Waiver and Release Affidavit  
CPAC Contractor's Payment Application Checklist

### TECHNICAL SPECIFICATIONS

01 00 00 General Requirements  
01 25 00 Substitutions  
01 29 00 Payment Procedures  
01 33 00 Submittals  
01 77 00 Closeout Procedures  
03 30 00 Cast-in-Place Concrete  
04 05 14 Masonry Mortaring and Grouting  
04 20 00 Unit Masonry  
04 72 00 Masonry Veneer  
05 50 00 Metal Fabrications  
06 10 00 Rough Framing  
06 17 33 Wood I-Joists  
06 20 00 Finish Carpentry  
06 41 00 Architectural Woodwork  
07 21 00 Thermal Insulation  
07 62 00 Sheet Metal Flashing and Trim  
07 84 00 Firestopping  
07 90 00 Joint Protection  
08 11 13 Hollow Metal Doors and Frames  
08 36 13 Sectional Doors  
08 53 00 Vinyl Windows  
08 71 00 Door Hardware  
09 21 16 Gypsum Board Assemblies  
09 51 13 Acoustical Panel Ceilings  
09 65 13 Resilient Base  
09 67 00 Fluid-Applied Flooring  
09 77 00 Wall Panels  
09 90 00 Painting and Coating  
10 14 00 Signage

10 28 00	Toilet Accessories
10 44 00	Fire Protection Specialties
12 21 13	Window Blinds
13 34 18	Timber Column Structures
22 05 53	Identification for Plumbing Piping and Equipment
22 07 19	Plumbing Piping Insulation
22 10 05	Plumbing Piping
22 10 06	Plumbing Piping Specialties
22 30 00	Plumbing Equipment
22 40 00	Plumbing Fixtures
23 05 13	Common Motor Requirements for HVAC Equipment
23 05 29	Hangers and Supports for HVAC Piping and Equipment
23 05 53	Identification for HVAC Piping and Equipment
23 07 13	Duct Insulation
23 11 23	Facility Natural-Gas Piping
23 31 00	HVAC Ducts and Casings
23 33 30	Air Duct Accessories
23 34 23	HVAC Power Ventilators
23 34 39	High-Volume, Low-Speed Propeller Fans
23 37 00	Air Outlets and Inlets
23 54 00	Furnaces
23 55 33	Fuel-Fired Unit Heaters
23 81 26.13	Small Capacity Split-System Air Conditioners
26 05 19	Low Voltage Electrical Power Conductors and Cables
26 05 26	Grounding and Bonding for Electrical Systems
26 05 29	Hangers and Supports for Electrical Systems
26 05 33.13	Conduit for Electrical Systems
26 05 33.16	Boxes for Electrical Systems
26 05 53	Identification for Electrical Systems
26 05 83	Wiring Connections
26 09 23	Lighting Control Devices
26 21 00	Low-Voltage Electrical Service Entrance
26 22 00	Low-Voltage Transformers
26 24 16	Panelboards
26 27 13	Electricity Metering
26 28 13	Fuses
26 28 16.13	Enclosed Circuit Breakers
26 51 00	Interior Lighting
26 56 00	Exterior Lighting
31 10 00	Site Clearing
31 20 00	Earth Moving
31 23 17	Trenching
31 23 23	Fill
31 25 00	Erosion and Sedimentation Control
31 31 16	Termite Control
32 11 23	Aggregate Base Courses
32 13 13	Concrete Paving
32 17 23	Pavement Markings
32 31 13	Chain Link Fences and Gates
32 92 19	Seeding
33 56 00	Above Ground Fuel Storage Tank / Equipment

## DRAWINGS

G1.1	PROJECT INFORMATION
G1.2	CODE REVIEW PLANS
G1.3	ACCESSIBILITY STANDARDS
C1.0	TITLE SHEET
C1.1	EXISTING CONDITIONS & DEMOLITION PLAN
C2.0	SITE PLAN
C3.0	GRADING PLAN
C4.0	UTILITY PLAN
C4.1	UTILITY PLAN – EAST
C5.0	DETAILS
C6.0	STORM WATER POLLUTION PREVENTION PLAN
C6.1	STORM WATER POLLUTION PREVENTION NOTES AND DETAILS
C7.0	STORM WATER MANAGEMENT PLAN
AS1.1	ARCHITECTURAL SITE PLAN
AS1.2	SITE DETAILS
S1.1	FOUNDATION PLAN
S1.2	ROOF FRAMING PLAN
S2.1	STRUCTURAL NOTES / DETAILS
S2.2	STRUCTURAL DETAILS
A1.1	PROPOSED FLOOR PLAN
A1.2	DIMENSIONED FLOOR PLAN / WALL TYPES
A1.3	REFLECTED CEILING PLANS
A1.4	FINISH PLANS
A1.5	MEZZANINE PLANS
A1.6	ROOF PLAN
A2.1	EXTERIOR ELEVATIONS
A3.1	INTERIOR ELEVATIONS
A4.1	BUILDING SECTION
A4.2	BUILDING SECTION
A4.3	SECTIONS
A5.1	DETAILS
A5.2	SCHEDULES AND DETAILS
P0.1	PLUMBING LEGEND AND GENERAL NOTES
P0.2	PLUMBING SCHEDULES AND DETAILS
P1.1	FIRST FLOOR PLAN – SANITARY
P1.2	FIRST FLOOR PLAN – DOMESTIC AND NATURAL GAS
P1.3	MEZZANINE PLUMBING PLAN
P2.1	PLUMBING ISOMETRICS
H0.1	HVAC LEGEND AND GENERAL NOTES
H0.2	HVAC SCHEDULES AND DETAILS
H1.1	HVAC FLOOR PLAN
E0.1	ELECTRICAL LEGEND AND GENERAL NOTES
E0.2	ELECTRICAL EQUIPMENT AND LIGHTING SCHEDULE

E1.1	ELECTRICAL POWER PLAN
E1.2	ELECTRICAL LIGHTING PLAN
E2.1	ELECTRICAL MEZZANINE POWER PLAN
E2.2	ELECTRICAL MEZZANINE LIGHTING PLAN
E3.1	ELECTRICAL SITE PLAN
E4.1	PANELBOARD SCHEDULES AND SINGLE LINE DIAGRAM

**END OF DOCUMENT**

# **BIDDING REQUIREMENTS**

**THIS SHEET LEFT INTENTIONALLY BLANK**



## INSTRUCTIONS TO BIDDERS

### TABLE OF CONTENTS

A.	BIDDER'S PLEDGE AND AGREEMENT .....	2
B.	EXAMINATION OF CONTRACT DOCUMENTS AND SITE CONDITIONS AND RELIANCE UPON TECHNICAL DATA.....	2
C.	PROJECT .....	3
D.	WORK.....	3
E.	ESTIMATE OF COST.....	3
F.	CONTRACT DOCUMENTS AND PRE-BID MEETING.....	4
G.	PREPARATION OF BIDS.....	4
H.	METHOD OF AWARD.....	6
I.	EXECUTION OF CONTRACT .....	9
J.	SUBSTITUTIONS/NON-SPECIFIED PRODUCTS .....	10
K.	ALTERNATES.....	10
L.	UNIT PRICES.....	11
M.	ADDENDA.....	11
N.	INTERPRETATION .....	12
O.	STATE SALES AND USE TAXES .....	12
P.	DATE FOR SUBSTANTIAL COMPLETION/ DATE FOR FINAL COMPLETION /LIQUIDATED DAMAGES .....	12
Q.	OWNER'S RIGHT TO WAIVE DEFECTS AND IRREGULARITIES .....	12
R.	MODIFICATION/WITHDRAWAL OF BIDS .....	13
S.	COMPLIANCE WITH APPLICABLE LAWS .....	13
T.	FINDINGS FOR RECOVERY .....	14
U.	PREVAILING WAGES.....	14

**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 ten (10) 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 is the Bus Maintenance Facility Project (“the Project”). The Project and Work for the Project consists of the furnishing of all labor, equipment and materials necessary in connection with the construction of a new Bus Maintenance Facility, at 100 Education Drive, West Alexandria, Ohio 45381, in accordance with the Drawings and Specifications prepared by the Design Professional.
2. The Design Professional for the Project is:

**RDA Group Architects, LLC**  
**7945 Washington Woods Drive**  
**Dayton, Ohio 45459**  
**Design Professional Representative: Jonathan Schaaf**  
**Email: [jrs@rda-group.com](mailto:jrs@rda-group.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. 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 and Owner’s policies relative to excavation and utility locates. Bidders must follow COVID-19 safety protocols required by law or requested by the Owner. Bidders may visit the site by contacting Jeff Tully at (937) 839-4688 x 405 to set an appointment.

**E. ESTIMATE OF COST**

The total estimated construction cost for the base bid is \$1,675,000 including allowances per Section 01 00 00:

The Bidder’s base bid shall include the following allowances:

<b>Allowance Description</b>	<b>Amount</b>
Contingency	\$40,000.00
Aid to Construction	\$25,000.00
Permit	\$10,000.00

The total estimated construction cost of each Alternate for the Project per Section 10 00 00, is as follows:

*INSTRUCTIONS TO BIDDERS*

00 21 13-3

Alternate Description		Add or Deduct	Estimated Cost
1	Underslab Insulation	Add	\$10,000

**F. CONTRACT DOCUMENTS AND PRE-BID MEETING**

1. The Contract Documents consist of the Contract Documents listed in Section 1 of the Owner-Contractor Agreement.
2. Electronic copies of the Contract Documents will be available by request, from Jonathan Schaaf at [jrs@rda-group.com](mailto:jrs@rda-group.com).
3. 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.
4. 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.
5. A mandatory pre-bid conference will be held at **March 2, 2023 at 12:00 p.m.** at the main entrance of Twin Valley High School, 100 Education Drive, West Alexandria, Ohio 45381.

The Owner shall not be held liable if a bidder is unable to attend due to technical or other issues or obstructions.

**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 originals** 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. Bids shall be enclosed in a sealed opaque envelope with the Bidder's name, plainly marked on the outside "TWIN VALLEY COMMUNITY LOCAL SCHOOLS BUS MAINTENANCE FACILITY PROJECT BID," and addressed as follows:

**Twin Valley Community Local School District Board of Education**  
**ATTN: Tearalee Riddlebarger, Treasurer**  
*INSTRUCTIONS TO BIDDERS*

00 21 13-4

100 Education Drive  
West Alexandria, Ohio 45381

Bids must be received at the location designated above before **12:00 P.M., local time on March 20, 2023.**

**Hand deliveries to this location are preferred. Respondents are responsible for confirming current operating hours.**

Bid opening will take place immediately after the time for submitting bids is expired. Bidders may be notified within three days if they are the low bidder.

The Owner shall not be held liable if a bidder is unable to attend due to technical or other issues or obstructions.

6. **The completed Bid Form shall be accompanied by the following completed documents:**  
**Bid Guaranty and if applicable, Contract Bond (See Paragraph G.8 below.)**  
**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

*INSTRUCTIONS TO BIDDERS*

00 21 13-5

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. Failure to do so 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

INSTRUCTIONS TO BIDDERS

00 21 13-6

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, the Ohio Prevailing Wage laws, 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. **Qualifications Statement. 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 must submit the following:**
    - 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 three 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-subsidary).

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 ten (10) calendar 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 the 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 **Jonathan Schaaf at [jrs@rda-group.com](mailto:jrs@rda-group.com) by 12:00 Noon, seven days before the date set for receipt of bids** 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. 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 **Jonathan Schaaf at [jrs@rda-group.com](mailto:jrs@rda-group.com) by the deadline for questions per paragraph M.3 above.** 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 Wages are not required for this project.

**END OF INSTRUCTIONS TO BIDDERS**

**BID GUARANTY AND CONTRACT BOND**  
(153.571 Ohio Revised Code)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned \_\_\_\_\_ as principal and \_\_\_\_\_ as sureties, are hereby held and firmly bound unto \_\_\_\_\_ as obligee in the penal sum of the dollar amount of the bid submitted by the principal to the obligee on \_\_\_\_\_, 2023 to undertake the project known as : \_\_\_\_\_ (Project Name)

The penal sum referred to herein shall be the dollar amount of the principal's bid to the obligee, incorporating any additives or deductive alternative proposals 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 above line is left blank, the penal sum will be the full amount of the principal's bid, including alternative. Alternatively, if complete, the amount stated must not be less than the full amount of the bid including alternates, in dollars and cents. A percentage is not acceptable.) For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above named principal has submitted a bid for \_\_\_\_\_.

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 per cent 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 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 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 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 \_\_\_\_\_ shall well and faithfully do and perform the things agreed by \_\_\_\_\_ to be done and performed according to the terms of said contract; and shall pay all lawful claims of the subcontractors, materials suppliers and laborers, for labor perform and materials furnished in carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any materials suppliers or laborer having a just claim, as well as for the obligee hereon; 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 modification, 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.

**SIGNED AND SEALED This \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.**

PRINCIPAL:

BY: \_\_\_\_\_  
TITLE: \_\_\_\_\_  
SURETY: \_\_\_\_\_

SURETY COMPANY ADDRESS:

\_\_\_\_\_  
SURETY AGENT ADDRESS:

BY: \_\_\_\_\_  
Attorney-in-Fact

**THIS SHEET LEFT INTENTIONALLY BLANK**



**AFFIDAVIT ON DISCLOSURE OF DELINQUENT  
PERSONAL PROPERTY TAXES**  
(5719.042 Ohio Revised Code)

State of Ohio ) SS  
County of Miami )

The undersigned being duly authorized officer(s) or owner(s) of \_\_\_\_\_  
(Company) Do solemnly swear or affirm that charges of personal property taxes on the  
general tax list of personal property taxes of any county in which the Twin Valley  
Community Local School District has territory (have) (have not) been made against  
\_\_\_\_\_ (Company).

The following is a true and accurate listing of all due and unpaid delinquent taxes and any due  
and unpaid penalties and interest thereon.

\_\_\_\_\_  
Signature of Officer or Owner

Sworn or affirmed to before me and subscribed in my presence this \_\_\_\_\_  
day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
Notary Public

**THIS SHEET LEFT INTENTIONALLY BLANK**

# AIA<sup>®</sup> Document A305<sup>™</sup> – 1986

## Contractor's Qualification Statement

The Undersigned certifies under oath that the information provided herein is true and sufficiently complete so as not to be misleading.

**SUBMITTED TO:**

**ADDRESS:**

**SUBMITTED BY:**

**NAME:**

**ADDRESS:**

**PRINCIPAL OFFICE:**

- Corporation
- Partnership
- Individual
- Joint Venture
- Other

**NAME OF PROJECT:** *(If applicable)*

**TYPE OF WORK:** *(File a separate form for each Classification of Work.)*

- General Construction
- HVAC
- Electrical
- Plumbing
- Other: *(Specify)*

This form is approved and recommended by the American Institute of Architects (AIA) and The Associated General Contractors of America (AGC) for use in evaluating the qualifications of contractors. No endorsement of the submitting party or verification of the information is made by AIA or AGC.

### § 1.0 ORGANIZATION

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

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

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

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

**§ 1.3.1** Date of incorporation:

**§ 1.3.2** State of incorporation:

**§ 1.3.3** President's name:

**§ 1.3.4** Vice-president's name(s):

**§ 1.3.5** Secretary's name:

**§ 1.3.6** Treasurer's name:

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

**§ 1.4.1** Date of organization:

**§ 1.4.2** Type of partnership, if applicable.

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

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

**§ 1.5.1** Date of organization:

**§ 1.5.2** Name of owner:

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

**§ 2.0 LICENSING**

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

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

**§ 3.0 EXPERIENCE**

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

**§ 3.2 Claims and Suits**

*(If the answer to any of the questions below is yes, attach details.)*

§ 3.2.1 Has your organization ever failed to complete any work awarded to it?

§ 3.2.2 Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

§ 3.2.3 Has your organization filed any law suits or requested arbitration with regard to construction contracts within the last five years?

§ 3.3 Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract?

*(If the answer is yes, attach details.)*

§ 3.4 On a separate sheet, list major construction projects your organization has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.

§ 3.4.1 State total worth of work in progress and under contract:

**§ 3.5** On a separate sheet, list the major projects your organization has completed in the past five years, giving the name of project, owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own forces.

**§ 3.5.1** State average annual amount of construction work performed during the past five years:

**§ 3.6** On a separate sheet, list the construction experience and present commitments of the key individuals of your organization.

**§ 4.0 REFERENCES**

**§ 4.1** Trade references:

**§ 4.2** Bank references:

**§ 4.3 Surety**

**§ 4.3.1** Name of bonding company:

**§ 4.3.2** Name and address of agent:

**§ 5.0 FINANCING**

**§ 5.1 Financial Statement**

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

- .1 Current Assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses);
- .2 Net Fixed Assets;
- .3 Other Assets;
- .4 Current Liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes); and
- .5 Other Liabilities (e.g., capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

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

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

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

§ 5.2 Will the organization whose financial statement is attached act as guarantor of the contract for construction?

**§ 6.0 SIGNATURE**

§ 6.1 Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Name of organization:

By:

Title:

**§ 6.2**

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

Subscribed and sworn before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

Notary Public:

My commission expires:

**CAUTION:** You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

**THIS SHEET LEFT INTENTIONALLY BLANK**



# Bid Form

To: Twin Valley Community Local Schools  
100 Education Drive  
West Alexandria, OH 45381

Having carefully read and examined the "Scope of Work", "Specifications", "Plans", and any addendum for:

## Bus Maintenance Facility Twin Valley Community Local Schools

As prepared by:  
RDA Group Architects, LLC.  
7945 Washington Woods Drive  
Dayton, OH 45459  
Phone: 937.610.3440

And having inspected the premises and all conditions affecting the work, the undersigned proposes to furnish all materials and perform all labor necessary for the performance and completion of the work indicated below, all in compliance with the documents named above, and further agrees that each separate item of trade or employment further agrees that, if any or all of said bids are accepted, he will enter into a Contract according to the form required by the Owner for the faithful performance of the labor and the furnishing of all materials included in such bid or bids so accepted.

Submitted by: \_\_\_\_\_  
Contracting Firm

Having read and examined the Contract Documents, prepared by the Associate for the above-referenced Project, and the following Addenda:

Addendum No.	Date of Receipt
_____	_____
_____	_____
_____	_____

The undersigned Bidder having full knowledge of the site and the requirements of the Project proposes to perform all Work in accordance with the Contract Documents for the Sums as indicated on this Bid Form:

**BID ITEM #1: BUS MAINTENANCE FACILITY:** ALL LABOR, MATERIALS, EQUIPMENT, ALL ALLOWANCES, and PERMIT FEES for the sum of

Base Bid Amount \$ \_\_\_\_\_  
Contingency Allowance – \$40,000 \_\_\_\_\_  
Aid to Construction Allowance – \$25,000 \_\_\_\_\_  
Permit Allowance – \$10,000 \_\_\_\_\_

Total Bid Item #1 Amount including All Allowances

\$ \_\_\_\_\_ \$ \_\_\_\_\_  
[FIGURES] [WORDS]

**ALTERNATES:**

**ADD ALTERNATE #1:**

Provide and install underslab insulation where indicated on Drawings.  
ALL LABOR, MATERIALS, EQUIPMENT and PERMIT FEES for the sum of

Add to the Base Bid in the Amount of:

\$ \_\_\_\_\_ \$ \_\_\_\_\_  
[FIGURES] [WORDS]

**UNIT PRICE SCHEDULE**

None

**PROJECT SCHEDULE**

Bidder acknowledges the project schedule as stated in the Bid Documents and agrees to complete the work within the contract period scheduled. Failure to complete the work by the dates in the Bid Documents will be cause for enforcement of liquidated damages.

\_\_\_\_\_  
[Bidder Initials]

The full name and address of all persons and parties interested in the foregoing proposals as principals are as follows:

Company \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Bidder's Signature \_\_\_\_\_

Typed Name \_\_\_\_\_

Title \_\_\_\_\_

# **CONTRACT**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## OWNER-CONTRACTOR AGREEMENT

**Owner:**

Twin Valley Community Local School District  
Board of Education  
100 Education Drive  
West Alexandria, Ohio 45381

**Contractor:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Owner's Representative(s):**

Tearalee Riddlebarger

**Contractor's Representative:**

\_\_\_\_\_

**Project:**

Bus Maintenance Facility Project

**Scope:** General Contractor

This document is an agreement between the Owner and the Contractor for the Work described in the Contract Documents related to the Scope identified above for the Project defined above and is effective as of the date the Agreement is signed by the Owner (the "Effective Date").

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 and Specifications included in the Project Manual dated February 24, 2023 prepared by RDA Group Architects, LLC;
- G. Bid Guaranty and Contract Bond;
- H. Addenda issued;
- I. Contractor's Personal Property Tax Affidavit (O.R.C. 5719.042);
- J. Statement of Claim Form; and
- K. 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

OWNER-CONTRACTOR AGREEMENT

OCA-1

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 Architect 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. (None if none are listed.)

---

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

---

**2. DESIGN PROFESSIONAL RELATIONSHIP.** The Contract Documents shall not be construed to create a contractual relationship of any kind between the Design Professional and the Contractor or any Subcontractor or Material Supplier to the Project. The Design Professional, however, shall be entitled to performance of the obligations of the Contractor intended for 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:

RDA Group Architects, LLC  
7945 Washington Woods Drive  
Dayton, Ohio 45459

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, within **200 calendar days** from **May 1, 2023** (“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, within **30 calendar days** of the Date of Substantial Completion (“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 [REDACTED] Dollars (\$ [REDACTED]), 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: \$ [REDACTED] (Lump Sum Bid);

4.2. Accepted Alternates, included in the Contract Sum:

Alternate No.	Description	Amount
		\$

4.3. Allowances included in the Contract Sum:

Allowance Description	Amount
Contingency	\$25,000
Permit	\$5,000

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:

Not applicable.

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 92% of the amount set forth in Contractor's payment application and approved by Owner until the Work is 50% complete, unless the parties agree otherwise. When the Work is 50% complete, the payment for labor incorporated into the Work will be at the rate of 100% of the amount set forth in Contractor's payment application and approved by Owner.

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.

**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 Paragraph.

7.2. ASSIGNMENT. Contractor may not assign this Agreement without the written consent of Owner, which 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 or 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 Common Pleas Court for the county in which the Project is located and each party hereby expressly consents to the exclusive jurisdiction of such 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. 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 Owner will be subject to the sole discretion of Owner and will be valid and binding on the Contractor, provided only that they be made in good faith, i.e., honestly. If Contractor challenges any such approval or determination, 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 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 That in the hiring of employees for the performance of Work under this Agreement or in any subcontract, neither the Contractor, subcontractor, or any person acting on behalf of either of them, shall by reason of race, creed, sex, disability as defined in Section 4112.01 of the Ohio Revised Code, or color discriminate against any citizen of the state in the employment of labor or workers who are qualified and available to perform the Work to which the employment relates.
- .2 That neither the Contractor, subcontractor, nor any person acting on behalf of either of them shall, in any manner, discriminate against or intimidate any employee hired for the performance of Work under this Agreement on account of race, creed, sex, disability as defined in Section 4112.01 of the Ohio Revised Code, or color.
- .3 That there shall be deducted from the amount payable to the Contractor by the Owner under this Agreement a forfeiture of twenty-five dollars (\$25.00) as required by Ohio Revised Code Section 153.60 for each person who is discriminated against or intimidated in violation of this Agreement.
- .4 That this Agreement may be canceled or terminated by the Owner and all money to become due hereunder may be forfeited for a second or subsequent violation of the terms of this section of this Agreement.

7.14. 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.

However, in the event of any inconsistency, the provisions of this Agreement control over any proposal, document, or other attachment.

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: **Twin Valley Community Local School District Board of Education**

Contractor:

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



# AIA<sup>®</sup> Document A201<sup>®</sup> – 2017

## 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)*

Bus Maintenance Facility Project

**THE OWNER:**

*(Name, legal status and address)*

Twin Valley Community School District Board of Education  
100 Education Drive  
West Alexandria, Ohio 45381

**THE ARCHITECT:**

*(Name, legal status and address)*

RDA Group Architects, LLC  
7945 Washington Woods Drive  
Dayton, Ohio 45459

**TABLE OF ARTICLES**

- 1 GENERAL PROVISIONS**
- 2 OWNER**
- 3 CONTRACTOR**
- 4 ARCHITECT**
- 5 SUBCONTRACTORS**
- 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**
- 7 CHANGES IN THE WORK**
- 8 TIME**
- 9 PAYMENTS AND COMPLETION**
- 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.

Init.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced by AIA software at 13:50:38 ET on 02/16/2023 under Order No.3104237831 which expires on 02/22/2024, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiaccontracts.com.

**User Notes:**

(3B9ADA3A)

- 11 INSURANCE AND BONDS
- 12 UNCOVERING AND CORRECTION OF WORK
- 13 MISCELLANEOUS PROVISIONS
- 14 TERMINATION OR SUSPENSION OF THE CONTRACT
- 15 CLAIMS AND DISPUTES



Init.

/

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:50:38 ET on 02/16/2023 under Order No.3104237831 which expires on 02/22/2024, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail [docinfo@aiacontracts.com](mailto:docinfo@aiacontracts.com).  
**User Notes:**

(3B9ADA3A)

## INDEX

(Topics and numbers in bold are Section headings.)

### Acceptance of Nonconforming Work

9.6.6, 9.9.3, 12.3

### Acceptance of Work

9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, 12.3

### Access to Work

3.16, 6.2.1, 12.1

### Accident Prevention

10

### Acts and Omissions

3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5,

10.2.8, 13.3.2, 14.1, 15.1.2, 15.2

### Addenda

1.1.1

### Additional Costs, Claims for

3.7.4, 3.7.5, 10.3.2, 15.1.5

### Additional Inspections and Testing

9.4.2, 9.8.3, 12.2.1, 13.4

### Additional Time, Claims for

3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, 15.1.6

### Administration of the Contract

3.1.3, 4.2, 9.4, 9.5

### Advertisement or Invitation to Bid

1.1.1

### Aesthetic Effect

4.2.13

### Allowances

3.8

### Applications for Payment

4.2.5, 7.3.9, 9.2, 9.3, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10

### Approvals

2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9,

3.12.10.1, 4.2.7, 9.3.2, 13.4.1

### Arbitration

8.3.1, 15.3.2, 15.4

### ARCHITECT

4

### Architect, Definition of

4.1.1

### Architect, Extent of Authority

2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2,

9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1,

13.4.1, 13.4.2, 14.2.2, 14.2.4, 15.1.4, 15.2.1

### Architect, Limitations of Authority and

### Responsibility

2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2,

4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4,

9.4.2, 9.5.4, 9.6.4, 15.1.4, 15.2

### Architect's Additional Services and Expenses

2.5, 12.2.1, 13.4.2, 13.4.3, 14.2.4

### Architect's Administration of the Contract

3.1.3, 3.7.4, 15.2, 9.4.1, 9.5

### Architect's Approvals

2.5, 3.1.3, 3.5, 3.10.2, 4.2.7

### Architect's Authority to Reject Work

3.5, 4.2.6, 12.1.2, 12.2.1

### Architect's Copyright

1.1.7, 1.5

### Architect's Decisions

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3,

7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1,

13.4.2, 15.2

### Architect's Inspections

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.4

### Architect's Instructions

3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.4.2

### Architect's Interpretations

4.2.11, 4.2.12

### Architect's Project Representative

4.2.10

### Architect's Relationship with Contractor

1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2,

3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16,

3.18, 4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5,

9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, 13.4, 15.2

### Architect's Relationship with Subcontractors

1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3

### Architect's Representations

9.4.2, 9.5.1, 9.10.1

### Architect's Site Visits

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4

### Asbestos

10.3.1

### Attorneys' Fees

3.18.1, 9.6.8, 9.10.2, 10.3.3

### Award of Separate Contracts

6.1.1, 6.1.2

### Award of Subcontracts and Other Contracts for

### Portions of the Work

5.2

### Basic Definitions

1.1

### Bidding Requirements

1.1.1

### Binding Dispute Resolution

8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5,

15.2.6.1, 15.3.1, 15.3.2, 15.3.3, 15.4.1

### Bonds, Lien

7.3.4.4, 9.6.8, 9.10.2, 9.10.3

### Bonds, Performance, and Payment

7.3.4.4, 9.6.7, 9.10.3, 11.1.2, 11.1.3, 11.5

### Building Information Models Use and Reliance

1.8

### Building Permit

3.7.1

### Capitalization

1.3

### Certificate of Substantial Completion

9.8.3, 9.8.4, 9.8.5

Init.

/

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:50:38 ET on 02/16/2023 under Order No.3104237831 which expires on 02/22/2024, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.

User Notes:

(3B9ADA3A)

Certificates for Payment  
 4.2.1, 4.2.5, 4.2.9, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7,  
 9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.4  
 Certificates of Inspection, Testing or Approval  
 13.4.4  
 Certificates of Insurance  
 9.10.2  
 Change Orders  
 1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3,  
 7.1.2, 7.1.3, 7.2, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1,  
 9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2  
 Change Orders, Definition of  
 7.2.1  
 CHANGES IN THE WORK  
 2.2.2, 3.11, 4.2.8, 7, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1,  
 11.5  
 Claims, Definition of  
 15.1.1  
 Claims, Notice of  
 1.6.2, 15.1.3  
 CLAIMS AND DISPUTES  
 3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, 15, 15.4  
 Claims and Timely Assertion of Claims  
 15.4.1  
 Claims for Additional Cost  
 3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, 15.1.5  
 Claims for Additional Time  
 3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, 15.1.6  
 Concealed or Unknown Conditions, Claims for  
 3.7.4  
 Claims for Damages  
 3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3,  
 11.3.2, 14.2.4, 15.1.7  
 Claims Subject to Arbitration  
 15.4.1  
 Cleaning Up  
 3.15, 6.3  
 Commencement of the Work, Conditions Relating to  
 2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3,  
 6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, 15.1.5  
 Commencement of the Work, Definition of  
 8.1.2  
 Communications  
 3.9.1, 4.2.4  
 Completion, Conditions Relating to  
 3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1,  
 9.10, 12.2, 14.1.2, 15.1.2  
 COMPLETION, PAYMENTS AND  
 9  
 Completion, Substantial  
 3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1,  
 9.10.3, 12.2, 15.1.2  
 Compliance with Laws  
 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2,  
 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3,  
 15.2.8, 15.4.2, 15.4.3  
 Concealed or Unknown Conditions  
 3.7.4, 4.2.8, 8.3.1, 10.3  
 Conditions of the Contract  
 1.1.1, 6.1.1, 6.1.4  
 Consent, Written  
 3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2,  
 15.4.4.2  
 Consolidation or Joinder  
 15.4.4  
 CONSTRUCTION BY OWNER OR BY  
 SEPARATE CONTRACTORS  
 1.1.4, 6  
 Construction Change Directive, Definition of  
 7.3.1  
 Construction Change Directives  
 1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3,  
 7.3, 9.3.1.1  
 Construction Schedules, Contractor's  
 3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2  
 Contingent Assignment of Subcontracts  
 5.4, 14.2.2.2  
 Continuing Contract Performance  
 15.1.4  
 Contract, Definition of  
 1.1.2  
 CONTRACT, TERMINATION OR SUSPENSION  
 OF THE  
 5.4.1.1, 5.4.2, 11.5, 14  
 Contract Administration  
 3.1.3, 4, 9.4, 9.5  
 Contract Award and Execution, Conditions Relating  
 to  
 3.7.1, 3.10, 5.2, 6.1  
 Contract Documents, Copies Furnished and Use of  
 1.5.2, 2.3.6, 5.3  
 Contract Documents, Definition of  
 1.1.1  
 Contract Sum  
 2.2.2, 2.2.4, 3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4,  
 9.1, 9.2, 9.4.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2,  
 12.3, 14.2.4, 14.3.2, 15.1.4.2, 15.1.5, 15.2.5  
 Contract Sum, Definition of  
 9.1  
 Contract Time  
 1.1.4, 2.2.1, 2.2.2, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5,  
 7.2.1.3, 7.3.1, 7.3.5, 7.3.6, 7, 7, 7.3.10, 7.4, 8.1.1,  
 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2,  
 14.3.2, 15.1.4.2, 15.1.6.1, 15.2.5  
 Contract Time, Definition of  
 8.1.1  
 CONTRACTOR  
 3  
 Contractor, Definition of  
 3.1, 6.1.2  
 Contractor's Construction and Submittal Schedules  
 3.10, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2  
 Contractor's Employees



2.2.4, 3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6,  
10.2, 10.3, 11.3, 14.1, 14.2.1.1  
Contractor's Liability Insurance  
11.1  
Contractor's Relationship with Separate Contractors  
and Owner's Forces  
3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4  
Contractor's Relationship with Subcontractors  
1.2.2, 2.2.4, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2,  
9.6.7, 9.10.2, 11.2, 11.3, 11.4  
Contractor's Relationship with the Architect  
1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2,  
3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2,  
6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6,  
10.3, 11.3, 12, 13.4, 15.1.3, 15.2.1  
Contractor's Representations  
3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2  
Contractor's Responsibility for Those Performing the  
Work  
3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8  
Contractor's Review of Contract Documents  
3.2  
Contractor's Right to Stop the Work  
2.2.2, 9.7  
Contractor's Right to Terminate the Contract  
14.1  
Contractor's Submittals  
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2,  
9.8.3, 9.9.1, 9.10.2, 9.10.3  
Contractor's Superintendent  
3.9, 10.2.6  
Contractor's Supervision and Construction  
Procedures  
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4,  
7.1.3, 7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4  
Coordination and Correlation  
1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1  
Copies Furnished of Drawings and Specifications  
1.5, 2.3.6, 3.11  
Copyrights  
1.5, 3.17  
Correction of Work  
2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, 12.2, 12.3,  
15.1.3.1, 15.1.3.2, 15.2.1  
Correlation and Intent of the Contract Documents  
1.2  
Cost, Definition of  
7.3.4  
Costs  
2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3,  
7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6,  
11.2, 12.1.2, 12.2.1, 12.2.4, 13.4, 14  
Cutting and Patching  
3.14, 6.2.5  
Damage to Construction of Owner or Separate  
Contractors  
3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4

Damage to the Work  
3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4  
Damages, Claims for  
3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2,  
11.3, 14.2.4, 15.1.7  
Damages for Delay  
6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2  
Date of Commencement of the Work, Definition of  
8.1.2  
Date of Substantial Completion, Definition of  
8.1.3  
Day, Definition of  
8.1.4  
Decisions of the Architect  
3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4,  
7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2,  
14.2.2, 14.2.4, 15.1, 15.2  
Decisions to Withhold Certification  
9.4.1, 9.5, 9.7, 14.1.1.3  
Defective or Nonconforming Work, Acceptance,  
Rejection and Correction of  
2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3,  
9.10.4, 12.2.1  
Definitions  
1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1,  
6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1  
Delays and Extensions of Time  
3.2, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, 8.3, 9.5.1, 9.7,  
10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5  
Digital Data Use and Transmission  
1.7  
Disputes  
6.3, 7.3.9, 15.1, 15.2  
Documents and Samples at the Site  
3.11  
Drawings, Definition of  
1.1.5  
Drawings and Specifications, Use and Ownership of  
3.11  
Effective Date of Insurance  
8.2.2  
Emergencies  
10.4, 14.1.1.2, 15.1.5  
Employees, Contractor's  
3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2,  
10.3.3, 11.3, 14.1, 14.2.1.1  
Equipment, Labor, or Materials  
1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,  
4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3,  
9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2  
Execution and Progress of the Work  
1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1,  
3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1,  
9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4  
Extensions of Time  
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2,  
10.4, 14.3, 15.1.6, 15.2.5

Failure of Payment  
 9.5.1.3, 9.7, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2  
 Faulty Work  
 (See Defective or Nonconforming Work)  
 Final Completion and Final Payment  
 4.2.1, 4.2.9, 9.8.2, 9.10, 12.3, 14.2.4, 14.4.3  
 Financial Arrangements, Owner's  
 2.2.1, 13.2.2, 14.1.1.4  
**GENERAL PROVISIONS**  
 1  
 Governing Law  
 13.1  
 Guarantees (See Warranty)  
 Hazardous Materials and Substances  
 10.2.4, 10.3  
 Identification of Subcontractors and Suppliers  
 5.2.1  
 Indemnification  
 3.17, 3.18, 9.6.8, 9.10.2, 10.3.3, 11.3  
 Information and Services Required of the Owner  
 2.1.2, 2.2, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5,  
 9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2,  
 14.1.1.4, 14.1.4, 15.1.4  
 Initial Decision  
 15.2  
 Initial Decision Maker, Definition of  
 1.1.8  
 Initial Decision Maker, Decisions  
 14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5  
 Initial Decision Maker, Extent of Authority  
 14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5  
 Injury or Damage to Person or Property  
 10.2.8, 10.4  
 Inspections  
 3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,  
 9.9.2, 9.10.1, 12.2.1, 13.4  
 Instructions to Bidders  
 1.1.1  
 Instructions to the Contractor  
 3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2  
 Instruments of Service, Definition of  
 1.1.7  
 Insurance  
 6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5,  
 11  
 Insurance, Notice of Cancellation or Expiration  
 11.1.4, 11.2.3  
 Insurance, Contractor's Liability  
 11.1  
 Insurance, Effective Date of  
 8.2.2, 14.4.2  
 Insurance, Owner's Liability  
 11.2  
 Insurance, Property  
 10.2.5, 11.2, 11.4, 11.5  
 Insurance, Stored Materials  
 9.3.2

**INSURANCE AND BONDS**  
 11  
 Insurance Companies, Consent to Partial Occupancy  
 9.9.1  
 Insured loss, Adjustment and Settlement of  
 11.5  
 Intent of the Contract Documents  
 1.2.1, 4.2.7, 4.2.12, 4.2.13  
 Interest  
 13.5  
 Interpretation  
 1.1.8, 1.2.3, 1.4, 4.1.1, 5.1, 6.1.2, 15.1.1  
 Interpretations, Written  
 4.2.11, 4.2.12  
 Judgment on Final Award  
 15.4.2  
 Labor and Materials, Equipment  
 1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,  
 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1,  
 10.2.4, 14.2.1.1, 14.2.1.2  
 Labor Disputes  
 8.3.1  
 Laws and Regulations  
 1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4,  
 9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8,  
 15.4  
 Liens  
 2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8  
 Limitations, Statutes of  
 12.2.5, 15.1.2, 15.4.1.1  
 Limitations of Liability  
 3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6,  
 4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3,  
 11.3, 12.2.5, 13.3.1  
 Limitations of Time  
 2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7,  
 5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,  
 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15,  
 15.1.2, 15.1.3, 15.1.5  
 Materials, Hazardous  
 10.2.4, 10.3  
 Materials, Labor, Equipment and  
 1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,  
 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2,  
 10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2  
 Means, Methods, Techniques, Sequences and  
 Procedures of Construction  
 3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2  
 Mechanic's Lien  
 2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8  
 Mediation  
 8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, 15.3, 15.4.1,  
 15.4.1.1  
 Minor Changes in the Work  
 1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, 7.4  
**MISCELLANEOUS PROVISIONS**  
 13

Modifications, Definition of  
1.1.1  
Modifications to the Contract  
1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7,  
10.3.2  
Mutual Responsibility  
6.2  
Nonconforming Work, Acceptance of  
9.6.6, 9.9.3, 12.3  
Nonconforming Work, Rejection and Correction of  
2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4,  
12.2  
Notice  
1.6, 1.6.1, 1.6.2, 2.1.2, 2.2.2., 2.2.3, 2.2.4, 2.5, 3.2.4,  
3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4,  
8.2.2, 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1,  
13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5,  
15.1.6, 15.4.1  
Notice of Cancellation or Expiration of Insurance  
11.1.4, 11.2.3  
Notice of Claims  
1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, 15.1.3, 15.1.5,  
15.1.6, 15.2.8, 15.3.2, 15.4.1  
Notice of Testing and Inspections  
13.4.1, 13.4.2  
Observations, Contractor's  
3.2, 3.7.4  
Occupancy  
2.3.1, 9.6.6, 9.8  
Orders, Written  
1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2,  
14.3.1  
OWNER  
2  
Owner, Definition of  
2.1.1  
Owner, Evidence of Financial Arrangements  
2.2, 13.2.2, 14.1.1.4  
Owner, Information and Services Required of the  
2.1.2, 2.2, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5,  
9.3.2, 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1,  
13.4.2, 14.1.1.4, 14.1.4, 15.1.4  
Owner's Authority  
1.5, 2.1.1, 2.3.32.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2,  
4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1,  
7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2,  
10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4,  
15.2.7  
Owner's Insurance  
11.2  
Owner's Relationship with Subcontractors  
1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2  
Owner's Right to Carry Out the Work  
2.5, 14.2.2  
Owner's Right to Clean Up  
6.3  
Owner's Right to Perform Construction and to Award

Separate Contracts  
6.1  
Owner's Right to Stop the Work  
2.4  
Owner's Right to Suspend the Work  
14.3  
Owner's Right to Terminate the Contract  
14.2, 14.4  
Ownership and Use of Drawings, Specifications and  
Other Instruments of Service  
1.1.1, 1.1.6, 1.1.7, 1.5, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12,  
5.3  
Partial Occupancy or Use  
9.6.6, 9.9  
Patching, Cutting and  
3.14, 6.2.5  
Patents  
3.17  
Payment, Applications for  
4.2.5, 7.3.9, 9.2, 9.3, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1,  
14.2.3, 14.2.4, 14.4.3  
Payment, Certificates for  
4.2.5, 4.2.9, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1,  
9.10.3, 14.1.1.3, 14.2.4  
Payment, Failure of  
9.5.1.3, 9.7, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2  
Payment, Final  
4.2.1, 4.2.9, 9.10, 12.3, 14.2.4, 14.4.3  
Payment Bond, Performance Bond and  
7.3.4.4, 9.6.7, 9.10.3, 11.1.2  
Payments, Progress  
9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4  
PAYMENTS AND COMPLETION  
9  
Payments to Subcontractors  
5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2  
PCB  
10.3.1  
Performance Bond and Payment Bond  
7.3.4.4, 9.6.7, 9.10.3, 11.1.2  
Permits, Fees, Notices and Compliance with Laws  
2.3.1, 3.7, 3.13, 7.3.4.4, 10.2.2  
PERSONS AND PROPERTY, PROTECTION OF  
10  
Polychlorinated Biphenyl  
10.3.1  
Product Data, Definition of  
3.12.2  
Product Data and Samples, Shop Drawings  
3.11, 3.12, 4.2.7  
Progress and Completion  
4.2.2, 8.2, 9.8, 9.9.1, 14.1.4, 15.1.4  
Progress Payments  
9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4  
Project, Definition of  
1.1.4  
Project Representatives

4.2.10  
 Property Insurance  
 10.2.5, 11.2  
 Proposal Requirements  
 1.1.1  
 PROTECTION OF PERSONS AND PROPERTY  
 10  
 Regulations and Laws  
 1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1,  
 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8,  
 15.4  
 Rejection of Work  
 4.2.6, 12.2.1  
 Releases and Waivers of Liens  
 9.3.1, 9.10.2  
 Representations  
 3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1  
 Representatives  
 2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1  
 Responsibility for Those Performing the Work  
 3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10  
 Retainage  
 9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3  
 Review of Contract Documents and Field Conditions  
 by Contractor  
 3.2, 3.12.7, 6.1.3  
 Review of Contractor's Submittals by Owner and  
 Architect  
 3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2  
 Review of Shop Drawings, Product Data and  
 Samples by Contractor  
 3.12  
 Rights and Remedies  
 1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1,  
 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2,  
 12.2.4, 13.3, 14, 15.4  
 Royalties, Patents and Copyrights  
 3.17  
 Rules and Notices for Arbitration  
 15.4.1  
 Safety of Persons and Property  
 10.2, 10.4  
 Safety Precautions and Programs  
 3.3.1, 4.2.2, 4.2.7, 5.3, 10.1, 10.2, 10.4  
 Samples, Definition of  
 3.12.3  
 Samples, Shop Drawings, Product Data and  
 3.11, 3.12, 4.2.7  
 Samples at the Site, Documents and  
 3.11  
 Schedule of Values  
 9.2, 9.3.1  
 Schedules, Construction  
 3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2  
 Separate Contracts and Contractors  
 1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2  
 Separate Contractors, Definition of

6.1.1  
 Shop Drawings, Definition of  
 3.12.1  
 Shop Drawings, Product Data and Samples  
 3.11, 3.12, 4.2.7  
 Site, Use of  
 3.13, 6.1.1, 6.2.1  
 Site Inspections  
 3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4  
 Site Visits, Architect's  
 3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4  
 Special Inspections and Testing  
 4.2.6, 12.2.1, 13.4  
 Specifications, Definition of  
 1.1.6  
 Specifications  
 1.1.1, 1.1.6, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14  
 Statute of Limitations  
 15.1.2, 15.4.1.1  
 Stopping the Work  
 2.2.2, 2.4, 9.7, 10.3, 14.1  
 Stored Materials  
 6.2.1, 9.3.2, 10.2.1.2, 10.2.4  
 Subcontractor, Definition of  
 5.1.1  
 SUBCONTRACTORS  
 5  
 Subcontractors, Work by  
 1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4,  
 9.3.1.2, 9.6.7  
 Subcontractual Relations  
 5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1  
 Submittals  
 3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3,  
 9.8, 9.9.1, 9.10.2, 9.10.3  
 Submittal Schedule  
 3.10.2, 3.12.5, 4.2.7  
 Subrogation, Waivers of  
 6.1.1, 11.3  
 Substances, Hazardous  
 10.3  
 Substantial Completion  
 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3,  
 12.2, 15.1.2  
 Substantial Completion, Definition of  
 9.8.1  
 Substitution of Subcontractors  
 5.2.3, 5.2.4  
 Substitution of Architect  
 2.3.3  
 Substitutions of Materials  
 3.4.2, 3.5, 7.3.8  
 Sub-subcontractor, Definition of  
 5.1.2  
 Subsurface Conditions  
 3.7.4  
 Successors and Assigns

13.2  
Superintendent  
3.9, 10.2.6  
Supervision and Construction Procedures  
1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4,  
7.1.3, 7.3.4, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.4  
Suppliers  
1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6,  
9.10.5, 14.2.1  
Surety  
5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2,  
15.2.7  
Surety, Consent of  
9.8.5, 9.10.2, 9.10.3  
Surveys  
1.1.7, 2.3.4  
Suspension by the Owner for Convenience  
14.3  
Suspension of the Work  
3.7.5, 5.4.2, 14.3  
Suspension or Termination of the Contract  
5.4.1.1, 14  
Taxes  
3.6, 3.8.2.1, 7.3.4.4  
Termination by the Contractor  
14.1, 15.1.7  
Termination by the Owner for Cause  
5.4.1.1, 14.2, 15.1.7  
Termination by the Owner for Convenience  
14.4  
Termination of the Architect  
2.3.3  
Termination of the Contractor Employment  
14.2.2

#### TERMINATION OR SUSPENSION OF THE CONTRACT

14  
Tests and Inspections  
3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,  
9.9.2, 9.10.1, 10.3.2, 12.2.1, 13.4  
TIME  
8  
Time, Delays and Extensions of  
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, 8.3, 9.5.1, 9.7,  
10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5  
Time Limits

2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2,  
5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,  
9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14,  
15.1.2, 15.1.3, 15.4  
Time Limits on Claims  
3.7.4, 10.2.8, 15.1.2, 15.1.3  
Title to Work  
9.3.2, 9.3.3  
UNCOVERING AND CORRECTION OF WORK  
12  
Uncovering of Work  
12.1  
Unforeseen Conditions, Concealed or Unknown  
3.7.4, 8.3.1, 10.3  
Unit Prices  
7.3.3.2, 9.1.2  
Use of Documents  
1.1.1, 1.5, 2.3.6, 3.12.6, 5.3  
Use of Site  
3.13, 6.1.1, 6.2.1  
Values, Schedule of  
9.2, 9.3.1  
Waiver of Claims by the Architect  
13.3.2  
Waiver of Claims by the Contractor  
9.10.5, 13.3.2, 15.1.7  
Waiver of Claims by the Owner  
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, 15.1.7  
Waiver of Consequential Damages  
14.2.4, 15.1.7  
Waiver of Liens  
9.3, 9.10.2, 9.10.4  
Waivers of Subrogation  
6.1.1, 11.3  
Warranty  
3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2,  
15.1.2  
Weather Delays  
8.3, 15.1.6.2  
Work, Definition of  
1.1.3  
Written Consent  
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3,  
13.2, 13.3.2, 15.4.4.2  
Written Interpretations  
4.2.11, 4.2.12  
Written Orders  
1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

## **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.

Init.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. “The American Institute of Architects,” “American Institute of Architects,” “AIA,” the AIA Logo, and “AIA Contract Documents” are trademarks of The American Institute of Architects. This document was produced at 13:50:38 ET on 02/16/2023 under Order No.3104237831 which expires on 02/22/2024, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail [docinfo@aiacontracts.com](mailto:docinfo@aiacontracts.com).

**User Notes:**

(3B9ADA3A)

### § 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-Architect 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, Architect, and the Architect's consultants.

## **§ 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, Architect, 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, Architect, and others as appropriate will be held to review for acceptability to the Architect 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 Architect 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.]

Init.



**§ 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 initial plan approvals, easements, or assessments unless such permits are covered by the Permit Allowance.

**§ 2.3.2** The Owner may retain an architect 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 Architect 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 Architect.

**§ 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 Architect 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 business days after receipt of notice from the Owner to commence or thereafter proceed without interruption to correct such default or neglect within fifteen days of such notice, the Owner, without prejudice 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 Architect'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 Architect, 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 Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

### **§ 3.2 Review of Contract Documents and Field Conditions by Contractor**

**§ 3.2.1** Execution of the Agreement by the Contractor is a representation that the Contractor has visited the site, diligently investigated the entire site and surrounding area, including existing buildings, if any, location, condition, and layout of the site and observable 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 Architect 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 Architect 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.

**§ 3.2.4** If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations

of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, 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 Architect, and shall not proceed with that portion of the Work without further written instructions from the Architect. The Contractor shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect 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 Architect 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 Architect 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;
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,

Init.

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 Architect, 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. Claims for the Contractor's failure to comply with the Ohio Public Records Act, if applicable, shall be claims 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 Architect in accordance with Section 3.12.8 or ordered by the Architect 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 Architect and in accordance with a Change Order or Construction Change Directive.

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

### **§ 3.5 Warranty**

**§ 3.5.1** The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects. Work, materials, or equipment not conforming to these requirements may be considered defective. If required by the Architect, 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 Architect 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 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** Unless provided by the Owner or Architect, the Contractor shall secure and pay for permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

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

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

### **§ 3.7.4 Concealed or Unknown Conditions**

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 Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may 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 Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

### **§ 3.8 Allowances**

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

**§ 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 Architect of the name and qualifications of a proposed superintendent in writing. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time for review. Failure of the Architect 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 Architect 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 Architect a written request for the change, including the justification for the change, the name and qualifications for the proposed replacement, and the time frame within which the change is proposed to take place. The Contractor shall provide promptly any related additional information the Architect or Owner requests.

**§ 3.10 Contractor's Construction and Submittal Schedules**

**§ 3.10.1** The Contractor, within five (5) days of the date of any request from the Architect or the Owner to submit scheduling information, shall submit the scheduling information for its Work to the Architect and to the Owner in such form and in such detail as requested. The Contractor shall prepare the Construction Schedule within 10 days after 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.

- .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 Architect 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 Architect or Owner, the Contractor shall pay and the

Owner may withhold from the Contractor Liquidated Damages at the rate of Fifty Dollars (\$50.00) a day for each calendar day thereafter that the Contractor fails to 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 Architect's approval. The Architect'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 Architect 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 Architect, 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 Architect 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 Architect 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 Architect or the Owner determines that the performance of the Work has not progressed so that it is likely that the Contractor will not Substantially Complete its Work by its Date 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.

### **§ 3.11 Documents and Samples at the Site**

The Contractor shall maintain at the Project site for the Owner and the Architect the documents required by Section 3.3.4. These shall be in electronic form or paper copy, available to the Architect and Owner, and shall be delivered to the Architect 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 Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

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

- .1 If the Shop Drawings or other submittals show variations from the requirements of the Contract Documents, the Contractor shall specify such variations in the Contractor's letter of submittal to the Architect accompanying the submittal. Variations must be approved by Change Order.
- .2 If the Contractor's Shop Drawings or its submittals do not contain sufficient information, and the Architect must perform more than two reviews with respect to any submittal, the Contractor shall pay the additional costs and expenses incurred by the Owner as a result of such additional reviews by the Architect, and the Owner may withhold from sums due or coming due the Contractor amounts to cover such additional costs and expenses.

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

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

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

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

**§ 3.12.10** The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not 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 Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional who shall comply with reasonable

Init.



requirements of the Owner regarding qualifications and insurance and whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by such design professionals. Pursuant to this Section 3.12.10, the Architect will review 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 Architect.

**§ 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 Architect 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 Architect and the Owner.

**§ 3.12.12 Testing Following Final Completion.** The Contractor will participate in training sessions for the Owner's maintenance personnel. During the first twelve (12) months following Final Completion of each part of the Project, the Contractor (without additional compensation) will participate in tests scheduled by the Owner, which test the following building systems to the extent applicable to the Contractor's Work; air conditioning system (which shall be conducted during the first full summer following the completion of the Project or at such earlier time as scheduled by the Owner), heating system (which shall be conducted during the first full winter following the completion of the Project or at such earlier time as scheduled by the Owner), and such other systems, including the electrical system, plumbing system, fire protection system, 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 Architect prior to commencing the Work.

**§ 3.12.14** The Contractor shall furnish for each submission of Shop Drawings, a sufficient number of prints so the Architect 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. Do not submit complete catalogues with items checked for use as shop drawings.

**§ 3.12.15** After review of the submittal, the Architect will return an original of each submission 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 submission 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 Architect. 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 Architect 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 Architect 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 Architect 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.

**§ 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 Architect.

**§ 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.

**§ 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 Architect's determination of the costs to be charged to the Contractor shall be final and binding.

### **§ 3.16 Access to Work**

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located. The Contractor is responsible to provide 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 Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process, or product is an infringement of a copyright or patent, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

### **§ 3.18 Indemnification**

**§ 3.18.1** To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Owner, Architect, Architect's consultants, and 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 Architect and the Owner and to the registered underground utility protection services and the owners of underground utility facilities shown on the Drawings and Specifications.

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

### **§ 3.21 Waivers of Claims**

**§ 3.21.1** Beginning with the second Application for Payment, the Contractor will submit (a) a completed Payment Application Checklist, (b) 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, and (c) a complete list of its Subcontractors and Suppliers and any amounts withheld in the form included in the Contract Documents or as 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.

### **§ 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 ARCHITECT

### § 4.1 General

§ 4.1.1 The Architect 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 Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner and Architect. Consent shall not be unreasonably withheld.

### § 4.2 Administration of the Contract

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

§ 4.2.2 The Architect will visit the site as agreed upon with the Owner, (1) to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, and (3) to determine in general if the Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner 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. Except as required by its duty of care owed to the Owner, the Architect (a) will not be responsible to the Owner for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents, and (b) will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

### § 4.2.4 Communications Facilitating Contract Administration

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

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

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be

Init.

taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

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

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

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

**§ 4.2.11** The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. Copies of all Requests for Information shall be copied to the Owner by the Contractor at the time they are submitted to the Architect.

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

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

**§ 4.2.14** The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information. If no agreement is made concerning the time within which interpretations required of the Architect shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Architect to furnish such interpretations until 15 days after written request is made for them and the Contractor establishes the Architect's delay in responding delayed the 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 Ohio law. Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and the Architect 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 Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect 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 Architect, be submitted to the Owner and the Architect.

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

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

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

## **§ 5.3 Subcontractual Relations**

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor’s Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, 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, and/or award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these, including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

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

**§ 6.1.3** The 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.

**§ 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 Architect 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 Architect will allocate the cost among those responsible. The Architect's decision allocating the cost shall be final and binding on the Contractor and the Owner.

## ARTICLE 7 CHANGES IN THE WORK

### § 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents. 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 Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. 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 Architect 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 Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

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

§ 7.2.2 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 Architect 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 Architect.

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

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

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

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Subject to a not-to-exceed amount, a cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.7; 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 Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

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

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

- .1 Costs of labor, including social security, old age, and unemployment insurance, applicable payroll taxes, fringe benefits required by agreement or custom, and workers' compensation insurance, and other employee costs approved by the Architect. 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**

Init.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:50:38 ET on 02/16/2023 under Order No.3104237831 which expires on 02/22/2024, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.

User Notes:

(3B9ADA3A)

## **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 Architect plus the credit for overhead and profit. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, or decrease if any, with respect to that change.

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

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

§ 7.3.11 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
- .2 Voluntary Employee Deductions (e.g., United Way Contributions, U.S. Savings Bonds, etc.)

## **§ 7.4 Minor Changes in the Work**

The Architect 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 Architect'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 Architect 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 Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect 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 Architect in accordance with Section 9.8.

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

## **§ 8.2 Progress and Completion**

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

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

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

## **§ 8.3 Delays and Extensions of Time**

**§ 8.3.1** If the Contractor is delayed at any time in the commencement or progress of the Work by an Excusable Delay as 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 Architect may determine.

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

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

## **ARTICLE 9 PAYMENTS AND COMPLETION**

### **§ 9.1 Contract Sum**

**§ 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.]

### **§ 9.2 Schedule of Values**

Within 10 days of the Effective Date, the Contractor shall submit a schedule of values to the Architect for the Architect'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 Architect. By submitting such Schedule of Values, the Contractor represents for the reliance of the Architect and the Owner that the allocation of the values to the portions of the Work is a fair and reasonable estimate of such allocation. Once approved, the Contractor will not change the allocations in the Schedule of Values without the Architect's further approval. The Architect may from time to time require the Contractor to adjust such schedule if the Architect determines it to be in any way unreasonable or inaccurate. The Contractor then shall adjust the Schedule of Values as required by the Architect within ten (10) days. This schedule, with any adjustments approved by the Architect shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the Schedule of Values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, 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 Architect, 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 Architect.

### **§ 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 Architect 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 Architect and returned to the Contractor. The Application for Payment, as reviewed and adjusted by the Architect, 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 Architect. 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 that as Owner or Architect 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 Architect, but not yet included in Change Orders.

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

**§ 9.3.1.3** The Contractor shall submit its Application for Payment to the Architect on AIA Documents G-702 and G-703 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 Architect and in compliance with all of the Owner's policies, procedures, and documentation requirements.

**§ 9.3.1.4** The Contractor shall provide lien waivers from itself and all subcontractors, material suppliers, and any other party that performed work or supplied materials for the Project. Each Application for Payment shall include, in the form included in the bid package, partial and lien waivers from each of the aforementioned parties for the work performed to date on the Project and for the value of the work performed during the current billing period. 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 92 percent of the amount invoiced through the Application for Payment that shows the total Contract completion at 50 percent or greater, pursuant to Ohio Revised Code Section 153.12. 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. After the Contract is 50 percent complete as evidenced by payments in the amount of at least 50 percent of the Contract Price to the Contractor, no additional funds shall be retained from payments for labor. The Owner will withhold retainage from the amount set forth in the Application for Payment approved by the Architect, as provided in the Contract Documents.

**§ 9.3.1.6 Documentation.** Upon request, the Contractor immediately will supply the Owner and the Architect 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.** Owner and Contractor acknowledge that R.C. 153.63 provides that retained and detained funds will be deposited into an escrow account governed by an escrow agreement with a third party escrow agent. If Contractor wishes to have funds so deposited, (1) Contractor must provide written notice to the Owner of the request for an escrow account prior to submission of the first pay application, (2) Contractor will be responsible for all expenses associated with the escrow agent and escrow account beyond the interest income from the account, which will be paid for out of the principal amount deposited into the escrow account, and (3) Contractor must enter into a mutually agreeable written escrow agreement with the Owner and the escrow agent. If the Contractor does not request an escrow account prior to the submission of the first pay application or, in the event Contractor does timely request an escrow account before submission of the first pay application, if Contractor cannot (or does not) agree to a mutually agreeable escrow agreement, the Contractor consents to the following: (a) Owner may deposit 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 R.C. 153.12 (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 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 Architect 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 Architect may require, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

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

### § 9.5 Decisions to Withhold Certification

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

- .1 defective Work not remedied or the Contractor is in default of the performance of any of its obligations under the Contract Documents including but not limited to: failure to provide sufficient skilled workers, failure to provide scheduling information as provided in Section 3.10.1, failure to prepare the Construction Schedule as provided in Section 3.10.1, failure to conform to the 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;
- .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 Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect shall reflect such payment on the next Certificate for Payment.

### § 9.6 Progress Payments

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

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

Init.

from its Subcontractors or their sub-subcontractors beyond the retainage withheld by the Owner from the Contractor.

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

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

### **§ 9.7 Failure of Payment**

If the Owner does not pay the Contractor the amount certified by the Architect within thirty (30) days after receipt of the certified Application for Payment for the Architect 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 Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of 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 Architect a comprehensive list of items to be completed or corrected prior to final payment together with all required documents neatly bound and indexed. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all

Init.



Work in accordance with the Contract Documents. When a specific manufacturer's warranty is required by the Specifications, the Contractor shall state in writing to the Architect that all the manufacturer's requirements for the issuance of the warranty has been completed and that the Work is ready for the Architect's and Owner's inspection. All manufacturer's warranties required for the Work shall commence as of the Date of Substantial Completion stated on the certificate issued by the Architect.

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

**§ 9.8.3.1 Time for Completion of Items on List and Remedies.** The Contractor shall complete all items on the list accompanying the Architect's Certificate of Substantial Completion 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 Architect for purposes of evaluating corrected Work is required, the Contractor shall pay the additional costs and expenses incurred by the Owner as a result of more than one inspection by the Architect, and the Owner may withhold from sums due or coming due the Contractor amounts to cover such additional costs and expenses.

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

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

### **§ 9.9 Partial Occupancy or Use**

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

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

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

### **§ 9.10 Final Completion and Final Payment**

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

#### **§ 9.10.1.1 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 Architect all documents required to be submitted to the Architect 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, or other Modification, or a Claim that is Finally Resolved, regardless of any dates in the Construction Schedule.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (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 Architect also is accompanied by the following additional documents, if not previously delivered to the Architect:

- .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 Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, 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 Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

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

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .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 Architect accept any responsibility or 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 Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18. In the event of a dispute about who is responsible for damage and loss to such property, the issue shall be submitted to the Architect and the Architect's decision shall be final and binding on the respective parties.

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

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

**§ 10.2.8 Injury or Damage to Person or Property**

If the Contractor suffers injury or damage to person or property because of an act or omission of the Owner, or of others for whose acts the Owner is legally responsible, the Contractor shall submit a Statement of Claim Form for such injury or damage as required by Section 15.1.

**§ 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 addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

**§ 10.3.2** Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents upon written request, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of 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.

- .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

Init.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:50:38 ET on 02/16/2023 under Order No.3104237831 which expires on 02/22/2024, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.

User Notes:

(3B9ADA3A)

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.

§ 11.1.2.8 All liability policies required in Section 11.1 shall include an additional insured endorsement naming the Owner and Architect, 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 Architect, 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,

Init.

AIA Document A201 – 2017. Copyright © 1911, 1915, 1918, 1925, 1937, 1951, 1958, 1961, 1963, 1966, 1970, 1976, 1987, 1997, 2007 and 2017. All rights reserved. "The American Institute of Architects," "American Institute of Architects," "AIA," the AIA Logo, and "AIA Contract Documents" are trademarks of The American Institute of Architects. This document was produced at 13:50:38 ET on 02/16/2023 under Order No.3104237831 which expires on 02/22/2024, is not for resale, is licensed for one-time use only, and may only be used in accordance with the AIA Contract Documents® Terms of Service. To report copyright violations, e-mail docinfo@aiacontracts.com.

User Notes:

(3B9ADA3A)

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 Architect 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.

**§ 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 Architect, 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

Init.

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 Architect'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.

§ 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 Architect 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.

**§ 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 Architect and Architect'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 Architect, Architect'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.**

**§**  
*(Paragraphs Deleted)*

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

### ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

#### § 12.1 Uncovering of Work

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

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, 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 Architect or Owner for failing to conform to the requirements of the Contract Documents, whether discovered

Init.

before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

#### **§ 12.2.2 After Substantial Completion**

**§ 12.2.2.1** In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of 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 such notice, 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 Architect, 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.

**§ 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, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach 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 Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections, or approvals that do not become requirements until after 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 Architect the required certificates of inspection or approval. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures.

**§ 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 Architect'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 Architect. Tests required by the Contract Documents to be performed by the Contractor that require test certificates to be submitted to the Owner or Architect 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 Architect, 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 Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of

when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, 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 Architect'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 Architect.

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

**§ 13.4.6** 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.

**§ 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 Architect. The Contractor agrees that such communications will be privileged communications and, if there is a Claim contemplated or pending, any written communications will be confidential work product.

## **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 Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; 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 Architect, 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 Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

## **§ 14.2 Termination by the Owner for Cause**

**§ 14.2.1** The Owner may terminate the Contract if the Contractor

- .1 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:

- .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 Architect'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 Architect, 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 Architect and the Owner, properly completed in accordance with the 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 Architect, if the Architect 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 Architect 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 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.

#### **§ 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 Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to any further proceeding permitted under these General Conditions of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker 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 Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation if both parties agreed in writing to mediate and, if mediation 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, in the county in which the Project is located. 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.]

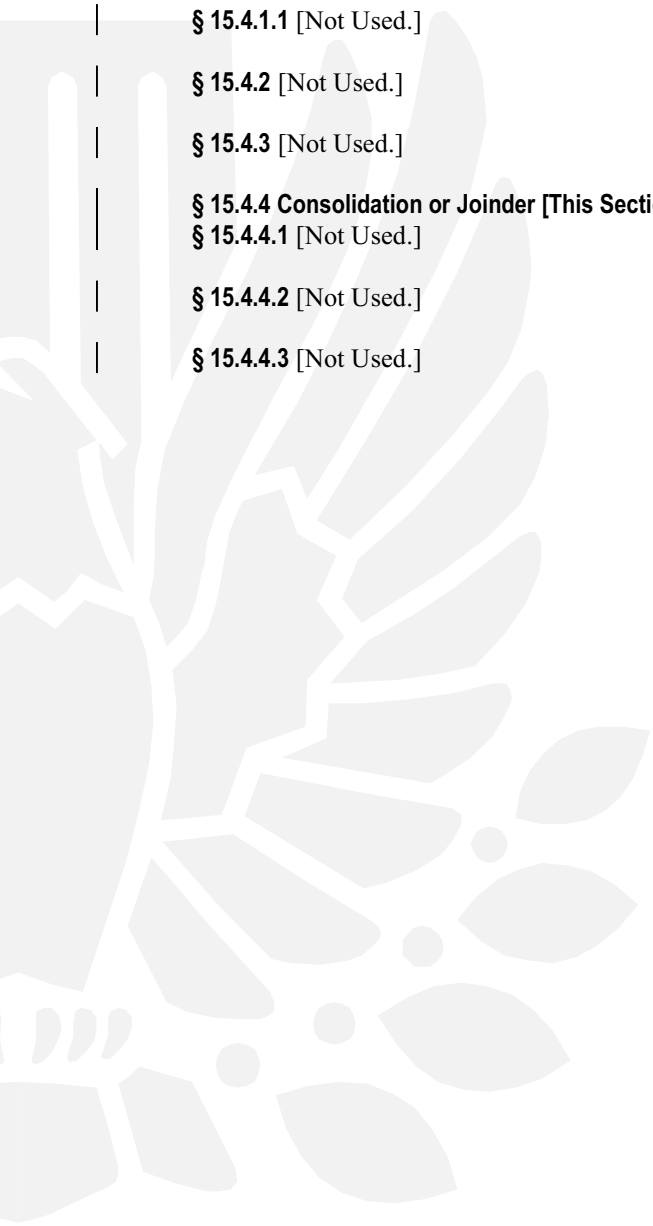
**§ 15.4.3** [Not Used.]

**§ 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.]



**THIS SHEET LEFT INTENTIONALLY BLANK**

**STATEMENT OF CLAIM FORM**

**Claim No. \_\_\_\_ for Contractor**

1. Name of Contractor: \_\_\_\_\_

2. Date written claim given: \_\_\_\_\_.

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

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Telephone No. \_\_\_\_\_ (office) FAX No. \_\_\_\_\_

E-mail: \_\_\_\_\_

4. General description of claim:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. Delay claims:

6.1 Date delay commenced: \_\_\_\_\_

6.2 Duration or expected duration of the delay, if known: \_\_\_\_\_

6.3 Apparent cause of the delay and part of critical path affected:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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

CONTRACTOR: \_\_\_\_\_

By: \_\_\_\_\_

Name and Title: \_\_\_\_\_

Date: \_\_\_\_\_

**CONTRACTOR'S ACKNOWLEDGMENT**

State of \_\_\_\_\_,

County of \_\_\_\_\_, ss:

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

\_\_\_\_\_

Sworn to before me a notary public by \_\_\_\_\_ on \_\_\_\_\_, 20\_\_\_. 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

**THIS SHEET LEFT INTENTIONALLY BLANK**



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

Project: Bus Maintenance Facility Project

The undersigned hereby acknowledges receipt of payment for all Work on the Project through the date of the prior Application for Payment by the **Twin Valley Community Local 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: \_\_\_\_\_

**THIS SHEET LEFT INTENTIONALLY BLANK**

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

Project: Bus Maintenance Facility Project

The undersigned hereby acknowledges receipt of payment for all Work on the Project through the date of the prior Application for Payment by the 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 **Twin Valley Community Local 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: \_\_\_\_\_

**THIS SHEET LEFT INTENTIONALLY BLANK**

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

Project: Bus Maintenance Facility Project

In consideration for payment received from the **Twin Valley Community Local 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: \_\_\_\_\_

**THIS SHEET LEFT INTENTIONALLY BLANK**

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

Project: Bus Maintenance Facility Project

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 Bus Maintenance Facility Project ("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: \_\_\_\_\_

**THIS SHEET LEFT INTENTIONALLY BLANK**



### CONTRACTOR'S PAYMENT APPLICATION CHECKLIST

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

1. Contractor's Name: \_\_\_\_\_
2. Name, title, and telephone and fax numbers of Contractor's representative to contact regarding the Payment Application and required documentation:  
Name: \_\_\_\_\_ Title: \_\_\_\_\_  
Office Telephone No.: (\_\_\_\_) \_\_\_\_\_ FAX No.: (\_\_\_\_) \_\_\_\_\_
3. Payment Application Number and Date:  
No. \_\_\_\_\_ Date: \_\_\_\_\_, 20\_\_\_\_
4. The following is a list of required documentation that must accompany its Payment Application. The Contractor certifies that it has submitted the documentation listed below with its Payment Application. If the Contractor cannot do so, the Contractor should explain why in Paragraph 5. Such explanations shall not excuse the Contractor from the requirements for submitting this documentation.
  - \_\_\_\_\_ .1 Five (5) copies of a properly completed and executed Application for Payment with a properly completed and executed Schedule of Values attached to each;
  - \_\_\_\_\_ .2 Properly Completed Contractor's Affidavit with List of Subcontractors and Suppliers and Any Amounts Withheld;
  - \_\_\_\_\_ .3 Contractor's Waiver and Release Agreement (beginning with the second Application for Payment);
  - \_\_\_\_\_ .4 For each of its Subcontractors and Suppliers, a Subcontractor's – Supplier's Waiver and Release Agreement (beginning with the second Application for Payment);
  - \_\_\_\_\_ .5 Schedule of all materials and equipment stored on-site;
  - \_\_\_\_\_ .6 For materials and equipment stored off-site:
    - \_\_\_\_\_ A list of the materials and equipment consigned and stored off-site in connection with the Project (which shall be clearly identified), giving the place of storage, together with copies of invoices and reasons why the materials and equipment cannot be delivered to the site;
    - \_\_\_\_\_ Certification that all items have been tagged for delivery to the Project and that they will not be used for any other purpose;
    - \_\_\_\_\_ A letter from the Contractor's surety bonding company indicating agreement to the arrangements and that payment to the Contractor shall not relieve either party of its responsibility to complete the facility;
    - \_\_\_\_\_ Evidence of adequate insurance covering the material and equipment in storage, which shall name the Owner as additional insured;

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

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

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

5. Reason why required documentation is not submitted:

---

---

---

---

---

---

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

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

**DESIGN PROFESSIONAL'S REVIEW**

\_\_\_\_\_ Checklist and documentation complete.

\_\_\_\_\_ Checklist and documentation incomplete.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Date

# **TECHNICAL SPECIFICATIONS**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 01 00 00 - GENERAL REQUIREMENTS

### PART 1 GENERAL

#### 1.1 DESCRIPTION OF THE PROJECT DOCUMENTS

- A. The work covered by these specifications consists of furnishing all labor, equipment and materials necessary in connection with the Construction of a Bus Maintenance Facility for Twin Valley Community Local Schools. Work includes items as shown, subject to the terms and conditions of the contract, specifications and the drawings as listed.

#### 1.2 CONTRACT DESCRIPTION

- A. Project Identification: **Bus Maintenance Facility**
- B. Project Location: 100 Education Drive  
West Alexandria, OH 45381
- C. Owner: Twin Valley Community Local School District  
100 Education Drive  
West Alexandria, OH 45381
- D. Architect: RDA Group Architects, LLC  
7945 Washington Woods Drive  
Dayton, OH 45459  
937.610.3440 phone
- E. Perform Work of Contract under a stipulated sum contract with Owner in accordance with Conditions of Contract.

#### 1.3 CONTRACTOR'S USE OF PREMISES

- A. The school campus will be in continued use throughout the duration of this project. The Contractor shall take all measures necessary to allow continued use of the facilities, school grounds, etc.
- B. Work Hours: 7am – 5pm Monday thru Friday. Extended work hours thru the week and weekend work is permitted upon acceptance of the Owner.
1. The burden for scheduling and coordinating work efforts shall be on the General Contractor.
  2. It is the Contractor's responsibility to determine how the various disciplines work together and are scheduled to permit the work as outlined.
  3. Contractor shall coordinate with Owner for Owner provided equipment installation as applicable.
  4. Additional weekend and overtime work, supplementation of the Crews, etc. may be required by the Owner at no additional cost if the Contractor fails to meet milestone dates as prescribed in the contract.
- C. Coordinate work of this contract with other work that may be occurring by the Owner. Coordinate work schedules to minimize impact to the extent possible.

#### 1.4 CONTRACT PERIOD

- A. Date of Commencement: Approximately May 1, 2023, pending an agreed upon start date, weather, etc. as outlined in Supplementary Conditions. A notice to proceed will be issued with the agreed upon project start date.
- B. Date of Substantial Completion: 200 calendar days from the date of Commencement.
- C. It is anticipated that a contract will be issued in late March 2023 by the Board of Education.
1. The Contractor will be responsible to execute the project to allow shop drawings and product submittals to be prepared as quickly as possible such that the materials can be ordered with

sufficient lead time to permit the work to be executed as scheduled prior to the date of substantial completion.

- D. Coordinate schedule / activities so as not to inconvenience the Owner unnecessarily.

### 1.5 PROJECT ALLOWANCES

- A. Contingency Allowance: include **\$40,000 [forty thousand dollars]** in the base bid amount of the project for use as a project contingency allowance.
- B. Aid to Construction Allowance: include **\$25,000 [twenty five thousand dollars]** in the base bid amount of the project for aid to construction costs from the utility companies to extend services to the building.
- C. Building Permit Allowance: include **\$10,000 [ten thousand dollars]** in the base bid amount of the project for use in obtaining required building permits. All trade permits shall be included by the trade contractor. Unused funds shall be credited back to the Owner.
- D. Contingency funds shall only be used at the approval of RDA and Owner.
- E. Actual expenditures shall be tracked over the duration of the project with any unused funds deducted from the contract at the end of the project.
- F. All expenditures shall be identified and documented as they occur, not afterward. Work commenced without the approval of the Owner shall be at the Contractor's risk.

### 1.6 INSTRUCTIONS/RESPONSIBILITIES OF THE CONTRACTOR

- A. Protect all finishes and equipment scheduled to remain.
- B. Contractor shall commence and complete work as noted in the contract.
- C. Contractor shall furnish labor, materials, equipment, and management required to complete the project.
- D. Contractor shall furnish all required logistics required to accomplish the work – including lifts, scaffolding, ladders, trash chutes, safety equipment, etc.
1. All Contractor staging areas and layout areas, etc. shall be coordinated and approved by the Owner prior to the start of the project.
  2. Provide protection of all existing pavement, turf, etc. from lifts, lulls, etc. which may be utilized on the project. Restore any and all damage caused by equipment.
- E. Contractor shall visit the site to become thoroughly familiar with all working conditions, check and verify all dimensions, and site conditions. Any dimensions given or referred to in the specification or drawing is to be used purely as approximate and not as a basis for exact amounts for bidding. Contractor shall promptly advise the Architect of any discrepancies, errors with the specifications and drawings before bidding the work.
- F. Contractor to provide a valid Certificate of Insurance, follow all Workman's Compensation requirements and regulations, and conduct all work according to OSHA recognized safe work practices.
- G. All bonds, payment schedule, insurance shall be as noted in the contract documents.
- H. The plans and specifications are intended to depict the general scope, layout and quality of workmanship required, they are not intended to show or describe in detail every item necessary for the proper installation of the work.
- I. Special care shall be taken not to allow dust and debris to fall onto any equipment, material, personnel, or any room below the deck.
- J. The contractor shall provide Safety Data Sheets (SDS) on all products used.

1. Submit directly to Owner. RDA does not review nor approve SDS.
- K. The term 'Architect' as referenced in these contract documents is RDA Group Architects.
- L. The term 'Owner' as referenced in this specification is Twin Valley Community Local Schools.

#### **1.7 WORK BY THE OWNER**

- A. Owner will separately contract for the following work *[unless specifically noted to be within the scope of this project]*:
  1. Door Keying
  2. Security System
  3. Security Cameras and associated wiring / system integration
  4. Equipment
  5. Air Compressor and Compressed Air Piping, Terminations and accessories.
  6. Loose Furnishings [seating, tables, workstations / desks, etc.]
- B. Contractor shall coordinate all aspects of Work by Owner as they interface with Work.

#### **1.8 APPLICABLE REFERENCES, CODES, AND PERMITS**

- A. References will be found in each section that applies to that section. In addition, Contractor shall comply with the Ohio Building Code requirements as they relate to the work.
- B. Contractor shall procure at his own expense all necessary permits from municipal or other agencies and give all notices required. Fines levied due to non-compliance shall be paid by the contractor.
  1. RDA will apply for the applicable building permits with Preble County.

#### **1.9 WAGES**

- A. This project is not subject to prevailing wage and applicable reporting requirements.

#### **1.10 TAXES**

- A. Any taxes paid by the contractor will be considered their expense for which no compensation will be made by the Owner. [Tax Exempt Project]. Tax Exempt forms can be provided upon request.

#### **1.11 SMOKING**

- A. Smoking is not permitted on school grounds – inside or outside of any facility.
- B. Contractor or crewmembers found to be smoking on school property will be subject to a \$500 fine per occurrence. Any habitual offenders will be dismissed from the project site.

#### **1.12 CONTRACTOR / GENERAL REQUIREMENTS**

- A. Visit the project site to verify general and pertinent conditions and take measurements necessary for bidding purposes.
- B. Failure to show or mention petty details shall not be warranted for the omission of anything necessary for the proper completion of the work.
- C. Contractor shall not take advantage of any clerical errors, omissions, contradictions, or conflicts that may develop in plans, specifications, or details. Such errors, ambiguities and discrepancies shall be reported to the Architect immediately for clarification, revision, or correction prior to the submission of bids. If no notification is given, it shall be assumed that all specifications and conditions will be met.
- D. Remain in compliance with all OSHA STANDARD 1926 – REGULATIONS FOR CONSTRUCTION at all times during project. Comply with all applicable Safe Work Practices.
- E. Contract Period

1. If an extension of time is necessary, a request in writing must be submitted to the Owner at least [14] days prior to the contract completion date.
  2. Notify the Architect, in writing, upon determination of any delay in material delivery.
- F. Security: Contractor's Liability for Vandalism
1. Contractor shall be responsible at the Contractor's cost and expense, for the securing and protection of the project which is under the control of the Contractor, and for the repair and replacement of the work until that portion of the work is accepted as completed by the Owner. The Contractor shall take the measures necessary to provide such security.
- G. Qualifying Contractors and Sub-Contractors: The Owner may require the contractor/sub-contractor to provide references of similar projects, past performance, financial disclosures, etc. in the interest of selection of the lowest and best bidder for the project.
1. The Contractor is responsible for all work performed by Sub-Contractors.
  2. The Owner has the final authority to request a particular sub-contract not be engaged in the project. If this occurs, The Owner and Contractor shall determine if there is an impact to the Contract amount, and negotiate, if necessary, to an adjustment in the Contract amount.
    - a. No change to the Contract amount will be permitted if there is a change to the sub-contractor due to them utilizing alternate manufacturers or products that were not approved substitution requests.

### **1.13 SPECIFICATION CONVENTIONS**

- A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

### **1.14 APPLICATIONS FOR PAYMENT**

- A. Refer to Section 01 29 00.

### **1.15 CHANGE PROCEDURES**

- A. The Architect or Owner may issue a Proposal Request including a detailed description of proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change. Contractor will prepare and submit estimate within 7 days.
- B. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed price quotation.
- C. Change Order Forms: AIA G701.
- D. Unit Price Change Order: For pre-determined unit prices and quantities, Change Order will be executed on fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under Construction Change Directive. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- E. Correlation Of Contractor Submittals:
1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
  2. Promptly revise progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
  3. Promptly enter changes in Project Record Documents.
- F. The Architect will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on Architect's approved forms.
- G. Important: All change orders must be fully executed prior to beginning any work. Failure to comply will result in contractor request being denied and completed at no cost to the Owner.



**H. Maximum mark up for overhead and profit on change orders shall be 15%.**

**1.16 UNIT PRICES**

- A. Owner will take measurements and compute quantities accordingly. Provide and assist in taking of measurements.
- B. Unit Price Schedule: N/A
- C. Unit Price includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services, and incidentals; erection, application or installation of item of the Work; overhead and profit.
- D. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Architect multiplied by unit price for Work incorporated in or made necessary by the Work.

**1.17 ALTERNATES**

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option.
- B. Coordinate related Work and modify surrounding Work as required.
- C. Schedule of Alternates:
  - 1. Add Alternate #1: Provide and install underslab insulation as indicated on Drawings.

**1.18 COORDINATION**

- A. Coordinate scheduling, submittals, and Work of various sections of specifications to ensure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.
- C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.
- E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.
- F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

**1.19 QUALITY CONTROL**

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturer's instructions.
- C. When manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Owner before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

#### **1.20 TOLERANCES**

- A. Monitor fabrication and installation tolerance control of installed Products over suppliers, manufacturers, Products, site conditions, and workmanship, to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply fully with manufacturer's tolerances.

#### **1.21 REFERENCES**

- A. Conform to reference standards by date of issue current as of date of Contract Documents.
- B. When specified reference standard conflicts with Contract Documents, request clarification from Architect before proceeding.

#### **1.22 LABELING**

- A. Attach label from agency approved by authority having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.
- B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label.
  - 1. Model number.
  - 2. Serial number.
  - 3. Performance characteristics.

#### **1.23 PRECONSTRUCTION MEETING**

- A. Owner/RDA will schedule preconstruction meeting after Notice of Award for affected parties.
- B. Owner, RDA, Contractor Project Manager, and Foreman shall be in attendance.
- C. Agenda:
  - 1. Scheduling of construction events, set-up, storage and etc.
  - 2. Project personnel with contact information.
  - 3. Sequence of construction, starting points, events and required resources.
  - 4. Subcontractors list with contact information.
  - 5. Temporary utilities.
  - 6. Inspection and acceptance of existing conditions.
  - 7. Owner's requirements.

#### **1.24 PROGRESS MEETINGS**

- A. Schedule and administer meetings throughout progress of the Work as applicable to the work at maximum bi-weekly intervals.
- B. Agenda:
  - 1. Review of work progress and Owner's Requirements.
  - 2. Field Observations of the completed work.
  - 3. Identification of any problems and associated solutions.
  - 4. Proposed changes.
  - 5. Administrative issues – payment applications, change orders, etc.
- C. RDA will record meeting minutes and will issue to the project team.

**1.25 PRE-INSTALLATION MEETINGS**

- A. Contractor shall determine any and all necessary pre-installation meetings and shall schedule the same.
- B. When required in individual Specification Sections, convene preinstallation meetings at Project Site one week before starting Work of specific Section.
- C. Require attendance of parties directly affecting, or affected by, Work of specific Section.
- D. Prepare agenda and preside over meeting:
- E. Review conditions of installation, preparation, and installation procedures.
- F. Review coordination with related Work.
- G. Record minutes and distribute to participants after meeting, and those affected by decisions made.

**1.26 CONTRACT ADMINISTRATION**

- A. RDA is providing contract administration services for this project to the Owner. However, it shall be the responsibility of the Contractor and Owner to coordinate the proposed work, schedules, installations, permits, inspections, etc. as RDA is not on-site every day.
- B. It is the Contractor's responsibility to contact the RDA for clarification should there be questions regarding the interpretation or intent of the documents, field discovery, etc. that would impact or affect the work as proposed. RDA shall not be liable for deviations, field changes, and Owner changes during construction.
- C. It is the Contractor's responsibility to field confirm all existing conditions, proposed installations and how they interface to ensure the systems can be installed per the intent of the documents and to meet applicable building and zoning codes, local requirements, Owner requirements, provide a watertight detail, meet aesthetic requirements, etc.
- D. It is the Contractor's responsibility to meet all applicable building and zoning codes requirements whether specifically noted herein or not. Building codes represent the minimum acceptable standard.
- E. It is the Contractor's responsibility to install all products, materials, installations, and the like in accordance with applicable industry standards, applicable manufacturer's details and instructions, in accordance with best practices, and building code provisions. The manufacturer details / requirements are the minimum acceptable standard, RDA drawings may require additional work.

**1.27 CUTTING AND PATCHING**

- A. Employ skilled and experienced installer to perform cutting and patching new Work; restore Work with new Products.
- B. Execute cutting, fitting, and patching [including excavation and fill,] to complete Work, and to:
  - 1. Fit several parts together, to integrate with other Work.
  - 2. Uncover Work to install or correct ill-timed Work.
  - 3. Remove and replace defective and non-conforming Work.
  - 4. Remove samples of installed Work for testing.
  - 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- C. Cut masonry and concrete materials using masonry saw or core drill. Restore Work with new Products in accordance with requirements of Contract Documents.
- D. Fit Work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

- E. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- F. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to the nearest intersection; for assembly, refinish entire unit. For painted surfaces, paint entire wall from corner to corner, floor to ceiling.

#### **1.28 CONSTRUCTION PROGRESS SCHEDULES**

- A. Submit initial progress schedule in duplicate within 5 days after date of Owner-Contractor Agreement for Architect/Engineer review.
- B. Prepare progress schedule using a bar chart of Critical Path chart to outline work and interrelated components.
- C. Submit revised schedules as appropriate throughout the duration of the project.

#### **1.29 SUBMITTAL PROCEDURES**

- A. Refer to Section 01 33 00.

#### **1.30 MOCK-UPS**

- A. Accomplish mockups as directed by the Owner / RDA.
- B. Accepted mock-ups are representative of quality required for the Work.
- C. Where mock-up has been accepted by Owner / RDA and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so.

#### **1.31 TEMPORARY UTILITIES**

- A. Contractor will pay for the cost of temporary utilities throughout the duration of the project.
- B. Provide temporary lighting for construction operations as required by conditions and where existing lighting has been removed to facilitate work.
- C. Provide temporary emergency egress and exit signage as required by conditions and where existing has been temporarily removed to facilitate work.

#### **1.32 TEMPORARY HEATING / COOLING / VENTILATION**

- A. Provide and maintain temporary heating / cooling as required to facilitate the project. Do not let dust / dirt to accumulate in the existing duct systems resultant from the project.
- B. Shut down HVAC systems during dusty activities. Provide and maintain filtration media at all HVAC systems.
- C. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

#### **1.33 TEMPORARY SANITARY FACILITIES**

- A. Contractor shall provide any and all necessary portable toilet facilities at the project site as applicable to the work. Do not utilize existing building facilities.

#### **1.34 TEMPORARY BARRICADES**

- A. Erect temporary barricades as applicable to the work to maintain security, dust control, etc.
- B. Provide all applicable signage to limit non-construction personnel from entering the construction area.

#### **1.35 STAGING AREA / MATERIAL STORAGE**

- A. Coordinate with Owner on acceptable location of project staging and material storage area.

- B. Owner will make reasonable effort to provide suitable space on the site for the Contractor to set up operations. Moving from this space may be necessary when instructed by the Owner and shall be accomplished without charge to the Owner. Cooperate with Owner to minimize conflict from Owner's operations.
- C. Exterior project staging area if provided shall be enclosed with a minimum of a 6' high chain link fence to the satisfaction of the Owner.

**1.36 FIELD OFFICE**

- A. Contractor shall provide field office for the Contractor's use over the course of the project. Coordinate location, relocate if directed by Owner or as required by work.

**1.37 PARKING**

- A. Park Contractor vehicles in areas designated by the Owner.
- B. Do not block access to existing parking lots with construction equipment.

**1.38 PROGRESS CLEANING AND WASTE REMOVAL**

- A. Collect and maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition to the satisfaction of the Owner. Clean up shall occur on a daily basis.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing spaces.
- C. Failure to provide routine and daily cleanup may result in a back charge from the Owner to accomplish this work.
- D. Provide dumpsters or trash containers needed for the proper removal of project materials, trash, or debris related to the Work. Keep all work areas and project sites neat and free of trash and clutter at all times. Take all considerations for safety.

**1.39 FIRE PREVENTION FACILITIES**

- A. Establish fire watch for cutting and welding and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.
- B. Portable Fire Extinguishers: NFPA 10; 10 pound capacity, 4A-60B: C UL rating.
  - 1. Provide one fire extinguisher at each project site during work operations.
  - 2. Supplement as necessary per the local fire department requirements for construction operations.

**1.40 PROTECTION OF INSTALLED WORK**

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Protect finished pavement, concrete, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- D. Prohibit traffic or storage upon waterproofed or roofed surfaces, finished surfaces, etc as is applicable to the work. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer and provide all required protection as determined necessary. Any damage caused shall be repaired to like new condition.
- E. Prohibit traffic from landscaped areas.

**1.41 DUST CONTROL**

- A. Execute work by methods to minimize raising dust from Construction operations.
- B. Provide positive means to prevent air-borne dust from dispensing into atmosphere and to other areas of the project as applicable.
- C. Provide temporary visqueen dust control measures to minimize the spread of dust and debris. Provide drop cloths, protective coverings as necessary.
- D. Provide protection of existing HVAC / distribution systems.

**1.42 DELIVERY, HANDLING, STORAGE, AND PROTECTION**

- A. Deliver, handle, store, and protect Products in accordance with manufacturer's instructions.
- B. Contractor shall be responsible for storage and safekeeping of all materials, including company's personal property. All damaged materials shall be removed from the site.
- C. Coordinate material delivery to avoid Owner involvement.

**1.43 FINAL CLEANING**

- A. Execute final cleaning prior to final inspection.
- B. Clean interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces.
- C. Replace filters of operating equipment.
- D. Remove waste and surplus materials, rubbish, and construction facilities from site.

**1.44 STARTING OF SYSTEMS**

- A. Provide seven [7] days notification prior to start-up of each item.
- B. Ensure each piece of equipment or system is ready for operation.
- C. Execute start-up under supervision of responsible persons in accordance with manufacturer's instructions.
- D. Submit written report stating equipment or system has been properly installed and is functioning correctly.

**1.45 DEMONSTRATION AND INSTRUCTIONS**

- A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled times, at equipment location.
- D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
  - 1. Prepare and insert additional data into the operations and maintenance manuals when the need for additional data becomes apparent during instruction.

**1.46 TESTING, ADJUSTING, AND BALANCING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.
- B. Contractor shall retain services of independent firm to perform testing, adjusting, and balancing. Cost for these services shall be included in the bid amount.

- C. Reports will be submitted by independent firm to Architect/Engineer indicating observations and results of tests and indicating compliance or non-compliance with specified requirements and with requirements of Contract Documents.
- D. Cooperate with independent firm; furnish assistance as requested.
- E. Re-testing required because of non-conformance to specified requirements will be the responsibility of the Contractor.

**1.47 POLLUTION AND ENVIRONMENTAL CONTROL**

- A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.
- B. Provide dust control, erosion and sediment control, etc. to allow for proper execution of the Work.
- C. Provide protective coverings, etc. as necessary to protect work.

**1.48 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS**

- A. Remove existing utilities, connections, finishes, etc. as applicable to the work. Remove back to the nearest termination, junction box, etc. as applicable to the work. Coordinate with requirements on the drawings.
- B. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion review.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

**1.49 CLOSE OUT PROCEDURES**

- A. Refer to Section 01 77 00

**1.50 PROJECT RECORD DOCUMENTS**

- A. Refer to Section 01 77 00

**1.51 OPERATION AND MAINTENANCE DATA**

- A. Refer to Section 01 77 00.

**1.52 WARRANTIES**

- A. Refer to Section 01 77 00.

**PART 2 PRODUCTS**

**2.1 MANUFACTURED PRODUCTS**

- A. Where a particular system, product, or material is specified by name it shall be considered a standard and most satisfactory for its particular purpose. Any other product or material considered equal or better in all respects must be approved by the Architect prior to bidding.
- B. All products used on this project shall be new, unless otherwise noted on the drawings or as specified herein.

**2.2 PRODUCTS**

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components specifically identified for reuse.

- B. Do not use materials and equipment removed from existing premises, except as specifically identified or allowed by the Contract Documents.
- C. Provide interchangeable components of same manufacturer for components being replaced.

### **2.3 LABELING**

- A. Attach label from agency approved by Authority having Jurisdiction for products, assemblies, and systems required to be labeled by Applicable Code.
- B. Label information: include manufacturer's or fabricator's identification, approved agency information, and the following information, as applicable, on each label.
  - 1. Model number
  - 2. Serial number
  - 3. Performance characteristics

### **2.4 DELIVERY, HANDLING, STORAGE, AND PROTECTION**

- A. Deliver, handle, store, and protect Products in accordance with manufacturer's instructions.
- B. Contractor shall be responsible for storage and safekeeping of all materials, including company's personal property. All damaged materials shall be removed from the site.
- C. Coordinate material delivery to avoid Owner involvement.
- D. Locations of ground level storage and waste dumpster must be approved by the Owner.
- E. All materials shall be properly secured to prevent blow off during weather, wind, etc.

### **2.5 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions / Equal / Approved Equal: Submit request for substitution for manufacturers not named.

### **2.6 SUBSTITUTIONS**

- A. Refer to Section 01 25 00.

### **2.7 EXTRA MATERIALS**

- A. Provide attic stock of finish materials totaling 5% [or as noted below] of the total installation.
  - 1. Each finish floor type
  - 2. Each finish base type
  - 3. Each acoustic ceiling tile type – 3%
- B. Provide minimum of [1] gallon of each finish paint color.
- C. Coordinate turnover of extra materials to Owner, assist in placing materials in a location suitable to the Owner.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. **Beginning new Work means acceptance of existing/job-site conditions.**
- B. Verify utility services are available, of correct characteristics, and in correct location.



- C. Contact OUPS a minimum of 48 hours prior to beginning work to verify location of existing utilities, coordinate requirements as applicable.
  - 1. Contact private utility locating services as required by the conditions. It is the Contractor's responsibility to locate all public and private utilities that may be impacted by the work.

### **3.2 FIELD VERIFICATION**

- A. Prior to ordering materials, Contractor shall verify the actual dimensions of existing conditions and assume responsibility for workable solutions for all new work. Verification that the new work and items are workable for existing conditions while providing adequate clearances is the responsibility of the Contractor.

### **3.3 PROTECTION**

- A. The work shall be accomplished in accordance with the provision of Federal, State American Standard Safety Code for Building Construction and OSHA safety requirements.
  - 1. Contractor shall be responsible for protective railings and guards, tie-offs, fall protection, and other safety measures as required by OSHA, even if not specified. Fall protection is required. RDA is not a safety consultant and as such does not direct the means and methods of compliance with safety regulations.
- B. The Contractor shall protect and maintain all building entrances, interior contents, building exterior and grounds.
  - 1. Return all surfaces to their original condition after all work is complete.
- C. In the event of damages of any kind caused by improper protection. The Contractor shall replace/repair the damages [including interior or exterior equipment] at no expense to the Owner.
- D. Contractor shall comply with all regulations of the Local Fire Department and the Owner's requirement regarding storage and handling of flammable materials, etc. It is the responsibility of the Contractor performing any hot /torch work to comply with the safety provisions of the National Fire Codes pertaining to such work and the contractor shall be responsible for all damage or fines resulting from failure to so comply.

### **3.4 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

### **3.5 JOB SUPERINTENDENT/EMPLOYEES**

- A. Each prime contractor shall have a qualified foreman on the project at all times when work is being accomplished. [ALL Shifts]
- B. Employees shall refrain from fraternization with building occupants.
- C. The Contractor shall furnish the Owner with a list of personnel with phone numbers that will be working on the project and emergency contacts names and numbers that has the authority to handle emergencies on a 24 hour/seven days a week.

### **3.6 SAFETY PROGRAM**

- A. Contractor must have a written safety program for all operations/ work performed on this project. The documents must be at the job site and be made available to the Owner or RDA when requested.
- B. The Contractor assumes all responsibility for project safety, ways, and means and methods of constructing the project.

- C. In addition, the Owner may require special safety requirements to be performed by the Contractor, these requirements will be provided prior to commencement of work.

### **3.7 REMOVALS AND CLEANUP**

- A. Contractor shall be responsible for the removal, dismantling of items that are required for proper completion of the work as applicable in each section. All debris resulting from the work not designated for reuse becomes the property of the contractor unless stated otherwise.
- B. At the completion of each day, the general contractor shall maintain the work area clean of all debris to the satisfactory of the owner, including all the subcontractors work area.
- C. Provide dumpsters or trash containers needed for the proper removal of project materials, trash, or debris related to the work. Keep all work areas and project sites neat and free of trash and clutter at all times.
  - 1. No Debris, materials, etc. may be left unprotected on the grounds.
  - 2. All exterior staging / dumpster areas shall be fenced / protected.

### **3.8 SPECIAL PROCEDURES**

- A. Materials: As specified in product sections; match existing with new products for patching and extending work.
- B. Employ skilled and experienced installer to perform alteration work.
- C. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.
- D. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.
- E. Remove debris and abandoned items from area and from concealed spaces.
- F. Prepare surface and remove surface finishes to permit installation of new work and finishes.
- G. Remove, cut, and patch Work in manner to minimize damage and to permit restoring products and finishes to original or specified condition.
- H. Refinish existing visible surfaces to remain in renovated rooms and spaces, to renewed condition for each material, with neat transition to adjacent finishes.
- I. Where new Work abuts or aligns with existing, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.
- J. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Architect for review.
- K. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- L. Finish surfaces as specified in individual product sections.

### **3.9 GENERAL PROJECT REQUIREMENTS**

- A. Equipment delivery and equipment staging must be coordinated with Owner prior to start of project.
- B. Safety is paramount and all personnel on site must wear appropriate personal protection equipment [PPE]. The Contractor is responsible for means and methods to ensure that proper PPE is provided. Failure to comply may result in dismissal from site.

- C. Barricade work area with appropriate construction grade barriers to establish boundaries of work area and assure safety for all workers and general public. All work areas must be properly barricaded from the general public prior to starting any work.
- D. Job sites will be maintained in an orderly and neat fashion at all times.
- E. Contractor will pre-determine work phases with Owner to minimize disruption of business operations.
- F. **IMPORTANT: Failure to show or mention petty details shall not be warranted for the omission of anything necessary for the proper completion of the work.**
- G. **The plans and specifications are intended to depict the general scope, layout and quality of workmanship required. The documents are not an “instruction manual” to execute the work nor are they intended to show or describe in detail every item necessary for the proper installation of the work. The means and methods required to execute the work described is the sole responsibility of the Contractor. The Contractor shall include the ancillary work required, whether explicitly stated or not, for the proper completion of the work as intended. The Contractor is required to meet or exceed building code requirements, applicable industry standards, ASTM standards, and/or manufacturer installation requirements as they relate to the work.**
- H. **The plans and specifications represent a single complete design package indicating the intended scope of the project in its entirety. As such, the project is structured to be awarded to a single Prime Contractor. The documents do not delineate bid packages or assign responsibilities to any subsequent subcontractors, dictate construction sequencing, nor provide coordination between any “trades”. Such activities are the responsibility of the holder of the construction contract. In the event of a discrepancy within the drawings or between the drawings and the specifications, the more stringent requirement represented in the documents shall prevail.**
- I. Contractor shall not take advantage of any clerical errors, omissions, contradictions, or conflicts that may develop in plans, specifications, or details. Such errors, ambiguities and discrepancies shall be reported to the Architect immediately for clarification, revision, or correction prior to the submission of bids. If no notification is given, it shall be assumed that all specifications and conditions will be met.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 01 25 00 – SUBSTITUTION PROCEDURES

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Section 00 23 13, Instructions to Bidders shall apply to this section.

#### 1.2 WORK INCLUDES

- A. Includes administration and procedural requirement for Substitutions.
  - 1. Substitutions' for Cause: Changes due to project conditions, such as unavailable of product.
  - 2. Substitutions' for Convenience: Changes that may offer advantages to the Owner.

#### 1.3 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions / Equal / Approved Equal: Submit request for substitution as outlined in this section for manufacturers not named.
  - 1. RDA/Owner is the decision maker if the proposed "approved equal" is in fact equal and approved. Any decision rendered is final.
  - 2. Any Contractor, Sub-contractor, or Supplier who makes their own judgement as to "approved equal" and includes within their bid without a formal approval is doing so at their own risk.

#### 1.4 SUBSTITUTIONS PROCEDURES

- A. RDA will consider requests for Substitutions by the Bidder only [not materials suppliers, etc].
- B. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- C. A request constitutes a representation that the Bidder:
  - 1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
  - 2. Will provide same warranty for Substitution as for specified product.
  - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
  - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
- D. Substitution Procedure
  - 1. **Submit copy of request for Substitution for consideration to RDA no later than 7 days before bid opening date.**
  - 2. Submit shop drawings, product data, and applicable certified test results attesting to proposed product equivalence. Burden on proof is on proposer.
  - 3. RDA will notify Contractor in writing of decision to accept or reject request within 5 days of receipt of request or request additional information or documentation for evaluation.
- E. Substitutions will not be considered when they are indicated or implied on Submittals, without written request or when acceptance will require revision to the Contract Documents.
- F. If the Substitution will require modifications to the Contract / Bidding Documents, the cost for updating the documents shall be paid by the Contractor making the request.
- G. Substitutions will not be considered after award of the project without justification.

- H. Approved substitutions will be identified by Addenda.
  - 1. Bidders shall not rely upon approvals made in any other manner.

**END OF SECTION**

## SECTION 01 29 00 – PAYMENT PROCEDURES

### PART 1 GENERAL

#### 1.1 WORK INCLUDES

- A. Includes administration and procedural requirement for necessary to prepare and process Application for Payment.

#### 1.2 SCHEDULE OF VALUES

- A. Submit schedule of values on AIA Form G703.
  - 1. Provide line items for each applicable CSI division / defined work scope such that the Owner and RDA can review and determine/confirm progress.
  - 2. Include line items for each allowance, alternates [as applicable], and general conditions.
- B. Submit Schedule of Values in duplicate within 5 days after date of Owner-Contractor Agreement.

#### 1.3 APPLICATIONS FOR PAYMENT

- A. Use AIA form G702 and G703 for Application for payment or a form the Owner has requested.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Complete every entry, notarize and execute by a person authorized to sign document on behalf of the Contractor. Include amounts for work completed following previous Application for Payment whether or not payment has been received, include amounts of Change Orders issued before last day of construction period covered by application.
  - 1. Stored materials included in application must have supporting documentation that verifies amount required, do not include overhead and profit on stored material.
  - 2. Submit to RDA for review and processing.
    - a. E-mail submittal is acceptable unless otherwise directed by the Owner. Verify hard copies with Owner if required.
- D. Each application for payment following the initial Application for Payments shall be consistent for payment with previous applications.

#### 1.4 RETAINAGE

- A. Refer to the Supplementary Conditions to the AIA-A104 Owner-Contractor Agreement.

#### 1.5 PREVAILING WAGE / PAYROLL REPORTS

- A. Not Required for this contract.

#### 1.6 SUBMITTAL PROCEDURES

- A. Submit [1] copy of each payment application on AIA Form G702 and G703, in PDF format
  - 1. Pencil copy to RDA for review/acceptance. RDA will review and provide any comments or questions.
  - 2. Submit final payment application in PDF format to RDA for processing.
  - 3. RDA will certify and process the payment application and will forward to Owner for payment.
- B. Submit all required waivers of lien / partial release of lien [including vendors and subcontractors as requested by Owner], payroll reports, etc. as required by the Owner. Failure to submit required paperwork can delay processing of Application for Payment.
  - 1. Refer to Contractor's Payment Application Checklist for additional requirements.

#### 1.7 FINAL APPLICATION FOR PAYMENT

- A. Refer to provisions in Section 01 77 00 for Application for Payment at Substantial Completion.

**END OF SECTION**



## SECTION 01 33 00 – SUBMITTALS

### PART 1 GENERAL

#### 1.1 WORK INCLUDES

- A. Review of shop drawings and product data by RDA / Owner.

#### 1.2 SUBMITTAL PROCEDURES

- A. Contractor to submit product data and shop drawings for all applicable components of the project. Refer to individual sections for additional requirements.
  - 1. Contractor to provide a submittal log at the beginning of the project for review by RDA / Owner. Submittal log shall identify proposed submittals by Spec Section.
  - 2. RDA review of the submittals will be general in nature and does not relieve the Contractor in any way of the responsibility in compliance with the contract requirements, manufacturer requirements, and/or applicable codes.
- B. Submittals shall be accomplished in a digital [PDF format].
  - 1. Any hard copies received will be scanned and returned electronically.
  - 2. Provide those submittals required to maintain orderly progress of the work and those required for early lead time for manufacturer fabrication.
  - 3. Mark each component to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to this project. Non-identified submittals will be rejected.
- C. Submittals shall have a Submittal form / cover sheet to identify Project, Contractor, subcontractor or supplier; and pertinent Contract Document references.
- D. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.
- E. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of completed Work.
- F. Revise and resubmit submittals as required; identify changes made since previous submittal.
- G. All submittals shall be accomplished at the beginning of the project to allow the proper ordering of materials for the project.
  - 1. Failure by the Contractor to provide submittals in a timely fashion does not change the project start date nor contract period.
- H. Any materials on the job site that have not been reviewed as part of the submittal process are subject to rejection / removal from the job-site. Any work undertaken without review of the submittal data is at the Contractor's risk and subject to rejection or replacement at no cost to the Owner if submittals are not in conformance with the project documents.
- I. Allow 7 days for review of submittal items.

#### 1.3 SUBMITTALS / PRODUCT DATA / SHOP DRAWINGS

- A. Product Data/Shop Drawings:
  - 1. Submitted to RDA for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
  - 2. All shop drawings shall be to scale, submit drawings on sheets no larger than 24-inch x 36 inch, all other product data can be on 8 ½ X 11-inch sheets.
- B. Samples for Review:
  - 1. Submitted to RDA for review and selection for aesthetic, color, or finish.

2. Submit samples of finishes from full range of manufacturer's standard colors, textures, and patterns for Owners selection.
  3. Submit samples to illustrate functional and aesthetic characteristics of Product.
- C. Personnel/Other Contractors
1. Submit a list of all subcontractors and on-site personnel with the list of lead contact and associated phone numbers.
  2. Submit emergency contact sheet with contacts for an emergency – 24/7 call list.
- D. Contract Items:
1. Submit Certificate of Insurance, Worker's Comp Certificates as required by Owner.
  2. Submit bonds if applicable to the contract.
  3. Submit a written Construction Schedule / Implementation and Sequencing Plan outlining starting points and length of time to complete work in each section.
- E. Safety Data Sheets: Submit Safety Data Sheets [SDS] on all products to the Owner.
1. Owner shall be responsible to provide to employees as applicable.
  2. Owner's representative /RDA does not review / approve any SDS sheets.
- F. Site Specific Safety Plan
1. Provide to Owner for their Review.
- G. Site Logistics Plan
1. Provide to Owner for their Review.

#### **1.4 MANUFACTURER'S INSTRUCTIONS**

- A. When specified in individual specification sections, submit manufacturer printed instructions for delivery, storage, assembly, installation, [start-up,] adjusting, and finishing, in quantities specified for Product Data.

#### **1.5 MANUFACTURER'S CERTIFICATES**

- A. When specified in individual specification sections, submit certifications by manufacturer to Owner, in quantities specified for Product Data.
- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

**END OF SECTION**

## SECTION 01 77 00 - CLOSEOUT REQUIREMENTS

### PART 1 GENERAL

#### 1.1 WORK INCLUDES

- A. Close-out of the actual work, including warranties, maintenance manuals and final cleaning. Close-out of all contract obligations.

#### 1.2 CLOSE-OUT PROCEDURES

- A. Contractor shall notify Owner 5 days prior to the work being complete to establish the desired inspection date. Owner / RDA will either proceed with the inspection or notify Contractor of unfulfilled requirements.
- B. Owner / RDA shall inspect the completed project and notify the Contractor of any deficiencies. Deficiencies will form 'punch list' for final acceptance.

#### 1.3 PUNCHLIST REQUIREMENTS

- A. The Contractor shall review and inspect all work prior to notifying the Owner for a Punchlist inspection of the work. Provide written documentation certifying review along with documentation of Contractor generated Punchlist.
- B. If work is clearly not complete, the Punchlist will be suspended until such time that it is evident that the Contractor has completed and reviewed/inspected their own work.**
  - 1. RDA anticipates up to [1] punchlist inspections and [2] back-punch / final inspections as part of our services to the Owner.
  - 2. Failures by the Contractor to complete the work, complete punchlists, etc. may result in a backcharge to the Contractor for the additional time to closeout the project.
- C. The Contractor shall review and provide the noted repairs and corrective work necessary at each of the Punchlist inspections to allow project close out.
  - 1. Back-punch walk through may result in additional punchlist items which need to be addressed by the Contractor.
- D. The Contractor shall provide adequate time in the construction schedule to accomplish punchout work within the overall contract period indicated within the bid documents.
- E. The failure to identify any punchlist item during a walk through / inspection does not release the Contractor from contractual responsibility to address any item during the warranty period.

#### 1.4 SUBSTANTIAL COMPLETION

- A. If Requested by the Owner, a Certificate of Substantial Completion will be issued upon completion of all the work as required.

#### 1.5 PREREQUISITIES TO FINAL ACCEPTANCE AND PAYMENT

- A. Prior to acceptance and final payment, all claims or disputes must have been resolved and the Contractor must have provided the following items to the Owner:
  - 1. Notarized affidavit of waiver of liens [contractor of record], sub-contractors and material suppliers
  - 2. Certificates of release from authorities having jurisdiction over permitting.
  - 3. Final statement of charges [100% application for payment].
    - a. Submit a final Application for Payment according to Section 01 29 00, Payment Procedures.
  - 4. Documented evidence of completing 'punch list' as applicable.
  - 5. Manufacturer's original warranties, including contractor maintenance agreements and warranties as applicable.
  - 6. Evidence that claims have been settled.

7. O+M Manuals
8. Manufacturer's maintenance and repair instructions.
9. Record Drawings.
10. Final cleaning of all work areas.
11. Restore all work staging and lay-out areas to pre-construction conditions, including but not limited to, removal of debris, temporary facilities, grading and grass seeding and cleaning or repair of impacted structures.

#### **1.6 PHOTOGRAPHIC DOCUMENTATION**

- A. When requested by the Owner, photos of the completed punch list along with any supporting documentation can be submitted, in lieu of a final walkthrough.

#### **1.7 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one set of Contract Documents to be utilized for record documents.
- B. Record actual revisions to the Work. Record information concurrent with construction progress.
- C. Specifications: Legibly mark and record at each Product section description of actual Products installed.
- D. Record Documents and Shop Drawings: Legibly mark each item to record actual construction.
- E. Submit documents to Owner.

#### **1.8 PROJECT WARRANTIES**

- A. All work undertaken as part of the project shall be warranted for a period of not less than [1] year. Individual sections / products may have specific additional warranty requirements.
- B. Provide notarized copies of warranty documents to the Owner.
  1. Execute and assemble transferable warranty documents from subcontractors, suppliers, and manufacturers.
- C. Original warranties are required to be provided to the Owner prior to final payment.

#### **1.9 OPERATION AND MAINTENANCE DATA**

- A. Submit two sets prior to or at the final inspection, bound in 8-1/2 x 11-inch text pages, binder covers.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of project.
- C. Internally subdivide binder contents with permanent page dividers, logically organized, with tab titles legibly printed under reinforced laminated plastic tabs.
- D. Contents:
  1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, subcontractors, and major equipment suppliers.
  2. Part 2: Permit and Inspection information
  3. Part 3: Project submittals, organized by CSI division
    - a. Include applicable product warranties with individual sections / submittals
  4. Part 4: Operation and maintenance instructions, arranged by system / CSI division.
  5. Part 5: Project documents and certificates.
  6. Part 6: Colors / finishes / samples

#### **1.10 FINAL CLEANING AND SITE REPAIR**

- A. Final cleaning of all work areas:
  1. Execute final cleaning prior to final inspection.

2. Clean interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces.
  3. Clean interiors of all cabinetry.
  4. Clean all fixtures and finishes.
  5. Replace filters of operating equipment.
  6. Remove waste and surplus materials, rubbish, and construction facilities from site.
- B. Restore all work staging and lay-out areas to pre-construction conditions, including but not limited to, removal of debris, temporary facilities, grading and grass seeding and cleaning or repair of impacted structures.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Formwork.
  - 2. Reinforcement and Accessories.
  - 3. Cast-in place concrete.
  - 4. Finishing and curing.

#### 1.2 SYSTEM DESCRIPTION

- A. Design, engineer and construct formwork, shoring and bracing in accordance with ACI 301 to conform to design and applicable code requirements to achieve concrete shape, line and dimension as indicated on Drawings or required by proposed work.
- B. Vapor Retarder Permeance: Maximum 1 perm when tested in accordance with ASTM E96/E96M, water method.

#### 1.3 SUBMITTALS

- A. Design Data: Submit mix designs, admixtures, reinforcement, and anchors.

#### 1.4 QUALITY ASSURANCE

- A. Construct and erect concrete formwork, reinforcing, and cast-in-place concrete in accordance with ACI 301.

### PART 2 PRODUCTS

#### 2.1 FORM MATERIALS AND ACCESSORIES

- A. Form Materials: At discretion of Contractor.
- B. Form Release Agent: Colorless mineral oil not capable of staining concrete or impairing natural bonding characteristics of coating intended for use on concrete.
- C. Slab Edge Joint Filler: ASTM D1751, Premolded asphaltic board, 1/2 inch thick. As applicable to conditions.
- D. Vapor Retarder: ASTM E1745 Class A; 10 mil thick clear polyethylene film; type recommended for below grade application. Furnish joint tape recommended by manufacturer.

#### 2.2 REINFORCEMENT MATERIALS

- A. Reinforcing Steel: ASTM A615/A615M, 60 ksi yield grade, plain and/or deformed billet bars to suit condition and application, uncoated finish.
- B. Welded Plain Wire Fabric: ASTM A185/A185M; in flat sheets; unfinished.
- C. Fabricate concrete reinforcement in accordance with ACI 301.

#### 2.3 CONCRETE MATERIALS

- A. Cement: ASTM C150, Normal-Type I Portland type.
- B. Fine and Coarse Aggregates: ASTM C33.
- C. Lightweight Concrete Aggregate: ASTM C330
- D. Water: Clean and not detrimental to concrete.
- E. Air Entrainment Admixture: ASTM C260.

- F. Fiber Mesh Reinforcing: ASTM 1116-C.
- G. Bonding Agent: Latex emulsion.
- H. Non-shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

## **2.4 COMPOUNDS, HARDENERS AND SEALERS**

- A. Membrane Curing Compound and Sealer: ASTM C1315 Type I, Class A. Dayton Superior or Equal
  - 1. Install only at areas not receiving finish flooring system.

## **2.5 CONCRETE MIX**

- A. Mix and deliver concrete in accordance with ASTM C94/C94M, Option A.
- B. INTERIOR CONCRETE SLAB ON GRADE: Furnish concrete of the following strength:
  - 1. 150 PCF
  - 2. Compressive strength 4,000 psi (28 day).
  - 3. Slump limit of 5 inches at point of placement.
  - 4. Minimum Cement Content: 610 pounds/cu yd.
  - 5. Maximum water-cement ratio: 0.50
  - 6. Air Entrainment: Entrapped.
  - 7. Transit Mixed.
- C. EXTERIOR CONCRETE SLAB ON GRADE: Furnish concrete of the following strength:
  - 1. 150 PCF
  - 2. Compressive strength 4,500 psi (28 day).
  - 3. Slump limit of 4 inches at point of placement.
  - 4. Minimum Cement Content: 660 pounds/cu yd.
  - 5. Maximum water-cement ratio: 0.45
  - 6. Air Entrainment: 6% +/- 1.5%.
  - 7. Transit Mixed.
- D. FOUNDATIONS AND GRADE BEAMS: Furnish concrete of the following strength:
  - 1. 150 PCF
  - 2. Compressive strength 3,000 psi (28 day).
  - 3. Slump limit of 4 inches at point of placement.
  - 4. Minimum Cement Content: 565 pounds/cu yd.
  - 5. Maximum water-cement ratio: 0.55
  - 6. Air Entrainment: Entrapped.
  - 7. Transit Mixed.
- E. LEAN CONCRETE: Furnish concrete of the following strength:
  - 1. 150 PCF
  - 2. Compressive strength 1,500 psi (28 day).
  - 3. Slump limit of 4 inches at point of placement.
  - 4. Minimum Cement Content: 235 pounds/cu yd.
  - 5. Maximum water-cement ratio: N/A
  - 6. Air Entrainment: Entrapped.
  - 7. Transit Mixed.

## **2.6 GRANULAR BASE**

- A. Interior slabs:
  - 1. Install 4" (6" where noted on drawings) pea gravel, clean and graded, washed river-run gravel, ASTM C33, Size #7.



## **PART 3 EXECUTION**

### **3.1 FORMWORK ERECTION**

- A. Erect formwork, shoring and bracing to achieve design requirements.
- B. Apply form release agent to formwork prior to placing form accessories and reinforcement.
- C. Clean forms as erection proceeds, to remove foreign matter.

### **3.2 INSERTS, EMBEDDED COMPONENTS, AND OPENINGS**

- A. Provide formed openings where required for work to be embedded in and passing through concrete members.
- B. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.
- C. Install concrete accessories straight, level, and plumb.
- D. Place joint filler at perimeter of floor slab, penetrations, and isolation joints.

### **3.3 REINFORCEMENT PLACEMENT**

- A. Place reinforcement, supported and secured against displacement.
- B. Ensure reinforcing is clean, free of loose scale, dirt, or other foreign coatings.
- C. Do not weld reinforcement bars for assembly.
- D. Space reinforcement bars with a minimum clear space in accordance with ACI 301 of not less than 1 inch.
- E. Maintain concrete cover around reinforcement in accordance with ACI 301 of not less than 1 1/2" inches for concealed work and 3 inches for concrete exposed to weather.

### **3.4 PLACING CONCRETE**

- A. Install 4 inch minimum thickness granular base (6 inch where noted on drawings) over undisturbed soils and compact as applicable.
- B. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent.
- C. Install vapor barrier under interior slabs on grade in accordance with ASTM E1643. Lap joints minimum 6 inches and seal watertight using manufacturer supplied tape.
- D. Seal vapor barrier tight around all penetrations in accordance with manufacturer requirements.
- E. Repair damaged vapor retarder with vapor retarder material, lap over damaged areas minimum 6 inches and seal watertight.
- F. Place concrete continuously between predetermined expansion, control and construction joints. Do not break or interrupt successive pours creating cold joints.
- G. Separate slabs-on-grade from vertical surfaces with 1/2 inch thick joint filler, extended from bottom of slab to within 1/4 inch of finished slab surface.
- H. Where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack with non-shrink grout.
- I. Screed slabs-on-grade level.

### **3.5 FORM REMOVAL**

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

- B. Remove formwork progressively and in accordance with code requirements.

### **3.6 FLOOR FINISHING**

- A. Finish concrete floor surfaces in accordance with ACI 301.
- B. Uniformly spread, screed, and float concrete with steel trowel.
  - 1. Smooth finish at interior slabs.
  - 2. Align flush with adjacent concrete finishes.
- C. Maintain surface flatness, with maximum variation of 1/8 inch in 10 ft.
- D. Control joints:
  - 1. Locate at maximum of 12'-0" o.c. each way.
  - 2. Sawcut joints permitted only at concealed concrete areas.
  - 3. Trowel and re-trace joints at all exposed concrete areas.

### **3.7 CURING AND PROTECTION**

- A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
  - 1. Protect concrete footings from freezing for a minimum of 7 days.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete for not less than 7 days.
- C. Apply sealer on floor surfaces not receiving finish floor system.

### **3.8 ERECTION TOLERANCES**

- A. Install reinforcement within tolerances required by ACI 301.

### **3.9 FIELD QUALITY CONTROL**

- A. Perform field inspection and testing in accordance with ACI 301 at the request of Architect.
- B. Field Testing:
  - 1. Measure slump and temperature for each compressive strength concrete sample.
  - 2. Measure air content in air entrained concrete for each compressive strength concrete sample.
- C. Cylinder Compressive Strength Testing:
  - 1. Test Method: ASTM C39.
  - 2. Test Acceptance: In accordance with ACI 301.
  - 3. Test two cylinders at 28 days.
  - 4. Dispose remaining cylinders when testing is not required.

### **3.10 DEFECTIVE CONCRETE**

- A. Modify or replace concrete not conforming to required lines, details and elevations, as directed by Architect.

**END OF SECTION**

## **SECTION 04 05 14 - MASONRY MORTARING AND GROUTING**

### **PART 1 GENERAL**

#### **1.1 SUMMARY**

- A. Section includes mortar and grout for masonry.

#### **1.2 SUBMITTALS**

- A. Samples: Submit **two** samples of mortar in size illustrating mortar color and color range.

#### **1.3 QUALITY ASSURANCE**

- A. Perform Work in accordance with ACI 530 Building Code Requirements for Masonry Structures and ACI 530.1 Specification for Masonry Structures.

#### **1.4 ENVIRONMENTAL REQUIREMENTS**

- A. Cold Weather Requirements: In accordance with ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F.
- B. Hot Weather Requirements: In accordance with ACI 530.1 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than 8 mph.

### **PART 2 PRODUCTS**

#### **2.1 MORTAR AND MASONRY GROUT**

- A. Manufacturers:
  - 1. Cemex
  - 2. Glen-Gery
  - 3. Quikrete Companies
  - 4. Southern Grouts and Mortars.

#### **2.2 COMPONENTS**

- A. Portland Cement: ASTM C150, Type I, gray color.
- B. Premix Mortar for below grade applications: ASTM C387/C387M, Type S using gray color cement.
- C. Premix Mortar for above grade / exterior applications: ASTM C387/C387M, Type N using gray color cement or colored cement to match existing conditions.
- D. Mortar Aggregate: ASTM C144, standard masonry type.
- E. Hydrated Lime: ASTM C206, Type N.
- F. Mortar Color: Mineral oxide pigment; color as selected from full range of available colors for above grade applications.
- G. Grout Aggregate: ASTM C404, fine.
- H. Water: Clean and potable.
- I. Bonding Agent: Latex type.
- J. Calcium chloride is not permitted.

#### **2.3 MIXES**

- A. Mortar Mixes:
  - 1. Mortar for Structural Masonry: ASTM C270, Type N using Proportion specification.

2. Mortar for Non-Structural Masonry: ASTM C270, Type N using Proportion specification.
- B. Mortar Mixing:
  1. Thoroughly mix mortar ingredients in accordance with ASTM C270 in quantities needed for immediate use.
  2. Add mortar color and admixtures.
- C. Grout Mixes:
  1. Engineered Masonry: 3,000 psi strength at 28 days; 8-10 inches slump; premixed type in accordance with ASTM C94/C94M Fine grout.
- D. Grout Mixing:
  1. Mix grout in accordance with ASTM C94/C94M [transit mixed].
  2. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476 [site mixed].
  3. Do not use anti-freeze compounds to lower freezing point of grout.

### **PART 3 EXECUTION**

#### **3.1 PREPARATION**

- A. Apply bonding agent to existing surfaces as applicable to the conditions.

#### **3.2 INSTALLATION**

- A. Install mortar and grout in accordance with ACI 530.1 Specification for Masonry Structures.

#### **3.3 FIELD QUALITY CONTROL**

- A. Testing Frequency: One set of specified tests for every 5,000 sf of completed wall area.
- B. Testing of Mortar Mix: In accordance with ASTM C780.
- C. Testing of Grout Mix: In accordance with ASTM C1019.

**END OF SECTION**

## SECTION 04 20 00 - UNIT MASONRY

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes concrete masonry units, reinforcement, anchorage, and accessories.

#### 1.2 PERFORMANCE REQUIREMENTS

- A. Concrete Masonry Compressive Strength (f'm): 1,500 psi; determined by unit strength method.

#### 1.3 SUBMITTALS

- A. Product Data:
  - 1. Submit data for masonry units and reinforcement, wall ties, anchors and other accessories.

#### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 530 Building Code Requirements for Masonry Structures and ACI 530.1 Specification for Masonry Structures.

#### 1.5 ENVIRONMENTAL REQUIREMENTS

- A. Cold Weather Requirements: In accordance with ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F.
- B. Hot Weather Requirements: In accordance with ACI 530.1 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than 8 mph.

### PART 2 PRODUCTS

#### 2.1 COMPONENTS

- A. Concrete Masonry Units:
  - 1. Size and Shape: Nominal modular size of 8 x 8 x 16 inches as indicated on drawings. Furnish special units for 90 degree corners, bond beams, lintels, bullnosed corners.
    - a. Hollow Load Bearing Concrete Masonry Units: ASTM C90; normal weight.
    - b. Hollow Non-Load Bearing Concrete Masonry Units: ASTM C129; normal weight.

#### 2.2 ACCESSORIES

- A. Single Wythe Joint Reinforcement: ASTM A951/A951M; truss or ladder type; steel; 0.148 inch diameter side rods with 0.148 inch diameter cross ties; hot dip galvanized.
- B. Reinforcing Steel: ASTM A615/A615M, 60 ksi yield grade, deformed billet bars, uncoated finish.
- C. Mortar and Grout: As specified in Section 04 05 14.
- D. Preformed Control Joints: Neoprene material. Furnish with corner and tee accessories.
- E. Joint Filler: Closed cell polyurethane; oversized 50 percent to joint width; self expanding; 1/2 inch wide x by maximum lengths.
- F. Anchor Rods: ASTM A307; Grade C; J-shaped or L-shaped complete with washers and heavy hex nuts; sized for 15-inch embedment; ASTM A153 hot dip galvanized finish.
- G. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials; recommended by masonry unit manufacturer.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify field conditions are acceptable and are ready to receive Work.

### **3.2 PREPARATION**

- A. Coordinate placement of anchors supplied by other sections.

### **3.3 INSTALLATION**

- A. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- B. Coursing of Concrete Masonry Units:
  - 1. Bond: Running.
  - 2. Coursing: One unit and one mortar joint to equal 8 inches.
  - 3. Mortar Joints: Concave.
- C. Joint Reinforcement And Anchorage - Single Wythe Masonry:
  - 1. Install horizontal and vertical joint reinforcement in accordance Drawings.
    - a. Unless noted otherwise, horizontal reinforcement at 16 inches oc. Place joint reinforcement continuous in first joint below top of walls. Place masonry joint reinforcement in first horizontal joint above and below openings. Extend minimum 16 inches each side of opening.
    - b. Unless noted otherwise, vertical reinforcement at 48 inches oc.
  - 2. Reinforce stack bonded unit joint corners and intersections with strap anchors 16 inches oc.
- D. Grouted Components:
  - 1. Reinforce bond beam and pilasters as detailed.
  - 2. Support and secure reinforcing bars from displacement.
  - 3. Place and consolidate grout fill without displacing reinforcing.
  - 4. At bearing locations, fill masonry cores with grout for minimum 12 inches both sides of opening.
- E. Control Joints:
  - 1. Install control joints at the following maximum spacings, unless otherwise indicated on Drawings:
    - a. Exterior Walls: 30 feet on center and within 24 inches on one side of each interior and exterior corner.
    - b. Interior Walls: 30 feet on center.
    - c. At changes in wall height.
    - d. Refer to drawings – field coordinate locations as appropriate.
  - 2. Do not continue horizontal joint reinforcement through control joints.
  - 3. Form control joint with sheet building paper bond breaker fitted to one side of hollow contour end of block unit. Fill resultant core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.
  - 4. Install preformed control joint device in continuous lengths. Seal butt and corner joints.
  - 5. Size control joint in accordance with Section 07 90 00 for sealant performance.
- F. Built-In Work:
  - 1. As work progresses, install built-in metal door frames, window frames, anchor bolts and plates and other items to be built in the work furnished by other sections.
  - 2. Bed anchors of metal door frames in adjacent mortar joints. Fill frame voids solid with grout or mortar. Fill adjacent masonry cores with grout minimum 12 inches from framed openings].
- G. Cutting And Fitting:

1. Cut and fit for chases, pipes, conduit, sleeves, grounds and other penetrations. Coordinate with other sections of work to provide correct size, shape, and location.
- H. Cleaning:
1. Remove excess mortar and mortar smears as work progresses.
  2. Clean soiled surfaces with cleaning solution.
- I. Tolerances:
1. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
  2. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**



## SECTION 04 72 00 – MASONRY VENEER

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes manufactured stone veneer and trim.

#### 1.2 REFERENCES

- A. American National Standards Institute (ANSI):
  - 1. ANSI A118.4 or ANSI A118.15 Specifications for Latex-Portland Cement Mortar.
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM C 144 – Standard Specification for Aggregate for Masonry Mortar.
  - 2. ASTM C 270 – Standard Specification for Mortar for Unit Masonry.
  - 3. ASTM C 482 – Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement.
  - 4. ASTM C 847 – Standard Specification for Metal Lath.
  - 5. ASTM C1063 – Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster
  - 6. ASTM C1329 – Standard Specification for Portland cement.
  - 7. ASTM E 25556/E2556M – Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers for Mechanical Attachment

#### 1.3 SUBMITTALS

- A. Product Data: stone units, flashing, and other accessories.
- B. Samples:
  - 1. Sample board consisting of small scale pieces of veneer units showing full range of textures and colors.
  - 2. Samples showing full range of mortar colors.
- C. Test Reports: Indicate concrete mix design compressive strength and water absorption.
- D. Manufacturer's Installation Instructions: Anchor attachment, cast stone cleaning, and special Project installation conditions.

#### 1.4 QUALITY ASSURANCE

- A. Perform Work according to ASTM C1780, National Concrete Masonry Association Installation Guide and Detailing Options for Adhered Manufactured Stone Veneer, latest edition.
- B. Manufacturer: Company specializing in manufacturing products specified in this Section with ten years' experience.
- C. Installer: Company specializing in performing Work of this Section with five years' experience and approved by manufacturer.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store stone on Site, covered and elevated above grade. Protect cast stone from damage, soiling, and staining. Follow manufacturer's requirements.
- B. Provide ventilation to prevent condensation from forming on cast stone.

#### 1.6 ENVIRONMENTAL REQUIREMENTS

- A. Cold Weather Requirements: According to ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F.

- B. Hot Weather Requirements: According to ACI 530.1 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than 8 mph.

## 1.7 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

## 1.8 COORDINATION

- A. Coordinate stone Work with wood framed backup.

## PART 2 PRODUCTS

### 2.1 CAST STONE

- A. Manufacturers:
  - 1. Dutch Quality Stone, Limestone [basis of design]
  - 2. Approved Equal
- B. Veneer Unit properties: Precast veneer units consisting of portland cement, lightweight aggregates, and mineral oxide pigments.
  - 1. Compressive Strength: ASTM C1670, 5 sample average: greater than 2,100 psi.
  - 2. Shear Bond: ASTM C1670: 50 psi. minimum
  - 3. Freeze-Thaw Test: ASTM C1670: Less than 3 percent weight loss and no disintegration.
  - 4. Thermal Resistance: ASTM C177: 0.473 at 1.387 inches thick
- C. Weather Barrier: ASTM D226, Type 1, No. 15, non-perforated asphalt-saturated felt paper or synthetic building wrap in accordance with manufacturer requirements.
- D. Reinforcing: ASTM C847, 2.5lb/yd<sup>2</sup> galvanized expanded metal lath complying with code agency requirements for wood substrate over which stone veneer is installed.
- E. Mortar:
  - 1. Cement: Portland cement complying with ASTM C1329.
  - 2. Lime: ASTM C 207.
  - 3. Sand: ASTM C 144, natural or manufactured sand.
  - 4. Color Pigment: ASTM C979, mineral oxide pigments.
  - 5. Water: Potable.
  - 6. Pre-Packaged Latex-Portland Cement Mortar: ANSI A118.4 or ANSI A118.15.
- F. Water Repellent: Water based silane or siloxane masonry repellent,
- G. Color and Finish: Limestone, Charcoal or Approved Equal.

### 2.2 MORTAR MIX

- A. Grouted Installation (Grout Joints, either standard or over-grout):
  - 1. Mix cement, lime and sand in accordance with ASTM C270, Type S.
  - 2. Pre-Bagged, pre-mixed Type S mortar complying with ASTM C270.
  - 3. Polymer modified mortar complying with ANSI A118.4 or ANSI A118.15.
    - a. Add color pigment in grout joint mortar in accordance with pigment manufacturer's instructions not to exceed 10% by weight of cement.

### 2.3 ACCESSORIES

- A. Weather Barrier: ASTM D226, Type 1, No. 15, non-perforated asphalt-saturated felt paper or synthetic building wrap in accordance with manufacturer requirements.
- B. Reinforcing: ASTM C847, 2.5lb/yd<sup>2</sup> galvanized expanded metal lath complying with code agency requirements for wood substrate over which stone veneer is installed.

- C. Flashings: in accordance with manufacturer requirements.

## **2.4 SOURCE QUALITY CONTROL**

- A. Maintain plant records and quality control program during production of cast stone units. Make records available upon request.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify items provided by other Sections of Work are properly sized and located.
- B. Examine substrates upon which stone will be installed.

### **3.2 PREPARATION**

- A. Protect adjacent work from contact with mortar.
- B. Surface Preparation: Prepare substrate in accordance with manufacturer's installation instructions for the type of substrate being covered.

### **3.3 INSTALLATION**

- A. Install and clean stone in accordance with manufacturer's installation instructions for Standard Installation (Grouted Joint) or Jointless/Dry-Stacked installation as specified above.
- B. Apply sealer in accordance with sealer manufacturer's installation instructions.
- C. Flashings:
  - 1. Extend flashings horizontally through stone veneer at foundation walls and where directed by manufacturer and turn down on outside face to form drip.
  - 2. Turn flashing up minimum [8] inches and seal to sheathing over wood backing or foundation as applicable.
  - 3. Lap end joints minimum 6 inches and seal watertight.
  - 4. Turn flashing, fold, and seal at corners, bends, and interruptions.

### **3.4 CLEANING**

- A. Remove excess mortar as Work progresses.
- B. Replace defective mortar. Match adjacent Work.
- C. Wet stone. Clean soiled surfaces with cleaning solution.
- D. Use non-metallic tools in cleaning operations.

### **3.5 PROTECTION OF FINISHED WORK**

- A. Protect stone from contact with mortar, soil, and other materials capable of staining or discoloring cast stone.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 05 50 00 - METAL FABRICATIONS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Shop-fabricated metal items.
  - 2. Loose steel lintels.
  - 3. Bollards.
  - 4. Structural supports for miscellaneous attachments.
  - 5. Corner guards.

#### 1.2 SUBMITTALS

- A. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

#### 1.3 QUALITY ASSURANCE

- A. Finish joints according to NOMMA Guideline 1.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Inspection: Accept metal fabrications on-Site in labeled shipments. Inspect for damage.
- B. Protect metal fabrications from damage by exposure to weather or by ground contact.

#### 1.5 EXISTING CONDITIONS

- A. Field Measurements: Verify field measurements prior to fabrication. Indicate field measurements on Shop Drawings.

### PART 2 PRODUCTS

#### 2.1 LINTELS

- A. Steel sections, size and configuration as indicated on Drawings, length to allow 8 in minimum bearing on both sides of opening.
  - 1. Exterior Locations: Galvanized.

#### 2.2 BOLLARDS

- A. Bollards: Steel pipe, concrete filled, crowned cap, 6 in diameter, length as indicated on Drawings; **galvanized**.
  - 1. Finish: painted: colors as selected by Architect.
- B. Concrete Fill: 3,000 psi as specified in Section 03 30 00 - Cast-in-Place Concrete.
- C. Anchors: Concealed type as indicated on Drawings.

#### 2.3 STRUCTURAL SUPPORTS

- A. Miscellaneous Structural Supports: Steel sections, shape and size as indicated on Drawings or as required to support applied loads with maximum deflection of 1/240 of the span; prime paint, one coat.

## 2.4 WALL PROTECTION PLATES AND CORNER GUARDS

- A. Corner Guards: Stainless steel angle, 2 inch by 2 inch x 16 gauge, stainless steel fasteners, beveled exposed edges, countersunk holes for screw attachment, size / height as indicated on Drawings.
  - 1. Finish: #4 satin
- B. Wall End Cap / Corner Guards: Stainless steel angle, 2 inch return each side x width of wall x 16 gauge, stainless steel fasteners, beveled exposed edges, countersunk holes for screw attachment, size / height as indicated on Drawings.
  - 1. Finish: #4 satin

## 2.5 MATERIALS

- A. Steel:
  - 1. Structural W-shapes: ASTM A992/A992M; ASTM A572, Grade 60
  - 2. Channels and Angles: ASTM A36/A36M; ASTM A572, Grade 60
  - 3. Square and Rectangular Structural Sections: ASTM A500/A500M, Grade B
  - 4. Structural Pipe: ASTM A53/A53M, Grade B.
  - 5. Structural Plates and Bars: ASTM A36/A36M; ASTM A572, Grade 60
  - 6. BOLTS, CONNECTORS, AND ANCHORS
    - a. Bolts: Heavy hex, structural type.
      - 1) ASTM A325; Type 1, hot dipped galvanized, or Type 3, plain.
    - b. Nuts: ASTM A563 heavy hex type.
      - 1) Finish: Hot dipped galvanized.
    - c. Washers: ASTM F436; Type 1, circular. Furnish clipped washers where space limitations require.
      - 1) Finish: Hot dipped galvanized.
    - d. Tension Control Assemblies: ASTM F1872; Type 1, heavy hex head, twist off type, complete with washers and heavy hex nuts.
      - 1) Finish: Mechanically galvanized
    - e. Shear Connectors: ASTM A108; Grade 60, headed, unfinished and in accordance with AWS D1.1; Type B
    - f. Anchor Rods: ASTM F1554; Grade 55, weldable. Hooked shape.
    - g. Threaded Rods: ASTM A36/A36M.
      - 1) Finish: Hot dipped galvanized.
  - 7. Welding Materials: AWS D1.1; type required for materials being welded.
- B. Stainless Steel:
  - 1. Bars and Shapes: ASTM A276; Type 304.
  - 2. Tubing: ASTM A269; Type 304.
  - 3. Pipe: ASTM A312, seamless; Type 304.
  - 4. Plate, Sheet, and Strip: ASTM A240; Type 304.
  - 5. Bolts, Nuts, and Washers: ASTM A354.
  - 6. Welding Materials: AWS D1.6; type required for materials being welded.
- C. Aluminum:
  - 1. Extruded Aluminum: ASTM B221 Alloy 6063, Temper T5.
  - 2. Sheet Aluminum: ASTM B209 Alloy, Temper F.
  - 3. Aluminum-Alloy Drawn Seamless Tubes: ASTM B210 Alloy 6063, Temper T6.
  - 4. Aluminum-Alloy Bars: ASTM B211 Alloy 6063, Temper T6.
  - 5. Bolts, Nuts, and Washers: Stainless steel.
  - 6. Welding Materials: AWS D1.1; type required for materials being welded.
- D. Bolts, Nuts, and Washers for Equipment and Piping:
  - 1. Carbon Steel:

- a. Structural Connections: ASTM A307, Grade **A or B**, hot-dip galvanized.
- b. Anchor Bolts: ASTM A307, Grade A, hot-dip galvanized.
- c. Pipe and Equipment Flange Bolts: ASTM A193, Grade B-7.
2. Stainless Steel: Type 316 stainless steel, class 2; ASTM A193 for bolts; ASTM A194 for nuts.

## 2.6 FABRICATION

- A. Fit and shop assemble items in largest practical sections for delivery to Site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by **continuous welds**.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small, uniform radius.
  1. Exposed Welded Joints:
    - a. Exterior Work: NOMMA Guideline 1 Joint Finish #2 or better
    - b. Interior Work: NOMMA Guideline 1 Joint Finish #1
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- G. Fabrication Tolerances:
  1. Squareness: 1/8 in maximum difference in diagonal measurements.
  2. Maximum Offset between Faces: 1/16 in.
  3. Maximum Misalignment of Adjacent Members: 1/16 in.
  4. Maximum Bow: 1/8 inch in 48 in.
  5. Maximum Deviation from Plane: 1/16 inch in 48 in.

## 2.7 FINISHES

- A. Steel:
  1. Prepare surfaces to be primed according to SSPC SP 2.
  2. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
  3. Do not prime surfaces in direct contact with concrete or where field welding is required.
  4. Prime paint items with **one coat** except where galvanizing is specified.
  5. Galvanizing: ASTM A123; hot-dip galvanize after fabrication.
  6. Galvanizing for Fasteners, Connectors, and Anchors:
    - a. Hot-Dip Galvanizing: ASTM A153.
    - b. Mechanical Galvanizing: ASTM B695; Class 50 minimum.
  7. Sheet Steel: Galvanized with Class 2 coating class.
  8. Bolts: Hot-dip galvanized.
  9. Nuts: Hot-dip galvanized.
  10. Washers: Hot-dip galvanized.
  11. Shop Primer: SSPC Paint 15, Type 1, red oxide.
  12. Touch-Up Primer: Match shop primer.
- B. Stainless Steel:
  1. Satin-Polished Finish: Number 4, satin directional polish parallel with long dimension of finished face.
  2. Mirror-Polished Finish: Number 8, mirror polish with preliminary directional polish lines removed.
- C. Aluminum:
  1. Finish coatings to conform to AAMA 2603. Comply with AA DAF-45.

**PART 3 EXECUTION**

**3.1 INSTALLATION**

- A. Field weld components indicated on Drawings or Shop Drawings.
- B. Obtain approval of Architect/Engineer prior to Site cutting or making adjustments not scheduled.

**3.2 FIELD QUALITY CONTROL**

- A. Inspect welds according to AWS D1.1.

**END OF SECTION**



## SECTION 06 10 00 - ROUGH CARPENTRY

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes structural wall, floor, and roof framing, built-up structural members, non-structural interior wall framing, wall and roof sheathing; sill gaskets and flashings; preservative and fire retardant treatment; miscellaneous blocking, framing, and sheathing; telephone and electrical panel back boards; wood blocking for support of toilet and bath accessories, cabinets, millwork, trim, wall mounted handrails, and related furring and framing materials.

#### 1.2 REFERENCES

- A. American National Standards Institute:
1. ANSI A135.4 - Basic Hardboard.
  2. ANSI A208.1 - Mat-Formed Wood Particleboard.
- B. American Wood-Preservers' Association:
1. AWPA M4 - Standard for the Care of Preservative-Treated Wood Products.
  2. AWPA U1 - Use Category System: User Specification for Treated Wood.
- C. ASTM International:
1. ASTM A153 – Standard Specification for Zinc Coating on Iron and Steel Hardware
  2. ASTM C1396/C1396M - Standard Specification for Gypsum Board.
  3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
  4. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
  5. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
- D. Forest Stewardship Council:
1. FSC Guidelines - Forest Stewardship Council Guidelines.
- E. Green Seal:
1. GS-36 - Aerosol Adhesives.
- F. National Lumber Grades Authority:
1. NLGA - Standard Grading Rules for Canadian Lumber.
- G. Northeastern Lumber Manufacturers Association:
1. NELMA - Standard Grading Rules for Northeastern Lumber.
- H. South Coast Air Quality Management District:
1. SCAQMD Rule 1168 - Adhesive and Sealant Applications.
- I. Southern Pine Inspection Bureau:
1. SPIB - Standard Grading Rules for Southern Pine Lumber.
- J. U.S. Department of Commerce National Institute of Standards and Technology:
1. DOC PS 1 - Construction and Industrial Plywood.
  2. DOC PS 2 - Performance Standard for Wood-Based Structural-Use Panels.
  3. DOC PS 20 - American Softwood Lumber Standard.
- K. West Coast Lumber Inspection Bureau:
1. WCLIB - Standard Grading Rules for West Coast Lumber.
- L. Western Wood Products Association:
1. WWPA G-5 - Western Lumber Grading Rules.

### 1.3 SUBMITTALS

- A. Product Data: Submit product data on applicable building components, including light gauge hangers, fasteners.

### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with the following agencies:
  - 1. Lumber Grading Agency: Certified by DOC PS 20.
  - 2. Wood Structural Panel Grading Agency: Certified by EWA - The Engineered Wood Association.
  - 3. Plywood Grading Agency: Certified by APA.
  - 4. Lumber: DOC PS 20.
  - 5. Wood Structural Panels: DOC PS 1 or DOC PS 2.
- B. Perform Work in accordance with Ohio Building Code.
- C. Surface Burning Characteristics:
  - 1. Fire Retardant Treated Materials: Maximum 25/450 flame spread / smoke developed index when tested in accordance with ASTM E84.
- D. Apply label from agency approved by authority having jurisdiction to identify each preservative treated and fire retardant treated material.

### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect framing from warping or other distortion caused by improper handling or storage.
- B. Store framing materials up off grade or floor slab with dunnage.
- C. Protect framing materials and components with breathable tarps or other protection as is applicable to the site conditions and where appropriate and in accordance with manufacturer guidelines.

## PART 2 PRODUCTS

### 2.1 LUMBER MATERIALS

- A. Lumber Grading Rules: SPIB, ASLS.
- B. Beam Framing: southern yellow pine [SYP] species, No. 1 grade, 2" and wider size classification, 19 percent maximum moisture content.
- C. Engineered Joist Framing: Truss Joist, size and grading as indicated on drawings.
- D. Joist Framing: southern yellow pine [SYP] species, No. 1 grade, 2" and wider size classification, 19 percent maximum moisture content.
- E. Columns: southern yellow pine [SYP] species, No. 2 grade, 4" and wider size classification, 19 percent maximum moisture content.
- F. Non-structural Light Framing: Stress Group D, spruce, pine, fir [SPF] species, 19 percent maximum moisture content.
- G. Studding: Stress Group D, spruce, pine, fir [SPF] species, 19 percent maximum moisture content.
- H. Miscellaneous Framing: Stress Group D, spruce, pine, fir [SPF] species, 19 percent maximum moisture content.
- I. Sill Plate: AWPAC2 Lumber, Stress Group D, spruce, pine, and fir [SPF] species, and 19 percent maximum moisture content, pressure preservative treated.

## 2.2 SHEATHING MATERIALS

- A. Wood Structural Panel Wall Sheathing: APA PS 2-10 Sheathing; Oriented Strand Board [OSB]; wood chips set with waterproof resin binder; unsanded faces; 1/2 inch [0.469 inch minimum] thickness; span rating 32/16, Exposure 1, 48x96 inch sized sheets; square edges
- B. Wood Structural Panel Roof Sheathing: APA PS 2-10 Sheathing; Oriented Strand Board [OSB]; wood chips set with waterproof resin binder; unsanded faces; 1/2 inch [0.469 inch minimum] thickness; span rating 32/16; Exposure 1, 48x96 inch sized sheets; square edges
- C. Wood Structural Panel Floor Sheathing: APA PS 2-10 Sheathing; Oriented Strand Board [OSB]; wood chips set with waterproof resin binder; unsanded faces; 23/32 inch [0.703 inch minimum] thickness; span rating 24; Exposure 1, 48x96 inch sized sheets; tongue and groove edges.
- D. Telephone and Electrical Back Boards: Plywood

## 2.3 FIREBLOCKING AND FIRESTOPPING

- A. Fireblocking: Solid lumber, structural wood panel, or particleboard.
  - 1. Solid lumber nominal 2 inches thick.
  - 2. Structural wood panel 23/32 inch thick with joints backed by structural wood panel.
- B. Draftstopping: Gypsum board or OSB
  - 1. Gypsum board: 1/2 inch thick.
  - 2. OSB: 7/16 inch thick.

## 2.4 ACCESSORIES

- A. Fasteners and Anchors:
  - 1. Fasteners: ASTM A153/A153M, hot dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
  - 2. Nails and staples: ASTM F1667.
  - 3. Screws: ASTM C1002, corrosion resistant treated.
  - 4. Anchors:
    - a. Toggle type for anchorage into hollow masonry
    - b. Expansion shield and lag bolt type for anchorage to solid masonry or concrete
    - c. Bolt or ballistic fastener for anchorages to steel.
- B. Die Stamped Connectors: galvanized steel, specific type/profile as applicable
- C. Structural Framing Connectors: Galvanized steel, sized to suit framing conditions. Refer to drawings.
  - 1. Simpson or Equal.
- D. Sill Gasket on Top of Foundation: 1/4 inch thick; plate width, closed cell foam strip from continuous rolls.
- E. Sill Flashing: Polyethylene Sheet or Galvanized Steel.
- F. Weather Resistive Barrier / Building Paper: ASTM D226; 100% flash spunbonded high density polyethylene fibers bonded together by heat and pressure, without binders or fillers, into a tough durable sheet structure, UV light resistance to provide 9 months of UV exposure, Tyvek Commercial Wrap or Equal.
- G. Self Adhered Flashing: AAMA 711, Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products, ASTM D1970: Dupont Flashing Tape, FlexWrap, Straightflash, or Equal

## **2.5 WOOD TREATMENT**

- A. Wood Preservative (Pressure Treatment): AWPA U1, Commodity Specification A-Sawn Products or F-Wood Composites using water-borne preservative with .25 pcf retention.
- B. Fire Retardant Treatment: Chemically treated and pressure impregnated, having flame spread of 25 or less when tested in accordance with ASTM E 84 and showing no evidence of significant progressive combustion when test is continued for an additional 20 minute period, Exterior or Interior Type.
- C. Moisture Content After Treatment: Kiln dried (KDAT).
  - 1. Lumber: Maximum 19 percent.
  - 2. Structural Panels: Maximum 15 percent.

## **PART 3 EXECUTION**

### **3.1 FRAMING**

- A. Set structural members level and plumb, in correct position.
- B. Fasten framing in accordance with Ohio Building Code.
- C. Place horizontal members crown side up.
- D. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in alignment until completion of erection and installation of permanent bracing.
- E. Provide all required shoring and temporary bracing required to support structure prior to removing any load-bearing components.
- F. Construct load bearing framing members full length without splices.
- G. Double members at openings. Space short studs over and under opening to stud spacing.
- H. Place full width continuous sill flashings under framed walls on cementitious foundations. Lap flashing joint 4 inches.
- I. Place sill gasket directly on cementitious foundation. Puncture gasket clean and fit tight to protruding foundation anchor bolts.
- J. All exterior framing intended to be left exposed to weather shall be pressure treated and anchored with galvanized fasteners and appropriate connectors.
- K. All framing in contact with concrete shall be treated. Interior or exterior walls.
- L. Frame new walls, partitions, and openings to suit conditions and as designed.
- M. Install solid 2x bearing at each end of beams and headers. Ensure that blocking is positioned with full support/blocking under to existing bearing conditions. Install supplemental blocking as required between joists, framing, etc.
- N. Bridge joists at mid-space with solid 2x blocking.
- O. Coordinate installation of prefabricated wood trusses.

### **3.2 SHEATHING**

- A. Install sheathing over framing members in full size sheets in accordance with APA Construction Guide.
- B. Fasten sheathing in accordance with Ohio Building Code.

- C. Secure roof sheathing with longer edge perpendicular to framing members and with ends staggered and sheet ends over bearing.
- D. Install sheathing clips between roof framing members.
- E. Secure wall sheathing with long dimension parallel to wall studs with ends over firm bearing, staggered if appropriate.
- F. Install weather resistive barrier horizontally over wall sheathing, weather lap edges and ends. Secure in place per manufacturer installation instructions. Coordinate flashing installation to ensure continuous water resistant barrier.
- G. Install telephone and electrical panel back boards with plywood sheathing. Coordinate locations and sizes required with electrical drawings.

### **3.3 FIREBLOCKING AND DRAFTSTOPPING**

- A. Install fireblocking to cut off concealed draft openings.
  - 1. Concealed Framed Wall and Furred Spaces: Install fireblocking vertically at floor and ceiling levels and horizontally at maximum 10 feet on center.
  - 2. Connections Between Horizontal and Vertical Spaces: Install fireblocking between vertical walls and partitions and the following:
    - a. Horizontal floor and roof framing.
    - b. Soffits, dropped ceilings, cove ceilings and other horizontal concealed spaces.
- B. Install draftstopping in attics at locations indicated on drawings.
  - 1. Attics: in locations to limit each area to 3,000 SF.

### **3.4 SITE APPLIED WOOD TREATMENT**

- A. Treat site sawn cuts. Brush apply one coat of preservative treatment on untreated wood in contact with cementitious materials.
- B. Allow preservative to cure prior to erecting members.

### **3.5 TOLERANCES**

- A. Framing members: 1/4 inch from indicated position, maximum.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 06 17 33 - WOOD I-JOISTS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes wood chord and particleboard web joists for floor framing; bridging, bracing and anchorage; framing for openings; and preservative treatment of wood.

#### 1.2 SYSTEM DESCRIPTION

- A. Design Floor Live Load: 125 lbs/sq ft with deflection limited to 1/360 of span.
- B. Joist Opening To Accommodate Mechanical Ducts: Refer to Drawings.

#### 1.3 SUBMITTALS

- A. Shop Drawings: Indicate sizes and spacing of joists, loads, framed openings and applicable details, submit framing layout plan.

#### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with the following:
  - 1. I-Joist Quality Assurance Agency.
- B. Joist Structural Capacities: Determine in accordance with ASTM D5055.

#### 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum ten years experience.
- B. Design joists and associated components supervision of Professional Engineer experienced in design of this Work and licensed in State of Ohio.

### PART 2 PRODUCTS

#### 2.1 PLYWOOD I JOISTS

- A. Manufacturers:
  - 1. Trus Joist
  - 2. Equal.

#### 2.2 MATERIALS

- A. Flange members, web members and bridging shall conform to the provisions of the ICC ES ESR-1153.

#### 2.3 ACCESSORIES

- A. Adhesive: ASTM D2559. In accordance with manufacturer requirements.
- B. Wood Blocking: In accordance with Section 06 10 00. Softwood lumber, S/P/F species.
- C. Fasteners and Anchors:
  - 1. Fasteners: ASTM A153/A153M, hot dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
  - 2. Nails and Staples: ASTM F1667.

#### 2.4 FABRICATION

- A. Fabricate joists to achieve structural requirements specified.
- B. Brace members for support during transit.

- C. Fabricate to achieve minimum end bearing of:
  - 1. 3-1/2 inches on wood.
- D. Frame special sized openings in web as detailed.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify supports and openings are ready to receive joists.

#### **3.2 PREPARATION**

- A. Coordinate placement of bearing items.

#### **3.3 ERECTION**

- A. Set structural members level and plumb, in correct position.
- B. Make provisions for erection loads, and for sufficient temporary bracing to maintain structure plumb, and in indicated alignment until completion of erection and installation of permanent bracing.
- C. Do not field cut or alter structural members without approval of Architect/Engineer.
- D. Place headers and supports to frame openings.
- E. Frame openings between joists with lumber in accordance with Section 06 10 00.
- F. Coordinate placement of sheathing with work of this section.

#### **3.4 ERECTION TOLERANCES**

- A. Framing Members: 1/2 inch maximum, from indicated position.

**END OF SECTION**



## SECTION 06 20 00 - FINISH CARPENTRY

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes exterior and interior finish carpentry items, other than shop fabricated casework.

#### 1.2 SUBMITTALS

- A. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, finishes, and accessories.

#### 1.3 REFERENCE STANDARDS

- A. American National Standards Institute:
  - 1. ANSI A135.4 - Basic Hardboard.
  - 2. ANSI A156.9 - Cabinet Hardware.
  - 3. ANSI A208.1 - Mat-Formed Wood Particleboard.
- B. APA-The Engineered Wood Association:
  - 1. APA/EWA PS 1 - Voluntary Product Standard for Construction and Industrial Plywood.
- C. Architectural Woodwork Institute, Woodwork Institute, and Architectural Woodwork Manufacturers Association of Canada:
  - 1. AWS - Architectural Woodwork Standards.

#### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with AWI Quality Standards, Custom Grade.
- B. Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect Work from moisture damage.
- B. Maintain storage space relative humidity within ranges indicated in AWS Section 2.

#### 1.6 EXISTING CONDITIONS

- A. Field Measurements: Verify field measurements prior to fabrication, provide adjustments to design intent to meet field conditions.

### PART 2 PRODUCTS

#### 2.1 EXTERIOR FINISH CARPENTRY

- A. Aluminum Wrapped Exterior Trim: SPF / SYP species, suitable for aluminum wrap [Refer to Section 07 62 00 for aluminum cladding specifications]
  - 1. 1x or 2x running trim x width as indicated on drawings and to match existing conditions.

#### 2.2 INTERIOR FINISH CARPENTRY

- A. Wood Base: Poplar 1x6 running trim, painted
- B. Wood Casing: Poplar 1x4 running trim, mitered corners, painted
- C. Wood Jamb: Poplar, 1x cut to match thickness of wall, painted
- D. Stair Handrails: Poplar, profile 6042 or Similar, 2 1/4 inch x 1 1/4 inch profile, miter and return top and bottom of stair, painted.
- E. Stair Railing brackets: Wall mounted type, space at 48 inches on center, US 26D finish
- F. Miscellaneous Running Trim: Poplar, as required to suit conditions, painted finish

- G. Wall Cladding – T1-11, 48 x 96 inch sized sheets, 19/32 inch thickness, SYP species, painted
- H. Finger jointed softwood lumber and moldings for painted finish. Grade in accordance with AWI Custom, clear white pine or poplar species, plain sawn, maximum moisture content of 6 percent; primed for painted finish.
- I. Softwood plywood: Graded in accordance with AWI Custom veneer with lumber core; birch face species, rotary cut, primed for painted finish.

### **2.3 WOOD TREATMENT**

- A. Wood preservative Pressure Treatment: WDMA I.S.4
- B. Moisture Content after Treatment: Kiln Dried [KDAT]
  - 1. Lumber: as specified for exterior lumber.

### **2.4 ACCESSORIES**

- A. Fasteners and Anchors:
  - 1. Fasteners: Size and type to suit application, stainless steel for exterior, high humidity and treated wood locations, plain finish elsewhere.
  - 2. Nails and Staples: ASTM F1667.
- B. Lumber for Shimming, Blocking: softwood lumber as required by conditions.
- C. Primer: Alkyd primer sealer type.
- D. Hardware: as required to suit application.

### **2.5 FABRICATION**

- A. Fabricate to AWI Custom standards.
- B. When necessary to cut and fit on-site, fabricate materials with ample allowance for cutting. Furnish trim for scribing and site cutting.

### **2.6 SHOP FINISHING**

- A. Sand work smooth and set exposed nails and screws.
- B. Apply wood filler in exposed nail and screw indentations.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify field conditions are acceptable and are ready to receive work.

### **3.2 PREPARATION**

- A. Prime paint surfaces of items or assemblies in contact with cementitious materials, before installation.

### **3.3 INSTALLATION**

- A. Install work in accordance with AWI Custom quality standard.
  - 1. Set and secure materials and components in place, plumb and level.
  - 2. Install trim by nails.
  - 3. Miter trim and return to wall where applicable.
  - 4. Install hardware.
- B. Preparation For Finish:
  - 1. Sand work smooth and set exposed fasteners. Apply wood filler in exposed fastener indentations.
  - 2. Site Finishing: Refer to Section 09 90 00.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 06 41 00 - ARCHITECTURAL WOODWORK

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Custom plastic-laminate-finished casework.
  - 2. Custom plastic-laminate-finished counter tops.
  - 3. Cabinet hardware.

#### 1.2 SUBMITTALS

- A. Product Data:
  - 1. High-pressure decorative laminates.
  - 2. Hardware accessories.
  - 3. Wall Protection
  - 4. Wall Rail Systems
- B. Shop Drawings: Indicate materials, component profiles and elevations, assembly methods, joint details, fastening methods, accessory listings, hardware location, schedule of finishes.
- C. Samples: Plastic laminate, wall protection, wall rail systems, trim profiles as applicable.

#### 1.3 QUALITY ASSURANCE

- A. Perform Work according to AWS, Section 6, Section 10, and Section 11; custom grade.
- B. Surface Burning Characteristics: Maximum 25/450 flame-spread/smoke-developed index when tested according to ASTM E84.
- C. Fabricator: Company specializing in fabricating products specified in this Section with minimum five years' experience similar to this Project.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect units from moisture damage.

#### 1.5 AMBIENT CONDITIONS

- A. Maintain storage space relative humidity within ranges indicated in AWS Section 2.
- B. Subsequent Conditions: Maintain same temperature and humidity conditions in building spaces as will occur after occupancy during and after installation of Work of this Section.

#### 1.6 EXISTING CONDITIONS

- A. Field Measurements: Verify field measurements prior to fabrication. Indicate field measurements on Shop Drawings.

### PART 2 PRODUCTS

#### 2.1 PLASTIC LAMINATE

- A. Manufacturers:
  - 1. Wilsonart [Basis of Design]
  - 2. Formica
  - 3. Arborite

#### 2.2 CUSTOM CASEWORK

- A. Plastic-Laminate-Finished Custom Casework:
  - 1. Frameless construction.

2. Style: Flush overlay.
  3. AWS Section 10.
  4. Custom grade.
  5. Exterior and Interior Exposed Surfaces: High-pressure decorative laminate over medium density fiberboard [MDF].
  6. Semi-Exposed Surfaces: Thermally Fused Melamine over particleboard.
  7. Interior Surfaces, Interior Cabinet Shelves, Drawers: Thermally Fused Melamine over particleboard.
- B. Casework Construction Details:
1. Drawer Side Joinery: dovetailed or lock jointed.
  2. Drawer and Door Edge Profile: Square with thin, applied band.
  3. Toe Base Finish: Rubber Base as specified in Section 09 65 00.
  4. Grain Direction: field verify with Architect as applicable.
- C. Plastic-Laminate-Finished Counter Tops: Self-edged; AWS Section 11; custom grade.
1. Core: Medium density fiberboard or Particleboard.
  2. Splash Top Profile: Square with scribe.
  3. Deck at Splash Joint Type: Horizontal Butt
  4. Front Edge: Square self edge with build up, plastic laminate, 1 1/2 face dimension.
  5. Splash Assembly: Field assembled.

### **2.3 CASEWORK MATERIALS**

- A. Softwood Lumber: DOC PS 20.
- B. Particleboard: ANSI A208.1 Grade M2 or better; composed of wood chips or sawdust, medium density.
1. Fire-Retardant Particleboard: ASTM E84; 25 maximum flame-spread index and 450 maximum smoke-developed index.
- C. Medium-Density Fiberboard: ANSI A208.2, composed of wood fibers, medium density.
1. Fire-Retardant Fiberboard: ASTM E84; 25 maximum flame-spread index and 450 maximum smoke-developed index.
- D. High-Pressure Decorative Laminate (HPDL): NEMA LD 3; through color, style/pattern as selected, and surface texture as selected.
1. Horizontal Surfaces: HGS; 0.048 in thick.
  2. Vertical Surfaces: VGS; 0.028 in thick.
  3. Cabinet Liner: CLS; 0.020 in thick.
  4. Backing Sheet: BKL; 0.020 in thick.

### **2.4 FABRICATION**

- A. Fabricate interior finish carpentry to AWS Section 6 custom grade.
- B. Fabricate casework to AWS Section 10 custom grade.
- C. Fabricate counter tops to AWS Section 11 custom grade.
- D. Shop-assemble casework for delivery to Site in units easily handled and to permit passage through building openings.
- E. Fit exposed plywood edges with matching veneer edging. Use one piece for full length only.
- F. Cap exposed high-pressure decorative laminate finish edges with material of same finish and pattern.
- G. Door and Drawer Fronts: 3/4 inch thick.

- H. When necessary to cut and fit on-Site, fabricate materials with ample allowance for cutting. Furnish trim for scribing and Site cutting.
- I. Apply high-pressure decorative laminate finish in full, uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners.
- J. Apply laminate backing sheet to reverse side of plastic-laminate-finished surfaces where required by AWS for specified grade.
- K. Fabricate cabinets and counter tops with cutouts for applicable fixtures and fittings and cutouts. Verify locations of cutouts from on-Site dimensions. Seal cut edges.

## **2.5 ACCESSORIES**

- A. Adhesive for High-Pressure Decorative Laminates: Type recommended by laminate manufacturer to suit application.
- B. Fasteners and Anchors:
  - 1. Fasteners: ASTM A153, hot-dip galvanized steel for high-humidity and treated wood locations, unfinished steel elsewhere.
  - 2. Nails and Staples: ASTM F1667.
- C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application.
- D. Shelf standards and Rests: formed steel channels and rests, cuts for fitted rests spaced at 1 inch centers; satin finish
- E. Hardware: BMHA A156.9
- F. Drawer and Door Pulls:
  - 1. U-shaped pull, steel with satin finish.
  - 2. Size and Spacing: 4 in centers.
- G. Cabinet Locks: Keyed cylinder, two keys for each lock, steel with satin finish.
- H. Drawer Slides: Self-closing, galvanized steel construction, ball bearings separating tracks, rail mounted full extension type.
- I. Hinges: Fully Concealed hinge Grade 2 European Style, adjustable type, self closing, steel with satin finish.
- J. Grommets: Plastic, sized for conditions.
  - 1. Grommets to be field verified by Contractor and Architect.
- K. Contact Adhesives: Water Base type.
- L. Wall Adhesive: Cartridge type, compatible with wall substrate, capable of achieving durable bond.

## **2.6 SHOP FINISHING**

- A. Sand work smooth and set exposed nails and screws.
- B. Apply wood filler in exposed nail and screw indentations.
- C. On items to receive transparent finishes, use wood filler matching surrounding surfaces and of types recommended for applied finishes.
- D. Stain, seal, and varnish exposed to view surfaces, refer to Section 09 90 00.
- E. Seal internal surfaces and semi-concealed surfaces.
- F. Seal surfaces in contact with cementitious materials.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with Work of this Section.

#### **3.2 PREPARATION**

- A. Prime paint surfaces of woodwork items and assemblies to be in contact with cementitious materials.

#### **3.3 INSTALLATION – PLASTIC LAMINATE CASEWORK**

- A. Install casework according to AWS Section 10 custom grade.
- B. Install counter tops according to AWS Section 11 custom grade.
- C. Set and secure casework, interior finish carpentry, and counter tops in place; rigid, plumb, and level.
- D. Use fixture attachments in concealed locations for wall-mounted components.
- E. Use concealed joint fasteners to align and secure adjoining cabinets and counter tops.
- F. Carefully scribe casework abutting other components, with maximum gaps of 1/32 in. Do not use additional overlay trim for this purpose.

#### **3.4 INSTALLATION – FINISH CARPENTRY**

- A. Install interior finish carpentry according to AWS Section 6 custom grade.
- B. Carefully scribe finish carpentry abutting other components with maximum caps of 1/32 inch.
- C. Countersink anchorage devices at exposed locations. Conceal with putty or wood plug as appropriate.

#### **3.5 TOLERANCES**

- A. Conform to AWS Sections 6 and 10 requirements for following:
  - 1. Smoothness.
  - 2. Gaps.
  - 3. Flushness.
  - 4. Flatness.
  - 5. Alignment

#### **3.6 ADJUSTING**

- A. Adjust moving or operating parts to function smoothly and correctly.

#### **3.7 CLEANING**

- A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

#### **3.8 SCHEDULE**

- A. Refer to Drawings

**END OF SECTION**



## SECTION 07 21 00 - THERMAL INSULATION

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes rigid board insulation at perimeter foundation walls; batt thermal insulation in exterior walls; sound batt insulation, attic loose insulation pneumatically placed through access openings; foamed in place insulation at junctions of dissimilar wall and roof materials to achieve thermal and air seal.

#### 1.2 SYSTEM DESCRIPTION

- A. Provide continuity of thermal barrier at building enclosure elements.
- B. Vapor Retarder Permeance: Maximum 1 perm when tested in accordance with ASTM E96/E96M, desiccant method.

#### 1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's product data indicating product characteristics, performance criteria, limitations, adhesives, accessories
  - 1. Include thermal performance of materials.
  - 2. Provide requirements for over coat of foamed in place insulation if in exposed cavities.

#### 1.4 QUALITY ASSURANCE

- A. Insulation Installed in Concealed Locations Surface Burning Characteristics:
  - 1. Foam Plastic Insulation: Maximum 75/450 flame spread/smoke developed index when tested according to ASTM E84.
  - 2. Batt Insulation: 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
- B. Insulation Installed in Exposed Locations Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested according to ASTM E84.
  - 1. Attic Floor Insulation: Minimum 0.12 watt per sq cm critical radiant flux when tested according to ASTM E970.
- C. Apply label from agency approved by authority having jurisdiction to identify each foam plastic insulation board.

#### 1.5 SEQUENCING

- A. Sequence Work to ensure firestopping, vapor retarder, and air barrier materials are in place before beginning Work of this Section.

#### 1.6 COORDINATION

- A. Coordinate Work with installation of vapor retarder for air seal materials.

### PART 2 PRODUCTS

#### 2.1 BUILDING INSULATION

- A. Manufacturers:
  - 1. Johns Manville.
  - 2. Certain Teed.
  - 3. Owens-Corning.

## 2.2 COMPONENTS

- A. Extruded Polystyrene Insulation for Foundations: ASTM C578 Type IV, cellular extruded polystyrene board; with following characteristics:
  - 1. Board Density: 1.55 lb/cu ft.
  - 2. Board Size: 48 x 96 inch [cut to fit to conditions].
  - 3. Board Thickness: 2 inches
  - 4. Thermal Resistance: R of 10.0.
  - 5. Water Absorption: According to ASTM D2842; **0.3** percent by volume maximum.
  - 6. Compressive Strength: Minimum 25 psi.
  - 7. Board Edges: Square edges.
- B. Extruded Polystyrene Insulation for Underslab: ASTM C578 Type VI, cellular extruded polystyrene board; with following characteristics:
  - 1. Board Density: 1.80 lb/cu ft.
  - 2. Board Size: 48 x 96 inch [cut to fit to conditions].
  - 3. Board Thickness: 2 inches
  - 4. Thermal Resistance: R of 10.0.
  - 5. Water Absorption: According to ASTM D2842; **0.3** percent by volume maximum.
  - 6. Compressive Strength: Minimum 40 psi.
  - 7. Board Edges: Square edges.
- C. Thermal Batt Insulation for Exterior Walls: ASTM C665, preformed glass fiber batt, friction fit, conforming to the following:
  - 1. Thermal Resistance: R 21
  - 2. Facing: Kraft faced [asphalt treated mesh reinforced kraft paper]
    - a. If not kraft faced, provide 4 mil vapor barrier at interior face of insulation [warm side of wall]
- D. Sound Attenuation Batt Insulation for Interior Walls: ASTM C665, Type I, preformed glass fiber batt, friction fit:
  - 1. Thickness: 3 inch and 6 inch to match wall thickness
  - 2. Facing: Unfaced.
- E. Blown In Insulation in Attics: Fiber Fill Insulation ASTM C764, glass fiber type, bulk for pneumatic placement
  - 1. Thermal Resistance: R 38
- F. Fire Resistance Rated Batt Insulation: ASTM C665, preformed mineral wool insulation, friction fit
  - 1. Size / thickness as required for fire resistance rated assemblies.
  - 2. Facing: Unfaced.
- G. Foamed in Place Insulation: ASTM C1029, Type II, Two-component, Closed Cell Polyurethane
  - 1. Thermal Resistance: R of 6.9 per inch.
  - 2. Compressive Strength: 25 psi.

## 2.3 ACCESSORIES

- A. Adhesive: Type recommended by insulation manufacturer for application.
- B. Tape: Polyester self-adhering type, mesh reinforced, 2 inch wide.
- C. Insulation Fasteners: Steel impale spindle and clip on flat metal base, self adhering backing, length to suit insulation thickness, capable of securely and rigidly fastening insulation in place.
- D. Primer for Foamed in Place Insulation: As required by insulation manufacturer.
- E. Overcoat for Exposed Foamed in Place Insulation: As required by insulation manufacturer.
- F. Ventilation Baffles: Formed plastic or cardboard, sized to fit between framing members.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify substrate, adjacent materials, and insulation boards are dry and ready to receive insulation.

### **3.2 INSTALLATION**

- A. Foundation Insulation:
1. Install insulation boards at interior face of foundation wall, vertically.
  2. Place boards to maximize contact bedding, adhere in place with adhesive as applicable to the conditions.
  3. Extend boards over control joints, leave unbonded to foundation.
  4. Cut and fit insulation tight to protrusions or interruptions in insulation plane.
  5. Protect insulation boards from damage after installation and prior to concrete slab on grade being cast in place.
- B. Underslab Insulation
1. Install insulation boards over compacted gravel base and vapor barrier. Insulation to be installed at areas of shop slab on grade only.
  2. Place boards to maximize contact bedding, adhere in place as applicable to the conditions.
  3. Extend boards over control joints, leave unbonded.
  4. Cut and fit insulation tight to protrusions or interruptions in insulation plane.
  5. Protect insulation boards from damage after installation and prior to concrete slab on grade being cast in place.
- C. Thermal Batt Insulation:
1. Install in exterior wall stud cavities without gaps or voids. Do not compress insulation.
  2. Trim / fit insulation tight in spaces. Leave no gaps or voids. Insulate miscellaneous gaps and voids.
  3. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within plane of insulation.
  4. Install with factory applied vapor retarder membrane facing warm side of building spaces. Lap ends and side flanges of membrane over framing members.
  5. Staple facing flanges in place at 12 inches on center, or as recommended by insulation manufacturer.
  6. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.
- D. Sound Attenuation Batt Insulation:
1. Install in wall stud cavities without gaps or voids.
  2. Fit insulation tight in spaces. Leave no gaps or voids.
  3. Install friction fit insulation tight to framing members, completely filling prepared spaces.
- E. Fire Resistance Rated Assemblies:
1. Install in voids and cavities without gaps or voids in fire resistance rated assemblies in accordance with UL Assembly criteria and / or Building Department requirements.
- F. Blown In Attic Insulation:
1. Verify light fixtures have thermal cut-out devices to restrict overheating in soffit or ceiling spaces.
  2. Verify spaces are unobstructed to allow placement of insulation.
  3. Place insulation pneumatically in ceiling cavities to achieve R 38 insulation value.
  4. Place insulation against baffles. Do not impede natural attic ventilation to soffit.
  5. Place against and behind mechanical and electrical devices within the plane of insulation.
  6. Completely fill intended spaces. Leave no gaps or voids.
- G. Foamed In Place Insulation:
1. Mask and protect adjacent surfaces from overspray or dusting.

2. Apply primer as applicable for the conditions and in accordance with manufacturer installation instructions.
  3. Spray apply insulation to uniform monolithic density without voids.
  4. Apply to fit the requirements of the irregular void or condition.
  5. Apply overcoat where required.
- H. Miscellaneous gaps and cracks in building envelope: Fill gaps with expanding foam sealant where applicable such as gaps at window and door openings, etc. Install minimal expansion foam at all locations where sealant may bow or warp materials.
- I. Expanding foam sealant: Install at all penetrations of ductwork, conduits, etc. through the floor, walls or ceiling. Cap all chases with a rigid air barrier as applicable for the condition.

**END OF SECTION**

## SECTIONS 07 62 00 - SHEET METAL, FLASHING AND TRIM

### PART 1 GENERAL

#### 1.1 WORK INCLUDES BUT NOT LIMITED TO:

General: Intent of project is to provide new sheet metal components for the roof systems and related fascia / rake components.

- A. Installation of new sheet metal items:
  - 1. Drip edges [face less than 3 ½ inches, non-wind rated]
  - 2. Fascia and rake metal covers.
  - 3. Fasteners.
  - 4. Bib flashing, counter flashing and other sheet metal items.
  - 5. Gutters and downspouts.

#### 1.2 APPLICABLE REFERENCES

- A. General: The following references form a part of this specification.
  - 1. ASTM A653 Metallic Coated, Sheet Steel [Galvanized], Grade A, Hot Dipped, Zinc Coated, Coating Class G90.
  - 2. ASTM A792, Metallic Coated, Sheet Steel [Galvalume and Galvalume plus], Grade 40, Coating Class A250 [galvalume] or AZ55 [galvalume plus], 55 % Aluminum-45 % Zinc Alloy.
  - 3. ASTM A755, Pre-Finished, Sheet Steel [Galvanized/galvalume], Grade 40, Coating Class A250 or G90, Pre-painted by the coil coating process.
  - 4. ASTM B209, Aluminum.
  - 5. ASTM E108 Fire Test of Roof Coverings.
  - 6. [FMG] Factory Mutual Global - Current Approval System [NAV assembly numbers], Loss Prevention Data Sheets for Roof Deck Securement for Above Deck Roof Components, Perimeter Flashings, Wind Design-ANSI/FM 4474, Approval Standard FM 4470 and Roof Loads for Construction
  - 7. [UL] Underwriters Laboratories - Roofing Materials and Systems Directory, Fire Resistance Directory, Current Edition.
  - 8. [NRCA] National Roofing Contractors Association - Current Roofing and Waterproofing Manual, including shop-fabricated edge metal testing data.
  - 9. [AISC] Manual of Steel Construction
  - 10. [SMACNA] Sheet Metal and Air Conditioning Contractors Association-Current Manual
  - 11. [OSHA] Occupational Safety and Health Administration, Guidelines
  - 12. [ASCE] 7-10 Minimum Design Loads for Buildings
  - 13. [ANSI/SPRI/FM] 4435 standard ES-1-17 Wind Design for Edge Systems
  - 14. [NFPA] National Fire Protection Association, 58 Liquefied Petroleum Gas Code
  - 15. [ANSI/SPRI] WD-1 Wind Design Standards

#### 1.3 QUALITY ASSURANCE

- A. Fabricator/Installer: Company specializing with skilled workers in sheet metal with minimum five years documented experience, never been terminated by a manufacturer for workmanship problems and be capable of providing the warranties as specified.
- B. Sheet Metal items and installation shall comply with SMACNA's [Architectural Sheet Metal] and NRCA [Roofing] current manuals.

#### 1.4 COORDINATION

- A. Coordinate sheet metal flashing, trim layout installation with adjoining roofing to provide a leakproof, secure, non-corrosive installation.

### 1.5 PERFORMANCE REQUIREMENTS

- A. Fire Hazard Classification: Underwriters Laboratories [UL], Use only Class A fire-rated materials as tested in accordance with ASTM E 108 or UL 790 for exterior fire.
- B. Install sheet metal items to withstand wind loads, structural movement, by preventing buckling, opening of joints, hole elongation, failure of joint sealant, failure of connections and other detrimental effects.
- C. All perimeter metal items [copings and edges] must have been tested to resist equal or greater wind design load.

### 1.6 DELIVERY, STORAGE and HANDLING

- A. Do not overload structure with storage of materials; verify roof deck weight capacity and location of structural supports, only items needed that day shall be stored on the roof. Limit loads on roof to 25 pounds per square foot for uniformly distributed loads for wood decks. Store and protect products in accordance with manufacturer's instructions.
- B. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact. Protect sheet metal items during transportation and handling.
- C. Store products in weather-protected environment [manufacturer's plastic wrap is accepted for proper protection, unless wrap is broken, torn, removed], clear of ground 4 inches minimum and exposure from direct sunlight. Use breathable tarps for moisture protection as needed. Damaged materials will be marked 'rejected' by the Contractor / Owner or RDA and removed from the site.
- D. Storage of flammable liquids in buildings is prohibited. All combustible debris shall be removed from the site daily.

### 1.7 WEATHER CONDITIONS

- A. Do not apply materials during inclement weather, high winds or when the chance of rain is 60% or greater, percentage as listed on [www: weather.com](http://www.weather.com) for the local area, percentage as listed when read at 7 AM local time or at time of work commencement.

### 1.8 SEQUENCING and SCHEDULING

- A. Building space underneath roof work is utilized by on-going operations. Coordinate all work with Owner including, material storage, scaffolding [as required] and Contractor parking. Owner's approval required before proceeding with the work. **Contractor must provide overhead protection from falling materials/debris at building entry points.**

### 1.9 MANUFACTURERS WARRANTIES

- A. Provide a manufacturer's warranty for both repairs/replacements due to any faults in the material and workmanship. Any repairs/replacement due to normal wear and tear, material finish defects and workmanship defects. Warranty shall cover finish fading, chalking, cracking, peeling or failure of paint to adhere to base metal.
  - 1. Sheet metal manufacturer of record must provide a [20] twenty-year finish warranty for the metal fascia, coping and edge as outlined herein, covering, finish and base metal. Warranty shall be a lifetime warranty for defects of material or failure to resist wind speeds.
- B. In the event of a default by the contractor, the manufacturer will provide a new contractor to fulfill the warranty obligation.

### 1.10 DEFINITIONS

- A. Shop fabricated includes items that will be formed at the fabricators shop predominately by press brake. Prefabricated or manufactured items will be plant manufactured ready for installation. Both items must be wind rated in compliance with ANSI/SPRI/FM ES-1-17

## PART 2 PRODUCTS

General: All products shall be state approved and Building Code approved as applicable. Some items below may not be required for this project, but are outlined herein if required during course of work due to changing conditions or changes in scope.

### 2.1 FABRICATION

- A. Fabricate sheet metal items to comply with recommendations in SMACNA [architectural Sheet metal manual] and NRCA's [the NRCA roofing manual]. Conceal fasteners and expansion provisions where possible on exposed to view items. Provide expansion provisions as recommended where lapped or bayonet type expansion cannot be used.

### 2.2 FASTENERS/SPECIALTY ITEMS

General: Fasteners/Anchors: strength, type and configuration must meet the required pull test resistance for each attachment application. Fasteners rate and pattern must be FMG or local code approved to meet the intent of the wind uplift rating specified. The Contractor shall determine fastener lengths, minimum embedment: steel 3/4-inch, concrete/concrete block-1 ¼ inch, wood-1 1/4 inch. Fastener manufacturers listed are ITW Buildex, IWT Red Head and Tru-Fast or Equal. All fasteners shall be corrosion resistant steel in accordance with meeting ASTM F1667 or type 304 - 316 stainless.

**A. Summary of fasteners and requirements are as follows:**

1. Metal Counterflashing and other LG metal sheets to Wood, ITW Buildex, 'Scots Tek's' [AB point] stainless steel-hex head, ¼ inch, corrosion resistance steel shank with EPDM washer.
2. Metal Counterflashing and Other LG Sheet Metal [exposed] to Masonry, ITW Red Head, 1/4 inch, 'Scots Tapcon', stainless steel-hex head, HL treads, corrosion resistant steel shank, with EPDM washer.
3. Termination Bars [exposed] to Masonry, ITW Red Head, ¼ inch, 'Scots Tapcon', stainless steel-hex head, HL treads, corrosion resistant steel shank, with EPDM washer.
4. General Purpose Stainless Steel: Series 304 fasteners, with or w/out EPDM washers.

**B. Summary of specialty items and requirements as follows:**

1. Continuous Cleats: Galvanized steel, 22 gauge or .024 aluminum.
2. Counter-flashing: Pre-finished, 24 gauge metal or .032 aluminum, fabricated in lengths maximum 12 feet, designed to be removable. CF to be notched and lapped at inside corners and joints. Flashings shall be provided at the intersection of the roofs, adjoining walls or projections through the deck [chimney/ vent stacks etc.].
3. Exposed Flashing: 26 gauge pre-finished metal, brake formed to profiles required. [Coordinate with Building Manufacturer Requirements]
4. Concealed Flashing: 26 gauge pre-finished metal, brake formed to profiles required. [Coordinate with Building Manufacturer Requirements]
5. Fascia / Rake Cover: 24 gauge pre-finished metal, brake formed to profiles required. [Coordinate with Building Manufacturer Requirements]
6. Downspouts: .024 inch thick pre-finished aluminum or 26 gauge pre-finished metal, corrugated rectangular profile with smooth with flat lock seams, complete with mitered elbows, size 3 x 4 inches, unless otherwise noted.
7. Gutter: .032 inch thick pre-finished aluminum or 24 gauge pre-finished metal, K style profile, continuous, straight back, size 6 inch x 4 1/2 inch, with gutter spacers, spaced at 24 inches on center. Complete with end pieces, outlet tubes and other items required. Fabricate expansion joints, expansion joint covers with same metal as the gutter. Longest length possible, 50 foot maximum, between expansion butt joints.
8. Downspout Hangers: 1/16-inch-thick aluminum. Straps with hidden anchors
9. Drip Edge at Metal Roof Systems: 26 gauge prefinished metal [Coordinate with Building Manufacturer Requirements]

10. Step Flashing, Sheet Metal: 24 gauge pre-finished galvanized metal as shown.

### 2.3 SHEET METAL

General: All metal shall be shop fabricated in accordance with SMACNA 6th Edition or other details or pre-manufactured as shown. All pre-finished metal shall be fabricated using galvanized steel unless not available [Coordinate with Building Manufacturer Requirements].

- A. Pre-Finished Sheet Steel [Galvanized]: ASTM A755/A653, G90, 22, 24, or 26 gauge [as noted], primed and preprinted by coil coating, finished exposed to view side with a fluoropolymer Kynar 500 coating and a wash coat .5 mil thick applied to the reverse side, 20-year warranty covering fade, chalking and film integrity.
  - 1. Colors as selected by Owner [Coordinate with finish selections of Building manufacturer / siding panels / trim]
- B. Pre-Finished Aluminum: ASTM B209, 3105 H15 alloy, thickness .032, .040 or .050 [or as noted], primed and repainted by the coil coating, finished exposed to view side with a fluoropolymer kynar 500 PVDF resin coating and a wash coat .5 mil thick applied to the reverse side, 20-year warranty covering fade, chalking and film integrity.
  - 1. Colors as selected by Owner [Coordinate with finish selections of Building manufacturer / siding panels / trim]
- C. Galvanized Sheet Steel: ASTM A653, hot dipped, zinc-coated, G90, gauges as shown.

### 2.4 SEALANTS/TAPES

General: Provide joint sealants, backings and other materials as required to seal joint that are compatible with each other based on test and field experience.

- A. ASTM C920, Type S, Grade NS, Class 25 as required for each joint condition, single component, elastomeric silicone polymer, non-staining, non-shrinking, non-sagging and ultra-violet resistance, clear or to match surrounding existing color.
  - 1. Provide where sealant is exposed or movement exceeds butyl sealant capability.
- B. Gutter: GE Silicone II or equal, Clear in color.
- C. Butyl Sealant: ASTM C1311, single component, solvent released butyl rubber sealant, polyisobutylene plasticized.
- D. Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealing tape with release paper.

### 2.5 ACCESSORIES

- A. Anchors and Supports: Profiled to suit gutters and downspouts.
  - 1. Anchoring Devices: Hidden hanger / anchors In accordance with SMACNA requirements with screw type fasteners.
  - 2. Gutter Supports: Concealed Hanger Brackets.
  - 3. Aluminum Downspout Supports: Straps with hidden fasteners.
- B. Splash guard: Pre-finished aluminum valley splash guards, standard size and type.
- C. Gutter Expansion Joint: SMACNA Figure 1-6 Lap Type Gutter Expansion Joint. Locate at 50' maximum intervals.
- D. Fasteners: Hidden screw type, same material and finish as gutters and downspouts.
- E. Primer: Zinc molybdate and Galvanized iron type for aluminum.



### **PART 3 EXECUTION**

#### **3.1 EXAMINATION AND CONDITIONS**

- A. Verify that surfaces and site conditions are ready to receive work.

#### **3.2 PROTECTION**

- A. Protect building surfaces/interior spaces against damage from work.
- B. Provide, erect barricades, guardrails as required by applicable regulatory advisory to protect occupants of building and workers.

#### **3.3 INSTALLATION OF SHEET METAL AND SPECIALTY ITEMS**

General: Sheet metal items shall be installed in accordance with manufacturers and NRCA's / SMACNA recommendations and details from their current manual. Anchor sheet metal items securely in place with provisions for expansion. Use items as required to complete the sheet metal or drainage system. Where dissimilar metals contact each other, protect against galvanic action by coating material as recommended by the fabricator. Seal joints with sealant as required for a watertight condition.

- A. Continuous cleat [for non-pre-manufactured metal components]: Cleats shall not exceed 12 feet in length; allow a ¼ inch gap between pieces. Fasten cleat to wood nailer top as applicable at 4 inches on center [staggered pattern-1 inch from edge] with corrosion resistant annular threaded nails [3/16-inch head], long enough to penetrate the wood 1 ¼ inch.
- B. Termination bars shall be placed no more than 1 1/2 inches down from top of base flashing and be fastened at 6 inches on center with concrete self-tapping [tapcon] or wood fasteners, as applicable fitted with an EPDM washer. Provide sealant at top edge of bars.
- C. Counter-flashing [CF] shall be surfaced mounted [SM] or in existing or new reglets / receivers with lap joints 4 inches. Attach SM with concrete self-tapping [tapcon] or wood fasteners, as applicable fitted with an EPDM washer at 12 inches on center, 1-inch minimum embedment. Attach reglets installed CF with components recommended by the manufacturer, including metal wedges and edge crimping. Apply a bead of sealant on the top of 45% angle lip of the metal flashing, if SM type. CF shall overlap base flashing a minimum of three inches, fit tightly to base flashing and shall terminate no lower than 4 inch above finished roof surface, unless approved by the manufacturer.
- D. Downspouts shall be attached to the gutter with screws. Ensure downspout sections are attached to the wall with 1-inch-wide, .063-inch-thick aluminum straps [2 per 10 foot section] - Fig 1-35G SMACNA 6<sup>th</sup> Edition, using 2 fasteners per strap. Downspouts terminating at ground shall be provided with an elbow fitting and a concrete splash block.
- E. Gutter to be attached to fascia / substrate at 24 inches on center with stainless steel screws thru spacers/gutter back. Screws to penetrate wood 1 ¼ inch. Provide mitered corners, end caps, splash guards and other items required. Drip edge shall extend into gutter 2-3 inches.

#### **3.4 INSTALLATION**

- A. Comply with SMACNA's "Architectural Sheet Metal Manual." Allow for thermal expansion; set true to line and level. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible.
  - 1. Roof-Edge Flashings: Secure metal flashings at roof edges according to FM Loss Prevention Data Sheet 1-49 for specified wind zone.
- B. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.
- C. Fabricate nonmoving seams in sheet metal with flat-lock seams. For metals other than aluminum, tin edges to be seamed, form seams, and solder.

- D. Separations: Separate non-compatible metals or corrosive substrates with a coating of asphalt mastic or other permanent separation.
- E. Install pre-finished metal flashings as required by conditions and as necessary to watershed adjacent building materials and components.
- F. Install pre-finished metal cladding / cover over wood fascia in continuous lengths, brake formed to suit conditions.
- G. Install gutters in one continuous sections sloped at  $\frac{1}{4}$ "-  $\frac{1}{2}$ " every 20'-0" maximum. Anchor gutters to building using concealed gutter hanger brackets at 24 inches on center typical screwed directly into fascia/building structure. Attach aluminum gutters to fascia between  $\frac{1}{2}$ " and 1" below drip edge of shingle. Shingle should extend 1" over gutter.
  - 1. Install gutter expansion joints at maximum of 50' intervals.
- H. Sheet Metal: Join lengths with formed seams sealed watertight. Flash and seal gutters to downspouts and accessories.
- I. Direct downspout to discharge to underground storm drain piping connect via adaptor sized to fit downspout.

### **3.5 CLEANING**

- A. In areas where finished surfaces are soiled by any other source of soiling caused by work of this section, consult manufacturer for cleaning advice.

**END OF SECTION**

## SECTION 07 84 00 - FIRESTOPPING

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Firestopping through-penetrations of fire rated assemblies.
  - 2. Firestopping joints in fire rated assemblies.
  - 3. Firestopping tops of fire rated walls.
  - 4. Smoke sealing at joints between floor slabs and exterior walls.
  - 5. Smoke sealing penetrations and joints of smoke partitions.

#### 1.2 REFERENCES

- A. ASTM International:
  - 1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
  - 3. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
  - 4. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.
- B. Forest Stewardship Council:
  - 1. FSC Guidelines - Forest Stewardship Council Guidelines.
- C. Intertek Testing Services (Warnock Hersey Listed):
  - 1. WH - Certification Listings.
- D. South Coast Air Quality Management District:
  - 1. SCAQMD Rule 1168 - Adhesive and Sealant Applications.
- E. Underwriters Laboratories Inc.:
  - 1. UL 263 - Fire Tests of Building Construction and Materials.
  - 2. UL 1479 - Fire Tests of Through-Penetration Firestops.
  - 3. UL 2079 - Tests for Fire Resistance of Building Joint Systems.
  - 4. UL - Fire Resistance Directory.

#### 1.3 DEFINITIONS

- A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Conform to UL for fire resistance ratings and surface burning characteristics.

#### 1.5 SUBMITTALS

- A. Product Data: Submit data on product characteristics, performance and limitation criteria.
- B. Manufacturer's Installation Instructions: Submit preparation and installation instructions.
- C. Manufacturer's Certificate: Certify products meet or exceed specified requirements and applicable code requirements.

## 1.6 QUALITY ASSURANCE

- A. Through Penetration Firestopping of Fire Rated Assemblies: UL 1479 or ASTM E814 with 0.10 inch water gage minimum positive pressure differential to achieve fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
  - 1. Floor / Wall Penetrations: Fire F-Ratings as indicated on Drawings, but not less than 1-hour.
- B. Through Penetration Firestopping of Non-Fire Rated Floor and Roof Assemblies: Materials to resist free passage of flame and products of combustion.
- C. Fire Resistant Joints in Fire Rated Floor, Roof, and Wall Assemblies: ASTM E1966 or UL 2079 to achieve fire resistant rating as indicated on Drawings for assembly in which joint is installed.
- D. Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

## 1.7 ENVIRONMENTAL REQUIREMENTS

- A. Maintain this minimum temperature before, during, and for minimum 3 days after installation of materials.
- B. Provide ventilation in areas to receive solvent cured materials.

## PART 2 PRODUCTS

### 2.1 FIRESTOPPING

- A. Manufacturers:
  - 1. 3M Fire Protection Products
  - 2. United States Gypsum Co.
  - 3. Equal.
- B. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.
  - 1. Silicone Firestopping Elastomeric Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
    - a. Interior Sealants and Sealant Primers: Maximum volatile organic compound content in accordance with SCAQMD Rule 1168.
  - 2. Foam Firestopping Compounds: Single component foam compound.
  - 3. Fiber Stuffing and Sealant Firestopping: Composite of mineral fiber stuffing insulation with silicone elastomer for smoke stopping.
  - 4. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.

### 2.2 ACCESSORIES

- A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.
- B. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify openings are ready to receive firestopping.

**3.2 PREPARATION**

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.
- B. Remove incompatible materials affecting bond.
- C. Install backing materials to arrest liquid material leakage.

**3.3 APPLICATION**

- A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.
- B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.
- C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating, to uniform density and texture.
- D. Place foamed material in layers to ensure homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.

**3.4 FIELD QUALITY CONTROL**

- A. Inspect installed firestopping for compliance with specifications and submitted schedule.

**3.5 PROTECTION OF INSTALLED CONSTRUCTION**

- A. Protect adjacent surfaces from damage by material installation.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 07 90 00 - JOINT PROTECTION

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes sealants and joint backing.

#### 1.2 SUBMITTALS

- A. Product Data: Submit data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
  - 1. Certify volatile organic compound for each interior adhesive and sealant and related primer.
    - a. All sealants must comply with Regulation 8, Rule 51 of the Bay Area Air Quality Management District.

#### 1.3 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature and humidity recommended by sealant manufacturer during and after installation.

#### 1.4 QUALITY ASSURANCE

- A. Sealant shall be installed by a qualified sealant applicator for any/all joint sealant exposed to view. Owner reserves the right to request a mockup of the quality for the joint sealant installation.

### PART 2 PRODUCTS

#### 2.1 JOINT SEALERS

- A. Manufacturers:
  - 1. Tremco [basis of design]
  - 2. Sika
  - 3. GE Silicones.
  - 4. Pecora Corp.
  - 5. DAP
- B. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- C. Low-Emitting Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Liquid-Applied Sealants: Comply with ASTM C920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- E. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- F. Additional Movement Capability: Where additional movement capability is specified, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C719, to withstand the specified percentage change in the joint width existing at the time of installation and remain in compliance with other requirements of ASTM C920 for uses indicated.
- G. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range, unless otherwise noted.

## 2.2 SILICONE JOINT SEALANTS:

- A. **Type S-1:** Single component, nonsag, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100/50, Use NT
  - 1. Tremco Spectrem 1 or Spectrem 800 or Equal
- B. **Type S-2:** Single Component, nonsag, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 50, use NT
  - 1. Tremco Spectrem 2 or Spectrem 3 or Equal
- C. **Type S-3:** Multi-Component, Nonsag, Silicone Joint Sealant: ASTM C920, Type M, Grade NS, Class 50, Use NT
  - 1. Tremco Spectrem 4-TS or Equal
- D. **Type S-4:** Single Component, nonsag, Traffic-Grade, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100/50, Use T
  - 1. Tremco Spectrem 800 or Equal
- E. **Type S-5:** Mildew Resistant, Single Component, Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT
  - 1. Tremco Tremsil 200 Sanitary or Equal

## 2.3 URETHANE JOINT SEALANTS

- A. **Type U-1:** Single Component, nonsag, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 25 or 35, Use NT:
  - 1. Tremco Dymonic or Dymonic FC or Equal
- B. **Type U-2:** Single Component, nonsag, Traffic Grade, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, Use T.
  - 1. Tremco Vulkem 116 or Equal.
- C. **Type U-3:** Multi-Component, nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use T.
  - 1. Tremco Dymeric 240 or Dymeric 240 FC or Equal
- D. **Type U-4:** Multi-Component, nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use NT.
  - 1. Tremco Vulken 227 or Equal
- E. **Type U-5:** Multi-Component, nonsag, Traffic Grade, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, Use T.
  - 1. Tremco Vulken 227 or Equal

## 2.4 BUTYL JOINT SEALANTS

- A. **Type B-1:** Butyl Rubber based Joint Sealants: ASTM C 1311
  - 1. Tremco General Purpose Butyl Sealant or Equal

## 2.5 LATEX JOINT SEALANTS

- A. **Type L-1:** Latex Joint Sealant: Acrylic latex or Siliconized Acrylic Latex: ASTM C834, Type OP, Grade NF or better
  - 1. Tremco Tremflex 834 or Equal.
- B. **Type L-2:** Paintable Mildew-Resistant Latex Joint Sealant: Acrylic Latex or Siliconized Acrylic Latex: ASTM C834, Type OP, Grade NF or better.
  - 1. Tremco Tremflex 834 or Equal.

## 2.6 ACCESSORIES

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.



- B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
  - 1. Oversized to 30 to 50 percent larger than joint width.
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.
- E. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated. Non-staining type, recommended by sealant manufacturer to suit application.
- F. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- G. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify substrate surfaces and joint openings are ready to receive work.
- B. Verify joint backing and release tapes are compatible with sealant.

#### **3.2 PREPARATION**

- A. Remove loose materials and foreign matter impairing adhesion of sealant.
- B. Clean and prime joints.
- C. Perform preparation in accordance with ASTM C1193.

#### **3.3 INSTALLATION**

- A. Perform installation in accordance with ASTM C1193.
- B. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.
- C. Install bond breaker where joint backing is not used.
- D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.**
- E. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- F. Tool joints concave.

#### **3.4 SCHEDULE**

- A. Joint-Sealant Application: Exterior joints in vertical surfaces and non-traffic horizontal surfaces.
  - 1. Joint locations such as, but not limited to:
    - a. Construction joints in cast-in-place concrete.
    - b. Control joints in unit masonry.

- 1) Provide joint sealants slightly darker than the adjacent masonry units. Provide multiple colors as may be required for match.
  - c. Perimeter joints between masonry, concrete, or stone and frames of doors, windows, storefronts, louvers, and similar openings.
  - d. Lintels and shelf angles to masonry construction.
  - e. Butt joints between metal panels.
  - f. Control and expansion joints in ceiling/soffit and similar overhead surfaces.
  - g. Exterior joints between dissimilar materials where the joining of the two surfaces leaves a gap between the meeting materials or components as may be dictated by various methods of construction to make building watertight.
  - h. Other joints as indicated on Drawings.
  2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-1, Type S-2, Type S-3**
  3. Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
1. Joint locations such as, but not limited to:
    - a. Isolation joints in cast-in-place concrete slabs.
    - b. Perimeter of floor slabs or concrete curbs which abut vertical surfaces.
    - c. Areas around all piping systems that penetrate the slab or foundation walls below grade (utility trenches, electrical conduits, plumbing penetrations, etc.).
    - d. Control and expansion joints in tile flooring.
    - e. Other joints as indicated on Drawings.
  2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-4**
  3. Color: As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces, subject to movement, unless otherwise noted.
1. Joint locations such as, but not limited to:
    - a. Control joints on exposed interior surfaces of exterior walls.
    - b. Interior joints where interior partitions meet exterior walls of dissimilar materials and components.
    - c. Other joints as indicated on Drawings.
  2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type U-1**
  3. Color: As selected by Architect from manufacturer's full range of colors. Paintable Sealant, prep for painted finish.
- D. Joint-Sealant Application: Interior joints in vertical surfaces subject to abuse and movement.
1. Joint locations such as, but not limited to:
    - a. Vertical joints, including control joints and joints between masonry and structural support members, on exposed surfaces of interior unit masonry walls and partitions.
  2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type U-2**
  3. Color: As selected by Architect from manufacturer's full range of colors.
- E. Joint-Sealant Application: Interior joints in vertical surfaces not subject to movement.
1. Joint locations such as, but not limited to:
    - a. Interior perimeter joints of exterior openings.
    - b. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
    - c. Interior joints between dissimilar materials where a gap is created where materials meet, unless otherwise noted.
  2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type L-1, Type L-2**
  3. Color: As selected by Architect from manufacturer's full range of colors.

- F. Joint-Sealant Application: Mildew-resistant interior joints in non-painted vertical surfaces and horizontal nontraffic surfaces.
  - 1. Joint locations such as, but not limited to:
    - a. Interior joints between plumbing fixtures and adjoining floors and counters.
    - b. Joints between countertops and backsplashes.
    - c. For interior joints in non-painted vertical and horizontal surfaces where incidental food contact may occur.
    - d. Tile control and expansion joints where indicated.
    - e. Other joints as indicated on Drawings.
  - 2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-5**
    - a. For potable water storage sealant shall be certified by National Sanitation Foundation as conforming to the requirements of NSF Standard 61 – Drinking Water System Components – Health Effect.
    - b. For surfaces where incidental food contact may occur sealant must comply with United States Department of Agriculture (USDA) guidelines for incidental food contact with cured sealant.
  - 3. Color: As selected by Architect from manufacturer’s full range of colors.
- G. Joint-Sealant Application: Mildew-resistant interior joints in painted vertical surfaces and horizontal non-traffic surfaces.
  - 1. Joint locations such as, but not limited to:
    - a. Interior joints between plumbing fixtures and adjoining painted walls.
    - b. Joints where countertops or backsplashes intersect painted walls.
    - c. For interior joints in painted vertical and horizontal surfaces where incidental food contact may occur.
  - 2. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type L-2**
  - 3. Color: As selected by Architect from manufacturer’s full range of colors.
- H. Joint-Sealant Application: Interior or exterior joints in vertical surfaces between laps in fabrications of sheet metal.
  - 1. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type U-1**
  - 2. Color: As selected by Architect from manufacturer’s full range of colors.
- I. Joint-Sealant Application: Exterior joints under metal thresholds and saddles, sill plates, or as bedding sealant for sheet metal flashing and frames of metal or wood.
  - 1. Provide one of the following acceptable sealants as approved by manufacturer for substrates and uses indicated: **Type S-1, Type U-1, Type B-1**
  - 2. Color: As selected by Architect from manufacturer’s full range of colors.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes steel doors and frames; non-rated.

#### 1.2 SUBMITTALS

- A. Shop Drawings: Indicate door and frame elevations, internal reinforcement, cut-outs for glazing, and finishes.
- B. Product Data: Submit door and frame configurations, location of cut-outs for hardware reinforcement.

#### 1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with the following:
  - 1. ANSI 250.8 - Recommended Specifications for Standard Steel Doors and Frames.
  - 2. DHI - Door Hardware Institute - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
- B. Fire Rated Door Construction: Conform to NFPA 252.
- C. Surface Burning Characteristics:
  - 1. Foam Insulation: Maximum 75/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
- D. Apply label from agency approved by authority having jurisdiction to identify each foam plastic insulation material.

### PART 2 PRODUCTS

#### 2.1 STEEL DOORS AND FRAMES

- A. Manufacturers:
  - 1. Ceco Door Products.
  - 2. Fleming Steel Doors and Frames.
  - 3. Kewanee Corp.
  - 4. Republic Doors.
  - 5. Steelcraft.
- B. Product Description: Standard shop fabricated steel doors, and frames; fire rated and non-rated types; flush face.

#### 2.2 DOOR TYPES

- A. Exterior Doors (Insulated): ANSI A250.8, SDI 108, 1-3/4 inch thick.
  - 1. Level 3 – Extra Heavy Duty, Model 1, full flush design, 16 gauge face galvanized sheets, steel construction, factory applied baked on primer.
  - 2. Door Face sheets: One sheet of metal with no visible seams.
  - 3. Lock and Hinge Edge: Continuously of spot welded full height of door, with welds filled and ground smooth.
  - 4. Top: Closed with a flush steel and closure treatment.
  - 5. Bottom: Closed with a recessed channel end closure.
  - 6. Interior Core: Foamed in place, closed cell, polyurethane chemically bonded to the door face sheets.
- B. Interior Doors (Non-Rated and Rated): ANSI A250.8, SDI 108, 1-3/4 inch thick.

1. Level 3 – Extra Heavy Duty, Model 1, full flush design, 16 gauge cold rolled steel, factory applied baked on primer.
2. Door Face sheets: One sheet of metal with no visible seams.
3. Lock and Hinge Edge: Continuously of spot welded full height of door, with welds filled and ground smooth.
4. Top: Closed with a flush steel and closure treatment.
5. Bottom: Closed with a recessed channel end closure.
6. Interior Core: Honeycomb or polystyrene core bonded to both door skins, unless otherwise required in rated doors. Foamed in place, closed cell, polyurethane chemically bonded to the door face sheets.
7. Prep for glazing as indicated on drawings, Refer to Section 08 80 00.

### **2.3 FRAME TYPES**

- A. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.
- B. Thermal Break Exterior Frames: Subject to the same compliance standards and requirements as standard hollow metal frames. Tested for thermal performance in accordance with NFRC 400. Exterior frames shall be thermally broken for use in masonry construction. Fabricate with 1/16 inch positive thermal break and integral vinyl weatherstripping.
- C. Frames for exterior door openings shall be fabricated with 2 inch face at jambs, heads and mullions, unless otherwise indicated.
  1. 16 gauge steel, galvanized, A60, steel with factory applied baked on primer, for Level 3 doors.
  2. Thermally break frames with manufacturers standard thermal break material, at exterior openings, unless otherwise noted or fire-rating is required.
- D. Frames for interior door openings and borrowed lights shall be fabricated with 2 inch face at jambs, heads, and mullions, unless otherwise indicated:
  1. 16 gauge steel, cold rolled, factory applied baked on primer, for Level 2 and Level 3 steel doors and wood doors.

### **2.4 FRAME ASSEMBLIES**

- A. Stops and Beads: Furnish minimum 20 gauge metal glazing beads with the hollow metal frames at transoms, side lights, interior glazed panels, and other locations where beads are indicated in pressed steel frames. Glazing beads for exterior frames shall be on the interior side of transoms and sidelights. Glazing beads for interior frames shall be on the same side of door.
- B. Mortar/Plaster Guards: Provide minimum 26 gauge steel plaster guards or mortar boxes, welded to the frame, at back of door hardware cutouts where materials might obstruct hardware operation.
- C. Provide minimum 9 MSG hinge reinforcement, including all doors with continuous type hinges.
- D. Provide minimum 12 MSG frame head reinforcement for closers, surface, and concealed overhead stop and holders, removable mullions, flush bolts, and top latch of vertical rod exit devices.
- E. Door Silencers: Drill stops and install 3 silencers on strike jambs of single swing frames and 2 silencers on heads of double swing frames.
- F. Hollow metal frames requiring continuous hinges shall have a continuous mortar guard of a minimum 26 gauge steel, welded to frame, the full height of the door. Mortar guards shall be shop applied by frame supplier.

- G. Exterior door frames shall be furnished with a mortar box installed, as a junction box for door security monitoring contacts. Install junction box in frame head 12 inches from strike edge of frame to centerline of box. Weld junction box to inside of 1-15/16 inch frame rabbet.
  - 1. Mortar Box
    - a. 10 inch by 1-3/4 inch by 1-3/4 inch inside dimensions.
    - b. Serves as mortar shield.
    - c. Knock outs at each end for standard conduit fittings.

## 2.5 FRAME ANCHORAGE

- A. Jamb Anchors
  - 1. Frames Set in Wood or Metal Stud Partitions: Provide a minimum of three 18 gauge metallic coated "Z" shaped sheet metal jamb anchor clips welded in each jamb.
- B. Provide head anchors at door or window heads over 5 feet wide at minimum 3 feet o.c. mounted in metal-stud partitions.
- C. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottom of jambs.
  - 1. Provide 14 gauge minimum anchors punched for two 3/8 inch diameter bolts each.

## 2.6 FABRICATION

- A. Fabricate steel door and frame units to comply with ANSI A250.8 and to be rigid, neat in appearance, and free from defects, warp, or buckle. Accurately form metal to required sizes and profiles. Wherever practicable, fit and assemble units in the manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at the Project site.
- B. Hollow-Metal Doors:
  - 1. Vertical Edges for Single-Acting Doors: Bevel edges 1/8 inch in 2 inches, unless otherwise noted.
  - 2. Top Edge Closures: Close top edges of doors with inverted closures, except provide flush closure at exterior doors of same material as face sheets.
  - 3. Bottom Edge Closures: Close bottom edge of doors with end closures or channels of same material as face sheets. Coordinate with weatherstripping.
  - 4. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted or as required to comply with published listing of qualified testing agency.
- C. Hollow-Metal Frames: Where frames are fabricated in Sections due to shipping or handling limitations, provide alignment plates of angles at each joint, fabricated of same thickness metal as frames.
  - 1. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings
  - 2. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
    - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- D. Fabricate concealed stiffeners, reinforcement, edge channels, and moldings from either cold rolled or hot rolled steel (at fabricator's option).
  - 1. Minimum hardware reinforcement gage shall comply with Table 4 of ANSI/SDI A250.8 "SDI 100, Recommended Specifications for Standard Steel Doors and Frames".

- E. Clearances for Non-Fire Rated Doors: Not to exceed 1/8 inch at jambs and heads, 3/32 inch between pairs of doors, and 3/4 inch at bottom.
- F. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.
- G. Door Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
  - 1. Prepare hollow metal units to receive mortised and concealed door hardware, including cutouts, steel reinforcing, drilling, and tapping in accordance with final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A250.6 and ANSI/BHMA A156.115 for preparation of hollow-metal work for hardware.
  - 2. Reinforce hollow metal units to receive nontemplated, mortised, and surface mounted hardware. Hardware installer shall drill and tap for surface applied hardware.
- H. Stops and Moldings: Manufacturer's standard, formed from minimum 20 gauge steel sheet stops and moldings around glazed lites and louvers. Form corners of stops and moldings with butted or mitered hairline joints.
  - 1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
  - 2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite are capable of being removed independently.
  - 3. Provide nonremovable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
  - 4. Provide screw applied, removable, glazing stops on inside of glass, louvers, and other panels in doors.
  - 5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

## **2.7 STEEL FINISHES**

- A. General: Comply with recommendations in "Metal Finishes Manual by Architectural and Metal Products (AMP) Division of National Association of Architectural Metal Manufacturers (NAAMM) for applying and designating finishes.
  - 1. Finish standard steel door and frames after assembly.
- B. Metallic Coated Steel Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A780.
  - 1. Galvanizing Repair Paint: High zinc dust content paint for regalvanizing welds in steel, complying with SSPC Paint 20.
- C. Steel Surface Preparation: Clean surfaces to comply with SSPC-SP1, SSPC-SP 3, SSPC-SP 6/NACE No. 3.
- D. Factory Priming for Field Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils.
  - 1. Shop Primer: Manufacturer's standard, fast curing, lead and chromate free primer complying with ANSI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field applied finish paint system indicated; and providing a sound foundation for field applied topcoats despite prolonged exposure.



## 2.8 GLAZING

- A. Refer to Section 08 80 00.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify opening sizes and tolerances are acceptable.

### 3.2 PREPARATION

- A. Prior to installation, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:
  - 1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
  - 2. Alignment: Plus or minus 1/16 inch, measured on jambs on a horizontal line parallel to plane of wall.
  - 3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines,
  - 4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.
- B. Drill and tap doors and frames to receive nontemplated mortised and surface mounted door hardware.

### 3.3 INSTALLATION

- A. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install standard steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Install doors and frames in accordance with ANSI A250.11.
- C. Install fire rated doors and frames in accordance with NFPA 80.
- D. Coordinate installation of doors and frames with installation of hardware specified in Section 08 71 00.
- E. Coordinate door frames with masonry and gypsum board wall construction for frame anchor placement.
- F. Steel Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
  - 1. Non Fire Rated Standard Steel Doors:
    - a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
    - b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
    - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
    - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.
  - 2. Fire Rated Doors: Install with clearances according to NFPA 80.
  - 3. Smoke Control Door Assemblies: Install according to NFPA 105.
- G. Coordinate installation of glass and glazing specified in Section 08 80 00.
- H. Adjust door for smooth and balanced door movement.
- I. Tolerances:
  - 1. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

### 3.4 SCHEDULE

- A. Refer to Drawings.

**END OF SECTION**

## SECTION 08 36 13 - SECTIONAL DOORS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes electrical overhead sectional doors of steel panels of flush design, operating hardware, and controls.

#### 1.2 SYSTEM DESCRIPTION

- A. Operating System: Conform to following criteria:
  - 1. Electric operation with manual operation in case of power failure; transit speed of 12 inches per second.

#### 1.3 SUBMITTALS

- A. Shop Drawings: Indicate opening dimensions and tolerances, component construction, connections and details, anchorage methods and spacing, hardware and locations, and installation details.
- B. Product Data: Submit data on electric operating devices.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit data for motor and transmission, shaft and gearing, lubrication frequency, control adjustments, spare part sources.

#### 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with DASMA 102.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified.
- C. Surface Burning Characteristics:
  - 1. Foam Insulation: Maximum 75/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
- D. Apply label from agency approved by authority having jurisdiction to identify each foam plastic insulation board.

#### 1.6 WARRANTY

- A. Provide two-year warrant on sectional doors, including hardware and operators.

### PART 2 PRODUCTS

#### 2.1 SECTIONAL OVERHEAD DOORS

- A. Manufacturers:
  - 1. Overhead Door Company – Basis of Design, 470 Series Insulated Steel Doors
  - 2. Clopay Building Products
  - 3. Wayne-Dalton Corporation
  - 4. Raynor
  - 5. CHI Overhead Doors
- B. Product Description: Steel sectional overhead doors, electric operation, and associated hardware.
  - 1. Door Assembly: Rigid steel construction; fully insulated on the inside face with continuous steel backing on the inside face. Fabricated with steel end stiles and tongue and groove sections.
  - 2. Door Nominal Thickness: 2 inches thick.

3. Exterior Surface: Ribbed.
4. Exterior Steel: 26 gauge, hot-dipped galvanized with an embossed simulated wood grain texture.
5. Interior Steel: 29 gauge, hot-dipped galvanized
6. Springs: 25,000 cycles.
7. Insulation: Polystyrene. R-value of 9.83; U-value of 0.102.
8. Finish and Color: Two coat baked-on polyester. Color as selected from full range of manufacturer colors.
9. Manual Operation: Pull rope.
10. Electric Motor Operation: Provide UL listed electric operator, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second. Operator shall meet UL325/2010 requirements for continuous monitoring of safety devices.
  - a. Entrapment Protection: Required for momentary contact, includes radio control operation.
    - 1) Pneumatic sensing edge up to 18 feet wide. Constant contact only complying with UL 325/2010.
    - 2) Electric sensing edge monitored to meet UL 325/2010.
    - 3) Photoelectric sensors monitored to meet UL 325/2010.
  - b. Operator Controls:
    - 1) Push-button operated control stations with open, close, and stop buttons.
    - 2) Surface mounting.
    - 3) Interior location.
  - c. Special Operation:
    - 1) Pull switch.
    - 2) Vehicle detector operation.

## 2.2 TRACKS, SUPPORTS, AND ACCESSORIES

- A. Tracks: Manufacturer's standard, galvanized-steel track system of configuration indicated, sized for door size and weight, designed for lift type indicated and clearances shown on Drawings, and complying with ASTM A 653 for minimum G60 zinc coating. Provide complete track assembly including brackets, bracing, and reinforcement for rigid support of ball-bearing roller guides for required door type and size. Slot vertical sections of track spaced 2 inches apart for door-drop safety device. Slope tracks at proper angle from vertical or design tracks to ensure tight closure at jambs when door unit is closed.
- B. Track Reinforcement and Supports: Galvanized-steel track reinforcement and support members, complying with ASTM A 36 and ASTM A 123. Secure, reinforce, and support tracks as required for door size and weight to provide strength and rigidity without sag, sway, and vibration during opening and closing of doors.
  1. Vertical Track Assembly: Track with continuous reinforcing angle attached to track and attached to wall with jamb brackets.
  2. Horizontal Track Assembly: Track with continuous reinforcing angle attached to track and supported at points from curve in track to end of track by laterally braced attachments to overhead structural members.
- C. Weatherseals: Replaceable, adjustable, continuous, compressible weather-stripping gaskets of flexible vinyl, rubber, or neoprene fitted to bottom and top of sectional door unless otherwise indicated.

## 2.3 HARDWARE/SAFETY DEVICES

- A. General: Provide heavy-duty, corrosion-resistant hardware, with hot-dip galvanized, stainless-steel, or other corrosion-resistant fasteners, to suit door type.

- B. Hinges: Heavy-duty, galvanized-steel hinges of not less than 0.079-inch nominal coated thickness at each end stile and at each intermediate stile, according to manufacturer's written recommendations for door size. Attach hinges to door sections through stiles and rails with bolts and lock nuts or lock washers and nuts. Use rivets or self-tapping fasteners where access to nuts is not possible. Provide double-end hinges where required, for doors over 16 feet wide unless otherwise recommended by door manufacturer.
- C. Rollers: Heavy-duty rollers with steel ball-bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Provide 3-inch diameter roller tires for 3-inch wide track and 2-inch diameter roller tires for 2-inch wide track.
- D. Push/Pull Handles: For push-up or emergency-operated doors, provide galvanized-steel lifting handles on each side of door.
- E. Safety Devices
  - 1. Provide roller shields, to help to prevent fingers from getting caught by roller in track.
  - 2. Provide tapered reverse angle mounted tracks, in lieu of standard reverse angle mounted, to keep fingers from reaching in from the outside.
  - 3. Provide center back-hang and rear back-hanging device in case one would ever fail.

## **2.4 LOCKING DEVICES**

- A. Slide Bolt: Fabricate with side-locking bolts to engage through slots in tracks for locking by padlock, located on single-jamb side, operable from inside only.

## **2.5 COUNTERBALANCE MECHANISM**

- A. Torsion Spring: Counterbalance mechanism consisting of adjustable-tension torsion springs fabricated from steel-spring wire complying with ASTM A 229/A 229M, mounted on torsion shaft made of steel tube or solid steel. Provide springs designed for number of operation cycles indicated.
- B. Cable Drums and Shaft for Doors: Cast-aluminum or gray-iron casting cable drums mounted on torsion shaft and grooved to receive door-lifting cables as door is raised. Mount counterbalance mechanism with manufacturer's standard ball-bearing brackets at each end of torsion shaft. Provide one additional midpoint bracket for shafts up to 16 feet long and two additional brackets at one-third points to support shafts more than 16 feet long unless closer spacing is recommended by door manufacturer.
- C. Cables: Galvanized-steel lifting cables with cable safety factor of at least 7 to 1.
- D. Cable Safety Device: Include a spring-loaded steel or spring-loaded bronze cam mounted to bottom door roller assembly on each side and designed to automatically stop door if either lifting cable breaks.
- E. Bracket: Provide anchor support bracket as required to connect stationary end of spring to the wall and to level the shaft and prevent sag.
- F. Bumper: Provide a spring bumper at each horizontal track to cushion door at end of opening operation.

## **2.6 ELECTRICAL CHARACTERISTICS AND COMPONENTS**

- A. Requirements for electrical characteristics.
  - 1. 1/2 hp motor.
  - 2. 115 volts, single phase, 60 Hz service.
  - 3. 20 amperes maximum circuit breaker size.
- B. Motor Type: NEMA MG1, Type 4.

- C. Wiring Terminations: Furnish terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70.
- D. Disconnect Switch: Factory mount disconnect switch on equipment.
- E. Electric Operator: Center mounted draw bar assembly, adjustable safety friction clutch; brake system actuated by independent voltage solenoid controlled by motor starter; enclosed gear driven limit switch; enclosed magnetic cross line reversing starter; mounting brackets and hardware.
- F. Control Station: Standard three button (open-close-stop) momentary type, control for each electric operator; 24 volt circuit, surface mounted.
- G. Hand Held Transmitter: Digital control, resettable.
- H. Safety Edge: At bottom of door panel, full width; electro-mechanical sensitized type, wired to reverse door upon striking object; hollow neoprene or rubber covered to provide weatherstrip seal.
- I. Photoelectric Sensor: Furnish system which detects obstruction and reverses door without requiring door to contact obstruction.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify wall openings are ready to receive work and opening dimensions and tolerances are within limits.

#### **3.2 PREPARATION**

- A. Prepare door opening components to permit installation of door unit and preserve continuity of wall air barrier and vapor retarder seal.

#### **3.3 INSTALLATION**

- A. Anchor components securely to wall construction and building framing without distortion or stress. Secure tracks to structural members only.
- B. Fit and align door assembly including hardware, level and plumb, to provide smooth operation.
- C. Coordinate installation of electrical service. Complete wiring from disconnect to unit components.
- D. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07 90 00.

#### **3.4 ERECTION TOLERANCES**

- A. Maximum Variation From Plumb: 1/16 inch.
- B. Maximum Variation From Level: 1/16 inch.
- C. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch from 10 ft straight edge.

END OF SECTION

## SECTION 08 53 00 - VINYL WINDOWS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes factory fabricated tubular extruded vinyl windows with fixed and operating sash [single hung], glass, and framed insect screens.
  - 1. Energy star rated window units for Climate Zone 5.

#### 1.2 SYSTEM DESCRIPTION

- A. Windows and Sliding Doors: Extruded tubular plastic sections, factory fabricated, fusion welded, vision glass, related flashings, anchorage and attachment devices.
- B. System Design: Performance to provide for expansion and contraction within system components caused by temperature cycling. Design and size members to withstand loads caused by pressure and suction of wind in accordance with applicable code.
- C. Water Leakage: None, when measured in accordance with ASTM E331.
- D. System Internal Drainage: Drain water entering framing system, to exterior.
- E. Thermal Movement: Design sections to permit thermal expansion and contraction of plastic as compared to glass, infill, and perimeter opening construction.

#### 1.3 REFERENCES

- A. American Architectural Manufacturers Association (AAMA):
  - 1. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products.
- B. American Architectural Manufacturers Association/Window & Door Manufacturers Association/Canadian Standards Association (AAMA/WDMA/CSA):
  - 1. AAMA/WDMA/CSA 101/I.S.2/A440 - Standard/Specification for Windows, Doors, and Skylights.
- C. National Fenestration Rating Council (NFRC):
  - 1. NFRC 100 - Procedure for Determining Fenestration Product U-factors.
  - 2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance materials, components, accessories, and fabrication unless more stringent requirements are indicated.
- B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:
  - 1. Minimum Performance Class: R.
  - 2. Minimum Performance Grade: 20.
- C. Thermal Transmittance: Tested and certified per NFRC 100 maximum total fenestration product U-factor.
  - 1. U-Factor, Total Unit, NFRC 100:  $U = 0.30 \text{ Btu/sq ft x } ^\circ\text{h x degrees F.}$
  - 2. Window Unit shall be Energy Star Rated for Climate Zone 5.
- D. Solar Heat-Gain Coefficient [SHGC]: Tested and certified per NFRC 200 maximum total fenestration product SHGC
- E. Fabricate windows to AAMA Gold Label Certification Program for thermal performance and air, water, and structural integrity.

- F. Forced Entry Resistance: Meet the requirements of ASTM F588 for Type A [sliding sashes], Grade 10.
- G. Air Infiltration: Maximum air leakage through fixed glazing and framing areas of 0.30 cfm/sq ft of fixed wall area as determined according to ASTM E283 at a minimum static-air-pressure differential of 1.57 lbf/sq ft.
- H. Operating Force: Maximum allowable lb force of 20 lbf for horizontal sliders.
- I. Water Penetration: Minimum water resistance of 2.86 psf for entry level R20 structural rating.
- J. Visible Transmittance, Total Unit, NFRC 200 maximum whole window SHGC of 0.30.
- K. Window Certification:
  - 1. Test windows to AAMA Gold Label Certification Program for thermal performance and air, water, and structural integrity.
  - 2. Provide certification label on each window.

### **1.5 SUBMITTALS**

- A. Shop Drawings: Indicate opening dimensions, framed opening tolerances, affected related work; and installation requirements.
- B. Product Data: Submit component dimensions, anchorage and fasteners, glass, and internal drainage details. Indicate Energy Star compliance.
- C. Test Reports: Submit manufacturer's test reports from independent testing agency indicating the vinyl windows meet or exceed the specified performance requirements.
- D. Samples: Provide [2] samples of exposed finishes.
  - 1. Manufacturer MUST be able to provide "gray" finish option at exterior.

### **1.6 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: Manufacturer regularly engaged, for past 10 years, in manufacture of vinyl windows of similar type to that specified.
- B. Installer's Qualifications:
  - 1. Installer regularly engaged, for past 5 years, in installation of vinyl windows of similar type to that specified.
  - 2. Employ persons trained for installation of vinyl windows.
- C. Mockup:
  - 1. Construct mock-ups of vinyl windows for evaluation of preparation techniques and installation workmanship.
    - a. Construct mock-ups using same materials for use in the Work.
    - b. Construct mock-ups at locations determined by Architect.
    - c. Do not proceed until workmanship of mock-ups are approved by Architect.
    - d. Approved Mock-ups: Standard for workmanship of vinyl windows.

### **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery and Acceptance Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling Requirements:
  - 1. Store and handle materials in accordance with manufacturer's instructions.
  - 2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
  - 3. Store materials in clean, dry area indoors.



4. Do not store materials directly on floor.
5. Protect materials and finish during storage, handling, and installation to prevent damage.

## 1.8 WARRANTY

- A. Furnish limited ten [10] year manufacturer warranty for insulated glass units and vinyl window components.

## PART 2 PRODUCTS

### 2.1 VINYL WINDOWS

- A. Manufacturers:
  1. PlyGem Windows: 1500 Series, Single Hung, Dove Grey Exterior Color [BASIS OF DESIGN]
  2. Harmony Windows
  3. Jeldwen Windows
  4. Soft Lite Windows:
  5. Crystal Windows
  6. Simonton Windows
- B. Product Description:
  1. Unit Frame: Extruded tubular plastic with welded corner construction.
  2. Windows: Conform with AAMA 101 Designations for windows required for Single Hung window operation.
  3. Type: 2-lite single hung
  4. Sizes: As indicated on drawings
  5. Frame and Sash Color:
    - a. Exterior: PlyGem Dove Grey [other manufacturers must be able to provide "grey" option for exterior finish]
    - b. Interior: White or Grey.

### 2.2 COMPONENTS

- A. Extruded PVC frames and sashes: AAMA 303 hollow, multi-chambered sections of extruded polyvinyl chloride (PVC), with integral ultra-violet degradation resistance. Fusion Welded frame and sash.
- B. Frame
  1. Frame Thickness: +/- 3-1/4 inches
  2. Construction: Welded, thermally broken.
  3. Screen Track: Integral
  4. Sill: sloped design sill out from unit/building wall.
- C. Sash
  1. Construction: Welded
  2. Glazing Bead: Color Matched, dual durometer
- D. Grille: None
- E. Glass and Glazing Materials:
  1. Gas: Air / Argon Filled Airspace
  2. Glass Strength: Single Strength
  3. Glass Type: Low E
  4. Dual Pane Insulated Glass: 3/4 inch thickness
  5. Spacer: Supercept Window Spacer System
  6. Glass Package: Energy Star, Climate Zone 5.

7. Insulating Glass: SIGMA sealed double pane float glass with clear outer pane and Low E 366 coating with Argon Filled airspace; total thickness 3/4 inch minimum. U-Value of 0.30 or Less
  8. Safety glass conforming to ANSI Z97.1 and applicable codes where required.
- F. Hardware: Manufacturer's standard window and door hardware based on following requirements. Hardware to match frame and sash color.
1. Sash Lock: [2] Lever handles with cam lock.
  2. Rollers / Gliders: Corrosion resistant Rollers
  3. Safety / Night Latch [Window opening Control Device]: safety catch to limit operation of window opening for security and safety purposes.
- G. Sills, Stools, and Aprons: Tubular plastic; slope sills for positive wash; extend 1/2 inch beyond wall face; one piece full width of opening.
- H. Frame Expanders: Vinyl frame expanders/receptors sized as required to suit opening extending to meet existing construction and ready to accept new window units.
- I. Insect Screens:
1. Frame: Roll formed
  2. Size: to fit half of window unit.
  3. Mesh: Fiberglass mesh set into frame and secured.
- J. Weather Stripping: Dual fin seal at sash perimeter, triple weather stripped at sash edges, closed cell foam weather stripping, configured for flexible fit.
- K. Trim/Closure: Vinyl trim stock for interior perimeter/jamb application. Color to match window units.
1. Field Coordinate size requirements to conceal any gap between original window and new window.
- L. Fasteners: Galvanized steel.
- M. Anchor Devices: Galvanized steel.
- N. Sealant and Backing Materials: Specified in Section 07 90 00.

### **2.3 FABRICATION**

- A. Fabricate framing, mullions and sash members with fusion welded corners and joints, in rigid jig. Supplement frame sections with internal reinforcement where required for structural rigidity.
- B. Form snap in glass stops, closure molds, weather stops, and flashings of extruded PVC for tight fit into window frame section.
- C. Install glass using exterior dry method of glazing.
- D. Double weatherstrip operable units.

### **2.4 SHOP FINISHING**

- A. Exterior Surfaces: PlyGem Dove Grey
- B. Interior Surfaces: White
- C. Screens: Match window frame color with light screening.
- D. Operators/Hardware: color to match unit

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify rough openings are correctly sized and located.
- B. Examine abutting wall flashing, vapor retarders, weather barriers, and other components to ensure weathertight window installation.
- C. Verify rough opening dimensions, sill levelness, and operational clearances are acceptable.
- D. Notify Architect of conditions that would adversely affect installation or subsequent use.
- E. Do not begin installation until unacceptable conditions are corrected.

#### **3.2 PREPARATION**

- A. Prepare opening to permit correct installation of frame and achieve continuity of air and vapor retarder seal.

#### **3.3 INSTALLATION**

- A. Use anchorage devices to securely attach frames to structure.
- B. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work. Anchor windows securely in place to supporting substrate. Verify that windows are installed in proper relation to wall flashing and other abutting materials to achieve a watertight installation.
- C. Install vinyl windows in accordance with manufacturer's instructions at locations indicated on the Drawings.
- D. Install vinyl windows plumb, level, square, true to line, and without distortion.
- E. Anchor vinyl windows securely in place to supports.
- F. Verify vinyl windows are installed in proper relation to wall flashing and other abutting materials. Coordinate attachment and seal of air and vapor retarder materials. Pack fibrous insulation (or low expansion foam) in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- G. Install vinyl windows weathertight.
- H. Verify vinyl windows open, close, and lock properly.
- I. Install interior vinyl trim at perimeter of window unit as applicable to the conditions.
- J. Coordinate installation of perimeter sealants and backing materials with Section 07 90 00.

#### **3.4 ADJUSTING**

- A. Adjust operating components to ensure a tight fit at contact points and weather stripping for smooth operation and weathertight closure.
- B. Replace damaged glass.
- C. Remove and replace with new material, damaged components that cannot be successfully repaired, as determined by Architect.

#### **3.5 CLEANING**

- A. Clean vinyl windows promptly after installation in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials or methods that could damage windows.

**3.6 SCHEDULES**

- A. Refer to drawings.
- B. Refer to drawings/schedules for tempered glazing requirements.

**END OF SECTION**

## SECTION 08 71 00 - DOOR HARDWARE

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. This Section includes commercial door hardware for the following:
  - 1. Swinging doors.
  - 2. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
  - 1. Mechanical door hardware.
- C. Related Sections:
  - 1. Division 08 Section "Hollow Metal Doors and Frames".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
  - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
  - 2. ICC/IBC - International Building Code.
  - 3. NFPA 70 - National Electrical Code.
  - 4. NFPA 80 - Fire Doors and Windows.
  - 5. NFPA 101 - Life Safety Code.
  - 6. NFPA 105 - Installation of Smoke Door Assemblies.
  - 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
  - 1. ANSI/BHMA Certified Product Standards - A156 Series.
  - 2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
  - 3. ANSI/UL 294 - Access Control System Units.
  - 4. UL 305 - Panic Hardware.
  - 5. ANSI/UL 437- Key Locks.

#### 1.2 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
  - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
  - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
  - 3. Content: Include the following information:
    - a. Type, style, function, size, label, hand, and finish of each door hardware item.
    - b. Manufacturer of each item.
    - c. Fastenings and other pertinent information.
    - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.

- e. Explanation of abbreviations, symbols, and codes contained in schedule.
  - f. Mounting locations for door hardware.
  - g. Door and frame sizes and materials.
  - h. Warranty information for each product.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Shop Drawings: Details of electrified access control hardware indicating the following:
1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
    - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
    - b. Complete (risers, point-to-point) access control system block wiring diagrams.
    - c. Wiring instructions for each electronic component scheduled herein.
  2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Keying Schedule: After a keying meeting with the Owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Informational Submittals:
1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation.

### 1.3 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).
- C. Installer Qualifications: A minimum 5 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

- E. Supplier Qualifications: Supplier/Dealers, verifiably authorized and in good standing with the primary product manufacturers, with a minimum of five (5) years of experience supplying integrated access control systems similar in material, design, and scope to that indicated for this Project and whose work has resulted in construction with a proven record of successful in-service performance.
  - 1. ASSA ABLOY access control products are required to be supplied only through designated "Authorized Channel Partners."
- F. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
  - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
  - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- G. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- H. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
  - 1. Function of building, purpose of each area and degree of security required.
  - 2. Plans for existing and future key system expansion.
  - 3. Requirements for key control storage and software.
  - 4. Installation of permanent keys, cylinder cores and software.
  - 5. Address and requirements for delivery of keys.
- I. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
  - 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
  - 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
  - 3. Review sequence of operation narratives for each unique access controlled opening.
  - 4. Review and finalize construction schedule and verify availability of materials.
  - 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- J. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

#### **1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

## 1.5 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

## 1.6 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
  - 1. Structural failures including excessive deflection, cracking, or breakage.
  - 2. Faulty operation of the hardware.
  - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
  - 1. Ten years for mortise locks and latches.
  - 2. Five years for exit hardware.
  - 3. Twenty five years for manual overhead door closer bodies.
  - 4. Five years for motorized electric latch retraction exit devices.
  - 5. Two years for electromechanical door hardware, unless noted otherwise.
  - 6. Two years for Electrified, Wiegand Output, and IP-Enabled Access Control Door Hardware.

## 1.7 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

## PART 2 PRODUCTS

### 2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
  - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in



writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

## 2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
  - 1. Quantity: Provide the following hinge quantity:
    - a. Two Hinges: For doors with heights up to 60 inches.
    - b. Three Hinges: For doors with heights 61 to 90 inches.
    - c. Four Hinges: For doors with heights 91 to 120 inches.
    - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
  - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
    - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
    - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
  - 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
    - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
    - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
  - 4. Hinge Options: Comply with the following:
    - a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
  - 5. Manufacturers:
    - a. Hager Companies (HA) - BB Series, 5 knuckle.
    - b. Ives (IV) - 5BB Series, 5 knuckle.
    - c. McKinney (MK) - TAT4A Series, 5 knuckle.

## 2.3 DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.
  - 1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
  - 2. Furnish dust proof strikes for bottom bolts.
  - 3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
  - 4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
  - 5. Manufacturers:
    - a. Burns Manufacturing (BU)
    - b. Door Controls International (DC).
    - c. Trimco (TC).

## 2.4 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
  - 1. Manufacturers:
    - a. Corbin Russwin (RU)
    - b. Match Existing Facility Corbin Russwin, Patented Keyway, Field Verify
    - c. No substitution.

- B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:
  - 1. Threaded mortise cylinders with rings and cams to suit hardware application.
  - 2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
  - 3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
  - 4. Tubular deadlocks and other auxiliary locks.
  - 5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
  - 6. Keyway: Match Facility Standard.
- C. Keying System: Each type of lock and cylinders to be provided as "0" bitting for Owner keying at later date. Provide construction cylinders at exterior perimeter doors.
  - 1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
  - 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
  - 3. Existing System: Field verify and key cylinders to match Owner's existing system.
- D. Key Quantity: Provide the following minimum number of keys:
  - 1. Change Keys per Cylinder: Two (2)
  - 2. Master Keys (per Master Key Level/Group): Five (5).
  - 3. Construction Keys (where required): Ten (10)
- E. Construction Keying: Provide construction master keyed cylinders at exterior doors.
- F. Key Registration List (Bitting List):
  - 1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
  - 2. Provide transcript list in writing or electronic file as directed by the Owner.

## 2.5 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
  - 1. Mortise locks to be certified Security Grade 1.
  - 2. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.13 requirements to 14.5 million cycles or greater.
  - 3. Where specified, provide status indicators with highly reflective color and wording for "locked/unlocked" or "vacant/occupied" with custom wording options if required. Indicator to be located above the cylinder with the inside thumb-turn not blocking the visibility of the indicator status. Indicator window size to be a minimum of 2.1" x 0.6" with a curved design allowing a 180 degree viewing angle with protective covering to prevent tampering.
  - 4. Manufacturers:
    - a. Corbin Russwin (RU) – ML2000 Series x "L" lever
    - b. Facility Standard – No Substitutions.

## 2.6 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
  - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
  - 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
  - 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

- B. Standards: Comply with the following:
1. Strikes for Mortise Locks and Latches: BHMA A156.13.
  2. Strikes for Bored Locks and Latches: BHMA A156.2.
  3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
  4. Dustproof Strikes: BHMA A156.16.

## 2.7 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
1. Exit devices shall have a five-year warranty.
  2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
  3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
  4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
  5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
  6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
    - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
  7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
  8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
  9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
  10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
  11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Manufacturers:
    - a. Corbin Russwin (RU) – ED4000 / ED5000 Series
    - b. Facility Standard – No Substitutions.

## 2.8 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.

2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
  3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
  4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
  5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
  6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.
1. Heavy duty surface mounted door closers shall have a 25-year warranty.
  2. Manufacturers:
    - a. Norton Rixson (NO) - 7500 Series.

## 2.9 ARCHITECTURAL TRIM

- A. Door Protective Trim
1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
  2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
  3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
  4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
    - a. Stainless Steel: 300 grade, 050-inch thick.
  5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
  6. Manufacturers:
    - a. Hager Companies (HA).
    - b. Rockwood (RO).
    - c. Trimco (TC).

## 2.10 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:
  - a. Hager Companies (HA).
  - b. Rockwood (RO).
  - c. Trimco (TC).

## 2.11 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
  1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
  1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
  1. National Guard Products (NG).
  2. Pemko (PE).
  3. Reese Enterprises, Inc. (RE).

## 2.12 ELECTRONIC ACCESSORIES

- A. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
  1. Manufacturers:
    - a. Sargent Manufacturing (SA) – 3280 Series
    - b. Security Door Controls (SD) - DPS Series.
    - c. Securitron (SU) - DPS Series.

## 2.13 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

## 2.14 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

### **3.2 PREPARATION**

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

### **3.3 INSTALLATION**

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
  - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
  - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
  - 2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
  - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
  - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Door Closers:
  - 1. Install closers on room side of corridor doors, and stair side of stairways.
  - 2. Lobby doors: Mount on vestibule side.
  - 3. Exterior doors: Parallel rigid arm installation.
  - 4. Where through-bolts are required, install closers using only manufacturer-furnished through-bolts.
  - 5. Install closers using only manufacturer-furnished template machine screws for metal doors and manufacturer -furnished wood screws for wood doors.
  - 6. Coordinate with door supplier to provide proper blocking for surface mounting.
  - 7. Use of self-drilling or self-tapping fasteners is not allowed.
  - 8. Where full glazed door units are specified, use closer arm and mounting configuration as required to avoid use of drop brackets whenever possible.

- E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- F. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

### **3.4 FIELD QUALITY CONTROL**

- A. Field Inspection (Punch Report): Reference Division 01 Sections "Closeout Procedures". Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.
  - 1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

### **3.5 ADJUSTING**

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

### **3.6 CLEANING AND PROTECTION**

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

### **3.7 DEMONSTRATION**

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

### **3.8 DOOR HARDWARE SETS**

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
  - 1. Quantities listed are for each pair of doors, or for each single door.
  - 2. The supplier is responsible for handling and sizing all products.
  - 3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
  - 4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.
- B. Manufacturer's Abbreviations:
  - 1. MK - McKinney

2. RO - Rockwood
3. RU – Corbin Russwin
4. SA - Sargent
5. NO - Norton
6. SU - Securitron
7. OT - Other

C. Hardware Sets – Refer to Drawings

**END OF SECTION**



## SECTION 08 80 00 - GLAZING

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Glass glazing for interior and exterior doors.

#### 1.2 SYSTEM DESCRIPTION

- A. System performance to achieve continuity of building enclosure air barrier and vapor retarder with glass and glazing materials of this section.
- B. Glass Thickness: Select minimum thickness in accordance with ASTM E1300 to resist specified design loads.
- C. Structural Design: Design in accordance with applicable code for most critical combination of wind, snow, seismic, and dead loads.
- D. Exterior Glass Deflection: Maximum of 1/175 of glass edge length or 3/4 inch, whichever is less with full recovery of glazing materials.
- E. Interior Glass Deflection: Maximum differential deflection for two adjacent unsupported edges when 50 plf force is applied to one panel at any point up to 42 inches above finished floor less than thickness of glass.
- F. Thermal and Solar Optical Performance: Measured or calculated in accordance with the following:
  - 1. U-Values: NFRC 100.
  - 2. Solar Heat Gain Coefficients: NFRC 200.
  - 3. Solar Optical Properties: NFRC 300.

#### 1.3 SUBMITTALS

- A. Product Data:
  - 1. Glass: Provide structural, physical, and thermal and solar optical performance characteristics, size limitations, special handling or installation requirements.
- B. Samples: Submit two samples, illustrating glass, coloration.

#### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual for glazing installation methods.
- B. Apply label from agency approved by authority having jurisdiction to identify each fire rated glass lite.

#### 1.5 WARRANTY

- A. Furnish ten year manufacturer warranty including coverage for sealed glass units from seal failure, interpane dusting, misting, and replacement of defective glass.

### PART 2 PRODUCTS

#### 2.1 GLAZING MANUFACTURERS

- A. PPG / Vitro Architectural Glass
- B. Pilkington
- C. Old Castle

#### 2.2 FLOAT GLASS MATERIALS

- A. Annealed Glass: ASTM C1036, Type 1 transparent flat, Quality Q3, float glass.

1. Furnish annealed glass except where heat strengthened or tempered glass is required to meet specified performance requirements.
- B. Tempered Glass: ASTM C1048, Type 1 transparent flat, Quality Q3, Kind FT fully tempered, Condition A uncoated, float glass with horizontal tempering.

### **2.3 FLOAT GLASS PRODUCTS**

- A. Clear Glass: Annealed, Tempered float glass as specified; Class 1 clear.
  1. Clear annealed glass (FG-CA)
  2. Clear tempered glass (FG-CT).
  3. Minimum Thickness: 1/4 inch.
- B. Tinted Glass: Annealed, Tempered float glass as specified; Class 2 tinted.
  1. Tinted annealed glass (FG-TA).
  2. Tinted tempered glass (FG-TT).
  3. Minimum Thickness: 1/4 inch.
  4. Tint: Gray [Optigray 23]
- C. Low E Glass: Annealed, Tempered float glass as specified; Class 2 tinted.
  1. Tinted Low E annealed glass (FG-ETA).
  2. Tinted Low E tempered glass (FG-ETT).
  3. Minimum Thickness: 1/4 inch.
  4. Tint: Gray [Optigray 23]
  5. Solar Light Transmittance: 40 percent minimum.
  6. Solar Heat Gain Coefficient: 0.40 maximum.

### **2.4 INSULATING GLASS PRODUCTS**

- A. Insulating Glass: ASTM E2190; factory assembled units consisting of sealed lites of glass separated by a dehydrated interspace. glass elastomer edge seal; place reflective film within unit; purge interpane space with dry hermetic air.
  1. Total Unit Thickness: 1 inch unless otherwise indicated.
    - a. 1/4-inch outer pane thickness
    - b. 1/2-inch air space – argon filled
    - c. 1/4-inch inner pane thickness, low E coated [Guardian Sunguard SuperNeutral 68]
  2. Spacer: Chromatech warm edge spacer bar or Equal
  3. Sealing System: Dual-Seal
  4. Insulating Glass Unit Edge Seal Construction: Aluminum, thermally broken, as required to meet thermal performance requirements of the opening.

### **2.5 GLAZING GASKETS**

- A. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:
  1. EPDM, ASTM C 864.
  2. Silicone, ASTM C 1115.
  3. Thermoplastic polyolefin rubber, ASTM C 1115.

### **2.6 GLAZING SEALANTS**

- A. Elastomeric Glazing Sealants: Materials compatible with adjacent materials including glass, and glazing channels.
- B. Pre-Formed Glazing Tape: Butyl-based elastomeric tape, Size to suit application.

### **2.7 GLAZING ACCESSORIES**

- A. Setting Blocks: Elastomeric material recommended by glass manufacturer, 80 to 90 Shore A durometer hardness.

- B. Spacer Shims: Elastomeric material recommended by glass manufacturer, 50 to 60 Shore A durometer hardness.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify openings for glazing are correctly sized, within tolerance, and glazing channels or recesses are clean, free of obstructions, and ready to receive glazing.

#### **3.2 PREPARATION**

- A. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- B. Prime surfaces scheduled to receive sealant.

#### **3.3 INSTALLATION**

- A. Perform installation in accordance with GANA Glazing Manual.
  - 1. Glazing Sealants: Comply with ASTM C1193.
- B. Exterior Wet/Dry Method (Preformed Tape and Sealant) Installation:
  - 1. Cut glazing tape to length and set against permanent stops. Seal corners by butting tape and dabbing with compatible butyl sealant.
  - 2. Apply heel bead of butyl sealant along intersection of permanent stop with frame ensuring full perimeter seal between glass and frame to complete continuity of air and vapor seal.
  - 3. Place setting blocks at **1/3** points.
  - 4. Rest glazing on setting blocks and push against tape and heel bead of sealant with sufficient pressure to attain full contact at perimeter of pane or glass unit.
  - 5. Fill gap between glazing and stop with elastomeric glazing sealant to depth equal to bite of frame on glazing, but not more than 3/8 inch below sight line.
  - 6. Apply cap bead of elastomeric glazing sealant along void between stop and glazing, to uniform line, flush with sight line. Tool or wipe sealant surface smooth.
- C. Interior Dry Method (Tape and Tape) Installation:
  - 1. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sight line.
  - 2. Place setting blocks at 1/3 points.
  - 3. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
  - 4. Place glazing tape on free perimeter of glazing in same manner described above.
  - 5. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
  - 6. Knife trim protruding tape.

#### **3.4 CLEANING**

- A. Remove glazing materials from finish surfaces.
- B. Remove labels after Work is complete.
- C. Clean glass and adjacent surfaces.

#### **3.5 SCHEDULE**

- A. Exterior Windows: Refer to Section 08 53 00.
- B. Exterior doors / Sidelights: 1 inch insulated, low-E, glass. All glazing to be tempered
- C. Interior Windows / Doors: 1/4 inch, clear, tempered glass.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
1. Gypsum board and joint treatment.

#### 1.2 SUBMITTALS

- A. Product Data: Submit data on gypsum board, joint tape, and accessories.

#### 1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with:
1. ASTM C840.
  2. GA-201 - Gypsum Board for Walls and Ceilings.
  3. GA-214 - Recommended Specification: Levels of Gypsum Board Finish.
  4. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board.
  5. GA-600 - Fire Resistance Design Manual.
- B. Furnish framing materials in accordance with SSMA - Product Technical Information.
- C. Fire Rated Wall Construction: Rating as indicated on Drawings.
1. Tested Rating: Determined in accordance with ASTM E119.
  2. Fire Rated Partitions: Listed assembly by UL.
  3. Fire Rated Ceilings and Soffits: Listed assembly by UL.
- D. Surface Burning Characteristics:
1. Textile Wall Coverings: Comply with one of the following:
    - a. Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

### PART 2 PRODUCTS

#### 2.1 GYPSUM BOARD ASSEMBLIES

- A. Manufacturers:
1. United States Gypsum Co. [basis of design]
  2. BPB Americas Inc.
  3. G-P Gypsum Corp.
  4. National Gypsum Co.
  5. Certainteed.

#### 2.2 COMPONENTS

- A. Gypsum Board Materials: ASTM C1396/C1396M; Type X fire resistant where indicated on Drawings.
1. GB-1: Standard Gypsum Board: 5/8 inch thick, maximum available length in place; ends square cut, tapered and beveled edges.
  2. GB-2: Moisture Resistant Gypsum Board: 5/8 inch thick, maximum available length in place; ends square cut, tapered and beveled edges.

#### 2.3 ACCESSORIES

- A. Acoustic Insulation: ASTM C665, preformed glass fiber, friction fit type, unfaced,
1. 3 inch thick in 2x4 wood stud or 3 5/8 inch metal stud walls.
  2. 6 inch thick in 2x6 wood stud or 6 inch metal frame walls.
- B. Gypsum Board Accessories: ASTM C1047; metal; corner beads, edge trim, and expansion joints.

1. Metal Accessories: Galvanized steel.
2. Edge Trim: Type LC, L, or U bead as appropriate for conditions
- C. Joint Materials: ASTM C475/C475M, GA-201 and GA-216, reinforcing tape, joint compound, and water.
- D. Fasteners: ASTM C1002, GA-216; length to suit application.
- E. Gypsum Board Screws: ASTM C954, ASTM C1002; length to suit application.
  1. Screws for Steel Framing: Type W and S as appropriate for wall type.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify site conditions are ready to receive work.

#### **3.2 INSTALLATION**

- A. Gypsum Board:
  1. Install gypsum board in accordance with GA-216.
  2. Fasten gypsum board to furring or framing with screws.
  3. Place control joints consistent with lines of building spaces as directed by Architect.
  4. Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.
  5. Seal cut edges and holes in gypsum board as appropriate for the condition.
- B. Joint Treatment:
  1. Finish in accordance with GA-214 for all new work.
    - a. Level 4: All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Two separate coats of joint compound shall be applied over all flat joints and one separate coat of joint compound shall be applied over interior angles. Fastener head and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges.
      - 1) This level is to be used at areas to receive flat paints.
    - b. Level 5: All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Two separate coats of joint compound shall be applied over all flat joints and one separate coat of joint compound shall be applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. A thin skim coat of joint compound trowel applied, or a material manufactured especially for this purpose and applied in accordance with manufacturer's recommendations, applied to the entire surface. The surface shall be smooth and free of tool marks and ridges.
      - 1) This level is to be used at areas to receive eggshell and semi-gloss and gloss paint and areas subject to severe lighting, where indicated.
  2. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
  3. Feather coats onto adjoining/existing surfaces so camber is maximum 1/32 inch.
  4. Taping, filling, and sanding is not required at concealed surfaces.
- C. Tolerances: Maximum Variation from Flat Surface: 1/8 inch in 10 feet in any direction.

#### **3.3 SCHEDULE**

- A. Gypsum Board Wall Finishes: GB-1: Level 4 finish minimum

- B. Gypsum Board Ceiling Finishes: GB-1: Level 4 finish minimum.
- C. Gypsum Board Wall / Ceiling Finishes at Toilet Rooms, Wet Areas: GB-2: Level 4 finish minimum.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**



## SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Acoustic tile.
  - 2. Acoustic panels.
  - 3. Suspended metal grid ceiling system and perimeter trim.

#### 1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data.
- B. Samples: Submit ceiling tile and suspension system.

#### 1.3 QUALITY ASSURANCE

- A. Surface Burning Characteristics: Comply with the following when tested in accordance with NFPA 286.
  - 1. During 40 kW Exposure: No flame spread to ceiling.
  - 2. During 160 kW Exposure: No flame spread to perimeter of tested sample and no flashover.
  - 3. Total Smoke Release: Maximum 1,000 cu m.
- B. Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver material in the manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Provide labels indicating brand name, source of procurement, style, size and thickness.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
- D. Handling: Handle materials to avoid damage.

#### 1.5 PROJECT CONDITIONS

- A. Coordination: Coordinate work of this section with installation of mechanical and electrical components and with other construction activities affected by work of this section.
  - 1. Review with affected installers those locations of facility services lines and equipment within ceiling plenum that prevent installation of hangers at spacings compliant with limitations established in referenced standards. Arrange for each affected mechanical or electrical installer to provide necessary number of additional structural support points for ceiling installer.
- B. Maintain environmental conditions [temperature, humidity, and ventilation] within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
- C. Sequencing: Schedule work of affected trades to minimize or eliminate installation conflicts and rework.

#### 1.6 EXTRA MATERIALS

- A. Provide 3% additional materials for each ceiling type for use by the Owner.

## **PART 2 PRODUCTS**

### **2.1 SUSPENDED ACOUSTICAL CEILINGS**

- A. Manufacturers:
  - 1. United States Gypsum Company [Basis of Design]
  - 2. Armstrong.
- B. Performance / Design Criteria:
  - 1. Provide system capable of supporting imposed loads with deflection limited to 1/360 of span.

### **2.2 COMPONENTS**

- A. Acoustic Tile ATC-1: ASTM E1264
  - 1. USG Radar Basic Acoustical Panels
  - 2. Material: mineral fiber
  - 3. Nominal Size: 24 x 48 inches.
  - 4. Thickness: 5/8 inches.
  - 5. Surface Finish: Fine Textured
  - 6. Edge: Square.
  - 7. Color: White.
  - 8. NRC: 0.55
- B. Suspension Grid:
  - 1. USG Donn DX 15/16 inch suspension system
  - 2. Non-Fire Rated Grid: ASTM C635, standard duty, non-fire rated, exposed T configuration; components die cut and interlocking components with wall angles and moldings; transition trim, hold down clips, etc as required.
  - 3. Accessories: Stabilizer bars, clips, splices, edge moldings required for suspended grid system.
  - 4. Grid Materials: Commercial quality cold rolled steel with galvanized coating.
  - 5. Exposed Grid Surface Width: 15/16 inch.
  - 6. Perimeter Molding Width: Match grid width.
  - 7. Grid Finish: White color.
  - 8. Suspension Wire: ASTM A580, 12 gauge
  - 9. Support Channels and Hangers: Galvanized steel, size and type to suit application and ceiling system flatness requirements specified.

### **2.3 CEILING PERFORMANCE REQUIREMENTS**

- A. Design for maximum deflection of 1/360 of span.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify layout of hangers does not interfere with other work.

### **3.2 INSTALLATION - SUSPENSION SYSTEM**

- A. Install suspension system in accordance with ASTM C636 and manufacturer's instructions and as supplemented in this section.
- B. Install hangers and inserts coordinated with overhead work. Provide additional hangers and supports as required.
- C. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1/360.

- D. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.
- E. Locate system on room axis according to reflected ceiling plan.
- F. Suspension System, Nonseismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- G. Where ducts, facility services, or equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels as applicable to span the extra distance.
- H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- I. Do not eccentrically load system or induce rotation of runners.
- J. Edge Moldings: Install at intersection of ceiling and vertical surfaces and penetrations, using components of maximum length; set level. Provide edge moldings at junction with other ceiling finishes; Miter corners; Provide preformed edge closures to match bullnosed cornered partitions.
  - 1. Use longest practical lengths.
  - 2. Miter; Overlap; or Overlap and rivet corners.

### **3.3 INSTALLATION - ACOUSTICAL UNITS**

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Fit edge trim neatly against abutting surfaces.
- D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- E. Cutting Acoustical Units:
  - 1. Cut to fit irregular grid and perimeter edge trim.
  - 2. Make field cut edges of same profile as factory edges.
  - 3. Double cut and field paint exposed reveal edges.
- F. Where round obstructions; bullnose concrete block corners; and other penetrations occur, provide preformed closures to match perimeter molding.
- G. Install hold-down clips where required adjacent to exterior doors.
- H. Tolerances: Variation from Flat and Level Surface: 1/8 inch in 10 feet.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 09 65 13 - RESILIENT BASE

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes rubber base.

#### 1.2 SUBMITTALS

- A. Samples:
  - 1. Submit manufacturer's complete set of color samples for initial selection.
  - 2. Submit three samples, 2x2 inch in size illustrating color and pattern for each resilient flooring product specified.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit maintenance instruction and data.

#### 1.4 QUALITY ASSURANCE

- A. Surface Burning Characteristics:
  - 1. Base Material: Class I, minimum 0.45 watts/sq cm when tested in accordance with NFPA 253.

#### 1.5 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.
- B. Store materials for not less than 48 hours prior to installation in area of installation at temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

#### 1.6 EXTRA MATERIALS

- A. Furnish an additional 5% of each type of base.
- B. Document attic stock, properly label, and turn over to Owner.

### PART 2 PRODUCTS

#### 2.1 RESILIENT BASE

- A. Manufacturers:
  - 1. Roppe Corp, [Basis of Design]
  - 2. Approved Equal
- B. Base: ASTM F1861; Type TP, Rubber; top set covered:
  - 1. Height: 4 inch.
  - 2. Thickness: 0.125 inch thick.
  - 3. Finish: Matte.
  - 4. Length: 4 foot.
  - 5. Outside Corners: Premolded or precut. Corners shall be a minimum of 4 inches in length each direction.
  - 6. Inside Corners: Job formed

#### 2.2 ACCESSORIES

- A. Primers and Adhesives: Waterproof, types recommended by floor material manufacturer.

### **2.3 MOLDINGS / TRANSITION STRIPS**

- A. Moldings and Edge Strips: Metal; extruded aluminum with mill finish of height required by finish floor materials, and in maximum lengths to minimize running joints.
  - 1. Schluter or Equal. Size / type to suit conditions.
- B. Moldings and Transition Strips: Rubber, extruded rubber as required by floor materials, and in maximum lengths to minimize running joints.
  - 1. Roppe or Equal: Size / type to suit conditions.

### **PART 3 EXECUTION**

#### **3.1 PREPARATION**

- A. Clean substrate.
- B. Apply primer as required to prevent "bleed-thru" or interference with adhesion by substances that cannot be removed.

#### **3.2 INSTALLATION**

- A. Adhere base tight to wall and floor surfaces.
- B. Fit joints tightly and make vertical. Miter internal corners. Install pre-molded interior and exterior corners.
- C. Remove excess adhesive from surfaces without damage.

#### **3.3 SCHEDULE**

- A. Base:
  - 1. 4" rubber base at areas indicated on drawings. Provide pre-molded inside and outside corners as applicable.
- B. Moldings and Transition Strips:
  - 1. Refer to Drawings.

**END OF SECTION**

## SECTION 09 67 00 - FLUID-APPLIED FLOORING

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes: Fluid-applied flooring and base; divider strips and accessories; and integral colored finish system.

#### 1.2 SUBMITTALS

- A. Product Data: Describe physical and performance characteristics; sizes, patterns and colors available.
- B. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- C. Manufacturer's Installation Instructions: Special procedures, perimeter conditions requiring special attention.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Include procedures for stain removal, repairing surface, and suggested schedule for cleaning.

#### 1.4 QUALITY ASSURANCE

- A. Surface Burning Characteristics:
  - 1. Floor Finishes: Class I, minimum 0.45 watts/sq cm when tested according to NFPA 253.
- B. Manufacturer: Company specializing in manufacturing products specified in this Section with five years' experience.
- C. Installer: Company specializing in performing Work of this Section with five years' experience and approved by manufacturer.
- D. Floor System Thickness Verifications:
  - 1. At Owner's discretion, the Contractor shall take [2] 1 inch random cores per 1,000 SF through the system into the substrate to verify proper system thickness. Cored areas less than the specified thickness shall be removed and replaced or increased in thickness by the installing contractor in a manner that does not affect the performance or integrity of the system. Cored areas which comply with the recommended system thickness shall be built-up to match the surrounding surface elevation prior to applying the top coats.
  - 2. Cores taken and patched will be noticeable. Cores shall be taken from areas where they will not impact the finished aesthetic of the system.

#### 1.5 ENVIRONMENTAL REQUIREMENTS

- A. Maintain minimum temperature in storage area of 55 degrees F.
- B. Maintain ambient temperature required by manufacturer 72 hours prior to, during, and 24 hours after installation of materials, or in accordance with manufacturer requirements
- C. Moisture Testing for Concrete Slab: Test existing and new concrete floor slabs for moisture as part of the prep work for the new epoxy floor system. Follow the directives of the epoxy floor system manufacturer if the moisture content exceeds the maximum threshold.

#### 1.6 MOCK UP

- A. Provide up to [3] mockup boards of varying color blends and chip sizes at Owner's direction.
- B. Apply mockup to verify selections made as part of sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution for each flooring type.
  - 1. Apply full-thickness mockup system at no less than 25 SF of floor area

2. Approved mockups may become part of the completed Work.

## **PART 2 PRODUCTS**

### **2.1 FLUID-APPLIED FLOORING**

- A. Epoxy Resin Coating System: Manufacturers:
  1. SIKA [Basis of Design]
  2. General Polymer / Sherwin Williams
- B. Decorative Vinyl Flakes:
  1. Sika Decorative Flakes – [4] color mix, colors / mockup as approved by Owner.
    - a. Base: As recommended for mix selected.
    - b. Chip: 1/8 and 1/4 inch chip size
    - c. Blend: F6606 – 7 parts, 1/4 inch; F1090 – 7 parts, 1/4 inch; F9978 – 1 part, 1/8 inch; F9965 – 1 part, 1/8 inch.
      - 1) The blend noted herein in a starting point for mockups to be created

### **2.2 COMPONENTS**

- A. Decorative Vinyl Flake Finish Floor System: Epoxy Resin Coating System, low odor, 100% solids epoxy floor coating system with a urethane top coat.
  1. Moisture Tolerant Primer: Sika SikaFloor-1610
    - a. Two Component, high solids, red transparent epoxy primer. Specially formulated to perform as a moisture tolerant primer.
  2. First Body Coat: Sikafloor-264 + Sika Decorative Flakes
    - a. Pigmented, two part low viscosity, epoxy coating / binder for broadcast overlays.
    - b. Broadcast Decorative Flakes to Rejection.
  3. Second Body Coat: Sikafloor-217
  4. Intermediate Coat: Sikafloor-217
  5. Top Coat: Sikafloor-315 N, clear, semi-gloss finish

### **2.3 ACCESSORIES**

- A. Control Joint and Divider Strips: Extruded anodized aluminum, height to match flooring thickness, with anchoring features. Locate as recommended by manufacturer. Field confirm conditions with Owner / Architect to address variations in the floor thickness. Alternate: butt floor systems together with clean lines. Provide mockup as applicable to the conditions.
- B. Base / Fillet Strips: Molded of flooring resin material or material compatible with flooring.
- C. Subfloor Filler: type recommended by flooring material manufacturer.
- D. Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify floor surfaces are smooth and flat with maximum variation as specified and are ready to receive Work.
- B. Verify concrete floors have cured minimum 28 days [or per manufacturer requirements], exhibit negative alkalinity, carbonization, and dusting, and are acceptable to flooring manufacturer.
- C. Verify floor and lower wall surfaces are free of substances capable of impairing adhesion of adhesive and finish materials.



- D. Moisture Testing for Concrete Slab: Test existing and new concrete floor slabs for moisture as part of the prep work for the new epoxy floor system. Follow the directives of the epoxy floor system manufacturer if the moisture content exceeds the maximum threshold.

### 3.2 PREPARATION

- A. Prepare surfaces as required by manufacturer, remove all laitance, grease, curing compounds, bond inhibiting materials, waxes, and other contaminants.
- B. Cracks: evaluate the existing cracks in the concrete to determine the required repairs prior to the application of the flooring system. Refer to manufacturer requirements. Provide all crack repair necessary.
- C. Surface Preparation: Remove all surface contamination, loose or weakly adherent particles, laitance, grease, oil, curing compounds, paint, dust and debris by blast track method or approved mechanical means. If surface is questionable try a test patch. Create a minimum surface profile for the system specified in accordance with the methods described in ICRI No. 03732 to achieve profile numbers as follows:
  - 1. Thin film, to 10 mils: CSP-1 to CSP-3.
  - 2. Thin and medium films, 10 to 40 mils: CSP-3 to CSP-5.
  - 3. Self-leveling mortars, to 3/16 inch: CSP-4 to CSP-6.
  - 4. Mortars and laminates, to 1/4 inch or more: CSP-5 to CSP-9.
- D. Remove and dress all sub-floor ridges and bumps. Fill low spots [including gouges in the floor slab from removal of tile, etc.], cracks, joints, holes, and other defects with sub-floor filler.
- E. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Grind irregularities above surface level. Prohibit traffic until filler is cured.
- F. Clean substrate.
- G. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

### 3.3 INSTALLATION

- A. Install floor system to manufacturer requirements including prep, application procedures, application rates, cure times, etc.
- B. Accurately saw cut substrate to install control joints and/or divider strips as applicable to the system, and where recommended by manufacturer.
  - 1. Install strips straight and level at locations indicated.
- C. Install fillet strips at base of walls where flooring is to be extended up wall as base as required by site conditions.
- D. Apply each coat of flooring within thickness range required by manufacturer.
- E. Install resinous floor over properly prepared concrete surface in strict accordance with the manufacturer's directions.
  - 1. Install the primer / base coats over thoroughly cleaned and prepared concrete.
  - 2. Install intermediate coat with integral color additive / broadcast flakes / quartz as outlined.
  - 3. Install topcoat over intermediate coat[s].
- F. Note: Contractor shall change applicator roller at intervals not exceeding 1,000 SF or as otherwise recommended by manufacturer.
  - 1. Roller shall not break down or leave fibers in the floor system.
- G. Contractor to provide and maintain barriers to minimize the construction dust in the work area of the floor application. Contractor to take all measures necessary to ensure a quality installation free of contaminants.

1. If HEPA Air Scrubbers are required to remove airborne contaminants, this will be executed via a field change at an additional cost.
- H. Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
  1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
  2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
  3. At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.
- I. Sealant: Saw cut resinous floor topping at expansion joints in concrete slab where applicable. Fill saw cuts with sealant prior to final seal coat application. Follow manufacturer's written recommendations.
- J. Primer: Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- K. Slip Resistant Finish: Provide grit for slip resistance, coordinate requirements with Owner.
- L. Finish to smooth level surface.
- M. Install cove base where indicated on drawings.

**3.4 PROTECTION**

- A. Protect finish floor after installation to prevent damage to the floor system.
- B. Do not allow construction equipment onto floor system that will damage the floor.

**END OF SECTION**

## SECTION 09 77 00 – WALL PANELS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes prefinished polyester glass reinforced plastic sheets and accessories for use as a wall covering.

#### 1.2 SUBMITTALS

- A. Product Data: Submit sufficient manufacturer's data to indicate compliance with these specifications, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- B. Shop Drawings: Submit elevations of each wall showing location of paneling and trim members with respect to all discontinuities in the wall elevation.
- C. Selection Samples: Submit manufacturer's standard color pattern selection samples representing manufacturer's full range of available colors and patterns.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit maintenance and cleaning instructions.

#### 1.4 QUALITY ASSURANCE

- A. Conform to building code requirements for interior finish for smoke and flame spread requirements as tested in accordance with:
  - 1. ASTM E 84 (Method of test for surface burning characteristics of building Materials)
    - a. Wall Required Rating – Class A.
- B. Manufacturer Qualifications: At least ten years' active experience in the manufacture and marketing of wall panels.
- C. Installer Qualifications: At least five years' experience in the installation of wall panels. Employer of workers for this Project who are competent in techniques required by manufacturer for wall panel installation indicated.

#### 1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by the product manufacturer.
- B. Maintain these conditions 48 hours before during and after installation of adhesive and covering.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store panels and trim lying flat, under cover and protected from the elements. Allow panels to acclimate to room temperature (range of 60 to 75°F) for 48 hours prior to installation.

### PART 2 PRODUCTS

#### 2.1 FIBERGLASS REINFORCED PLASTIC PANELS

- A. Manufacturers:
  - 1. Marlite, Standard FRP [Basis of Design]
  - 2. Kal-Lite
  - 3. FiberLite
  - 4. Equal

- B. Fiberglass reinforced thermosetting polyester resin panel sheets; ASTM D 5319.
  - 1. Dimensions:
    - a. Thickness: 0.090 inch nominal
    - b. Width: 4'-0" nominal
    - d. Length: 8'-0" or 9'-0" nominal, cut to length as required for full height panels
  - 2. Tolerance:
    - a. Length and Width: +/-1/8 inch
    - b. Square: Not to exceed 1/8 inch for 8 foot panels or 5/32 inch for 10 foot panels
- C. Properties: Resistant to rot, corrosion, staining, denting, peeling, and splintering.
  - 1. Flexural Strength -  $1.7 \times 10^4$  psi per ASTM D 790.
  - 2. Flexural Modulus -  $6.0 \times 10^5$  psi per ASTM D 790.
  - 3. Tensile Strength -  $8.0 \times 10^3$  psi per ASTM D 638.
  - 4. Tensile Modulus -  $9.43 \times 10^5$  psi per ASTM D 638.
  - 5. Water Absorption - 0.17% per ASTM D 570.
  - 6. Barcol Hardness (scratch resistance) of 30 as per ASTM D 2583.
  - 7. Izod Impact Strength of 7.0 ft. lbs./in ASTM D 256
- D. Back Surface: Smooth. Imperfections which do not affect functional properties are not cause for rejection.
- E. Front Surface: Pebble Finish
- F. Color: as selected from full range of colors.
- G. Fire Rating: Class A

## 2.2 STAINLESS STEEL CORNER GUARDS

- A. Materials: Stainless Steel Corner Guard, Type 304, 16 gauge
  - 1. Size: 2-inch x 2-inch
  - 2. Length: 48 inches
  - 3. Pre-drilled holes for exposed screws
  - 4. Finish: No. 4 brushed

## 2.3 ACCESSORIES

- A. PVC Trim: Thin-wall semi-rigid extruded PVC: interior and exterior corners, dividers between panels, edge terminations, etc.
  - 1. Color: match wall panels
- B. Fasteners: Non-staining nylon drive rivets.
  - 1. Match panel colors.
  - 2. Length to suit project conditions.
- C. Adhesive: ASTM C 557, type as recommended by panel manufacturer
- D. Sealant: type as recommended by panel manufacturer

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails countersunk, joints and cracks filled flush and smooth with the adjoining surface.
  - 1. Verify that stud spacing does not exceed 24" on-center.
- B. Repair defects prior to installation.

1. Level wall surfaces to panel manufacturer's requirements. Remove protrusions and fill indentations.

### **3.2 INSTALLATION – FRP WALL PANELS**

- A. Comply with manufacturer's recommended procedures and installation sequence.
- B. Cut sheets to meet supports allowing 1/8 inch clearance for every 8 foot of panel.
  1. Cut and drill with carbide tipped saw blades or drill bits or cut with shears.
  2. Pre-drill fastener holes 1/8 inch oversize with high speed drill bit.
    - a. Space at 8 inch maximum on center at perimeter, approximately 1 inch from panel edge.
    - b. Space at in field in rows 16 inch on center, with fasteners spaced at 12 inch maximum on center.
- C. Apply panels to board substrate, above base, vertically oriented with seams plumb and pattern aligned with adjoining panels.
  1. Install panels with manufacturer's recommended gap for panel field and corner joints.
    - a. Adhesive trowel and application method to conform to adhesive manufacturer's recommendations.
    - b. Drive fasteners for snug fit. Do not over-tighten.
- D. Apply panel moldings to all panel edges using silicone sealant providing for required clearances.
  1. All moldings must provide for a minimum 1/8 inch of panel expansion at joints and edges, to insure proper installation.
  2. Apply sealant to all moldings, channels and joints between the system and different materials to assure watertight installation.

### **3.3 CLEANING AND PROTECTION**

- A. Remove excess sealant from panels and moldings. Wipe panel down using a damp cloth and mild soap solution or cleaner.
- B. Refer to manufacturer's specific cleaning recommendations Do not use abrasive cleaners.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 09 90 00 - PAINTING AND COATING

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes surface preparation and field application of paints and other coatings.
- B. Paint/Stain all exposed surfaces that are not pre-finished items, finished metal surfaces, operating parts, labels, or materials obviously intended to be left exposed such as brick and tile.
  - 1. Steel and iron
  - 2. Galvanized metal
  - 3. Gypsum board.
  - 4. Hollow Metal Doors and Door Frames
  - 5. Running Interior Trim
  - 6. Running Exterior Trim.
- C. Unless otherwise indicated do not paint concealed surfaces.
  - 1. Do not paint cabling, and protect communication cabling from overspray. Paint voids the warranty of cable and if painted shall be replaced at the painting contractor's expense.
  - 2. Do not paint sprinkler heads or trim rings.
- D. Obtain primers and undercoat materials for each coating system from the same manufacturer as the finish coats. Primer and finish coat shall be factory applied, finish coat shall be field applied.
- E. Extra Materials: Deliver to Owner any leftover paint materials, properly labeled.
- F. Minimum surface temperature of 50 degrees required for all coating systems.
- G. Store all materials in tightly closed containers when not in use, away from heat, electrical equipment, sparks and open flames. Use approved bonding and grounding procedures. Keep out of the reach of children and residents.
- H. Transfer materials to approved containers with complete and appropriate labeling.

#### 1.2 SUBMITTALS

- A. Product Data and Color Samples: Provide product data on each coating system component indicating VOC and environmental requirements. Coordinate coating systems for each material/substrate.
- B. Provide draw down samples of each coating for final review and approval by Owner.

#### 1.3 QUALITY ASSURANCE

- A. Conform to all work place safety regulations for storage, mixing, application, and disposal of all paint related materials.
- B. Surface Burning Characteristics:
  - 1. Fire Retardant Finishes: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

#### 1.4 REFERENCES AND REGULATIONS:

- A. Standards: Comply with applicable provisions and recommendations of the following, except when otherwise shown or specified:
  - 1. OSHA Safety Standards for the Construction Industry
  - 2. SSPC Volume 1, Good Painting Practice,
  - 3. SSPC Volume 2, Systems and Specifications, Surface Preparation Guide and Paint Application Specifications of the Steel Structures Painting Council.
  - 4. SSPC and NACE Painter Safety Guidelines, latest editions.

- B. Requirements of Regulatory Agencies, conform with the following:
  - 1. Clean Air Act (CAA)
  - 2. Clean Water Act (CWA)
  - 3. Toxic Substances Control Act (TSCA)

## **1.5 ENVIRONMENTAL REQUIREMENTS**

- A. Store and apply materials in environmental conditions required by manufacturer's instructions.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver manufacturer's unopened containers to the work site. Packaging shall bear the manufacturer's name, label, and the following list of information:
  - 1. Product name and type (description)
  - 2. Application & use instructions
  - 3. Surface preparation
  - 4. VOC content
  - 5. Environmental handling and an SDS
  - 6. Batch date
  - 7. Color number
- B. Storage: Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction. Store materials in an area that is within the acceptable temperature range, per manufacturer's instructions. Protect from freezing.
- C. Handling: Maintain a clean, dry storage area to prevent contamination or damage to the coatings.

## **1.7 PROJECT CONDITIONS**

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not apply coatings under environmental conditions outside manufacturer's absolute limits.

## **1.8 MOCKUP**

- A. Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections and demonstrate aesthetic effects and set quality standards for materials and execution.

## **PART 2 PRODUCTS**

### **2.1 PAINTS AND COATINGS**

- A. Manufacturers:
  - 1. Sherwin Williams [basis of design]
  - 2. Benjamin Moore
  - 3. PPG
- B. Paints and Coatings - General:
  - 1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such a procedure is specifically described in manufacturer's product instructions. VOCs need to be confirmed by using the products EDS sheets.
- C. Primers:
  - 1. Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.



- D. Coating Application Accessories:
  - 1. Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required per manufacturer's specifications.
- E. Colors: As selected from a full range of manufacturer's offerings, including premium colors.
- F. Contractor shall provide for a minimum of paint colors per the drawings.
- G. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.
  - 1. Lead: Measurable lead content in either the pigment or binder will not be permitted.
  - 2. The finish coats shall match colors selected.
- H. Finish Quality:
  - 1. Finishes shall exhibit a high quality, commercial grade appearance of uniform thickness.
  - 2. Finishes shall be free of runs, sags, drips, waves, orange peel, festoons, dry spray, cloudiness, spotting, ropiness, brush marks, roller marks, fish eyes or other surface imperfections, voids, discontinuities, pinholes, holidays and overspray.
  - 3. Final coat shall be uniform in texture, color and gloss, and shall provide an acceptable match with the approved drawdown sample sheet.

## 2.2 EXTERIOR PAINT APPLICATION SCHEDULE

- A. Metals - Ferrous: [Semi-Gloss Finish]
  - 1. 1st Coat: S-W Pro Industrial™ Pro-Cryl® Universal Primer, B66-1300 Series (5.0 mils wet, 1.9 mils dry)
  - 2. 2nd Coat: S-W Emerald® Urethane Trim Enamel Semi-Gloss, K38 Series (4.0 mils wet, 1.3 mils dry per coat)
  - 3. 3rd Coat: S-W Emerald® Urethane Trim Enamel Semi-Gloss, K38 Series (4.0 mils wet, 1.3 mils dry per coat)
- B. Metals – Aluminum / Galvanized: [Semi-Gloss Finish]
  - 1. 1st Coat: S-W Pro Industrial™ Pro-Cryl® Universal Primer, B66-1300 Series (5.0 mils wet, 1.9 mils dry)
  - 2. 2nd Coat: S-W Emerald® Urethane Trim Enamel Semi-Gloss, K38 Series (4.0 mils wet, 1.3 mils dry per coat)
  - 3. 3rd Coat: S-W Emerald® Urethane Trim Enamel Semi-Gloss, K38 Series (4.0 mils wet, 1.3 mils dry per coat)
- C. Wood / Composite Trim: [Satin Finish]
  - 1. 1st Coat: S-W Exterior Latex Wood Primer, B42W8141 (4.0 mils wet, 1.3 mils dry)
  - 2. 2nd Coat: S-W SuperPaint® Exterior Latex Satin, A89 Series (4.0 mils wet, 1.5 mils dry per coat)
  - 3. 3rd Coat: S-W SuperPaint® Exterior Latex Satin, A89 Series (4.0 mils wet, 1.5 mils dry per coat)

## 2.3 INTERIOR PAINT APPLICATION SCHEDULE

- A. Metals - Ferrous: [Semi-Gloss Finish]
  - 1. 1st Coat: S-W Pro Industrial™ Pro-Cryl® Universal Primer, B66-1300 Series (5.0 mils wet, 1.9 mils dry)
  - 2. 2nd Coat: S-W Pro Industrial™ Semi-Gloss Acrylic, B66-650 Series (6.0 mils wet, 2.2 mils dry per coat)
  - 3. 3rd Coat: S-W Pro Industrial™ Semi-Gloss Acrylic, B66-650 Series (6.0 mils wet, 2.2 mils dry per coat)
- B. Metals – Aluminum / Galvanized: [Semi-Gloss Finish]
  - 1. 1st Coat: S-W Pro Industrial™ Pro-Cryl® Universal Primer, B66-1300 Series (5.0 mils wet, 1.9 mils dry)

2. 2nd Coat: S-W Pro Industrial™ Semi-Gloss Acrylic, B66-650 Series (6.0 mils wet, 2.2 mils dry per coat)
  3. 3rd Coat: S-W Pro Industrial™ Semi-Gloss Acrylic, B66-650 Series (6.0 mils wet, 2.2 mils dry per coat)
- C. Wood: [Semi-Gloss Finish]
1. 1st Coat: S-W Premium Wall & Wood Latex Primer, B28W8111 (4.0 mils wet, 1.6 mils dry)
  2. 2nd Coat: S-W ProMar® HP 200 Zero VOC Latex Semi-Gloss, B31-1900 Series (4.0 mils wet, 1.5 mils dry per coat)
  3. 3rd Coat: S-W ProMar® HP 200 Zero VOC Latex Semi-Gloss, B31-1900 Series (4.0 mils wet, 1.5 mils dry per coat)
- D. Wood: [Eg-Shel/Satin Finish]
1. 1st Coat: S-W Premium Wall & Wood Latex Primer, B28W8111 (4.0 mils wet, 1.6 mils dry)
  2. 2nd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B20-1900 Series (4.0 mils wet, 1.7 mils dry per coat)
  3. 3rd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B20-1900 Series (4.0 mils wet, 1.7 mils dry per coat)
- E. Gypsum Board Walls: [Semi-Gloss Finish]
1. 1st Coat: S-W ProMar® 200 Zero VOC Latex Primer, B28W2600 (4.0 mils wet, 1.0 mils dry)
  2. 2nd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B31-1900 Series (4.0 mils wet, 1.5 mils dry per coat)
  3. 3rd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B31-1900 Series (4.0 mils wet, 1.5 mils dry per coat)
- F. Gypsum Board Walls: [Eg-Shel/Satin Finish]
1. 1st Coat: S-W ProMar® 200 Zero VOC Latex Primer, B28W2600 (4.0 mils wet, 1.0 mils dry)
  2. 2nd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B20-1900 Series (4.0 mils wet, 1.7 mils dry per coat)
  3. 3rd Coat: S-W ProMar® 200 HP Zero VOC Latex Eg-Shel, B20-1900 Series (4.0 mils wet, 1.7 mils dry per coat)
- G. Gypsum Board Ceilings: [Flat Finish]
1. 1st Coat: S-W ProMar® 200 Zero VOC Latex Primer, B28W2600 (4.0 mils wet, 1.0 mils dry)
  2. 2nd Coat: S-W ProMar® 200 Zero VOC Latex Flat, B30-12600 Series (4.0 mils wet, 1.4 mils dry per coat)
  3. 3rd Coat: S-W ProMar® 200 Zero VOC Latex Flat, B30-12600 Series (4.0 mils wet, 1.4 mils dry per coat)

## 2.4 PRE-CLEANING AND SURFACE PREPARATION PRODUCTS

- A. Pre-cleaning Agents
1. SW No Rinse Prepaint Cleaner
  2. Krud Kutter
  3. Potable water
- B. Pre-cleaning (Power Wash) Equipment
1. Capacity to continuously deliver 3-5 gpm at 2,500 psig of 180-200 degree F hot water.
  2. Cleaning system shall affect the 32-ounce per gallon dilution.
  3. Manufacturer: Alkota, Model 565T with model 520 water heater or approved equal.
  4. Power wash with 15 degree tip capable of delivering hot water at 2500 psig.
- C. Power Tool Surface Preparation Media:
1. Scotch Brite No. 07451 by 3 M Corporation, Surface Conditioning disc.
    - a. Texture: A Medium
    - b. Maximum Speed: 18,000 RPM
  2. Clean 'N' Strip Disco No CSD2 by 3 M Corporation

- a. Texture: Course
- b. Maximum Speed: 8,000 RPM

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Do not begin application of coatings until substrates have been properly examined and prepared. Notify Architect of unsatisfactory conditions before proceeding.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Proceed with work only after conditions have been corrected, and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.
- D. Previously Painted Surfaces: Verify that existing painted surfaces do not contain lead based paints, notify Architect immediately if lead based paints are encountered.

#### **3.2 SURFACE PREPARATION**

- A. Comply with paint manufacturer's written instructions for surface preparation, environmental and substrate conditions, product mixing, and application.
- B. Perform all surface preparation in accordance with SSPC specifications, guidelines and good painting practices.
- C. Proper product selection, surface preparation, and application affect coating performance. Coating integrity and service life will be reduced because of improperly prepared surfaces. Selection and implementation of proper surface preparation ensures coating adhesion to the substrate and prolongs the service life of the coating system.
- D. Selection of the proper method of surface preparation depends on the substrate, the environment, and the expected service life of the coating system. Economics, surface contamination, and the effect on the substrate will also influence the selection of surface preparation methods.
- E. The surface must be dry and in sound condition. Remove oil, dust, dirt, loose rust, peeling paint or other contamination to ensure good adhesion. Recognize that any surface preparation short of total removal of the old coating may compromise the service length of the system.
- F. Prior to attempting to remove mildew, it is always recommended to test any cleaner on a small, inconspicuous area prior to use. Bleach and bleaching type cleaners may damage or discolor existing paint films. Bleach alternative cleaning solutions may be advised.
- G. Mildew may be removed before painting by washing with a solution of 1 part liquid bleach and 3 parts water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with water and allow the surface to dry before painting. Wear protective eyewear, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach/water solution.
- H. No exterior painting should be done immediately after a rain, during foggy weather, when rain is predicted, or when the temperature is below 50°F, unless products are designed specifically for these conditions. On large expanses of metal siding, the air, surface and material temperatures must be 50°F or higher to use low temperature products.
- I. Methods:
  1. Aluminum: Remove all oil, grease, dirt, oxide and other foreign material by cleaning per SSPC-SP1, Solvent Cleaning.

2. Block (Cinder and Concrete): Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement, and hardeners. Concrete and mortar must be cured at least 30 days at 75°F unless the manufacturer's products are designed for application prior to the 30-day period. The pH of the surface should be between 6 and 9 unless the products are designed to be used in high pH environments. On tilt-up and poured-in-place concrete, commercial detergents and abrasive blasting may be necessary to prepare the surface. Fill bug holes, air pockets, and other voids with a cement patching compound.
3. Concrete, SSPC-SP13 or NACE 6: This standard gives requirements for surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of bonded protective coating or lining systems. The requirements of this standard are applicable to all types of cementitious surfaces including cast-in-place concrete floors and walls, precast slabs, masonry walls, and shotcrete surfaces. An acceptable prepared concrete surface should be free of contaminants, laitance, loosely adhering concrete, and dust, and should provide a sound, uniform substrate suitable for the application of protective coating or lining systems.
4. Cement Composition Siding/Panels: Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow to dry. Existing peeled or checked paint should be scraped and sanded to a sound surface. Pressure clean, if needed, with a minimum of 2100 psi pressure to remove all dirt, dust, grease, oil, loose particles, laitance, foreign material, and peeling or defective coatings. Allow the surface to dry thoroughly. The pH of the surface should be between 6 and 9, unless the products are designed to be used in high pH environments.
5. Drywall—Exterior: Must be clean and dry. All nail heads must be set and spackled. Joints must be taped and covered with a joint compound. Spackled nail heads and tape joints must be sanded smooth and all dust removed prior to painting. Exterior surfaces must be spackled with exterior grade compounds.
6. Exterior Composition Board (Hardboard): Some composition boards may exude a waxy material that must be removed with a solvent prior to coating. Whether factory primed or unprimed, exterior composition board siding (hardboard) must be cleaned thoroughly and primed with an alkyd primer.
7. Galvanized Metal: Clean per SSPC-SP1 using detergent and water or a degreasing cleaner to remove greases and oils. Apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast per SSPC-SP16 is necessary to remove these treatments.
8. Steel: Structural, Plate, etc.: Should be cleaned by one or more of the surface preparations described below. These methods are used throughout the world for describing methods for cleaning structural steel. Visual standards are available through the Society of Protective Coatings. A brief description of these standards together with numbers by which they can be specified follow.
9. Solvent Cleaning, SSPC-SP1: Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants. Solvent cleaning does not remove rust or mill scale. Change rags and cleaning solution frequently so that deposits of oil and grease are not spread over additional areas in the cleaning process. Be sure to allow adequate ventilation.
10. Hand Tool Cleaning, SSPC-SP2: Hand Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before Hand Tool Cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
11. Power Tool Cleaning, SSPC-SP3: Power Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before Power Tool Cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.

12. White Metal Blast Cleaning, SSPC-SP5 or NACE 1: A White Metal Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
13. Commercial Blast Cleaning, SSPC-SP6 or NACE 3: A Commercial Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining. Staining shall be limited to no more than 33 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
14. Brush-Off Blast Cleaning, SSPC-SP7 or NACE 4: A Brush-Off Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose paint. Tightly adherent mill scale, rust, and paint may remain on the surface. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP 1 or other agreed upon methods.
15. Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals, SSPC-SP16: This standard covers the requirements for brush-off blast cleaning of uncoated or coated metal surfaces other than carbon steel by the use of abrasives. These requirements include visual verification of the end condition of the surface and materials and procedures necessary to achieve and verify the end condition. A brush-off blast cleaned non-ferrous metal surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, metal oxides (corrosion products), and other foreign matter. Intact, tightly adherent coating is permitted to remain. A coating is considered tightly adherent if it cannot be removed by lifting with a dull putty knife.
16. Power Tool Cleaning to Bare Metal, SSPC-SP11: Metallic surfaces that are prepared according to this specification, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxide corrosion products, and other foreign matter. Slight residues of rust and paint may be left in the lower portions of pits if the original surface is pitted. Prior to power tool surface preparation, remove visible deposits of oil or grease by any of the methods specified in SSPC-SP1, Solvent Cleaning, or other agreed upon methods.
17. Near-White Blast Cleaning, SSPC-SP10 or NACE 2: A Near White Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining. Staining shall be limited to no more than 5 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
18. Water Blasting, NACE Standard RP-01-72: Removal of oil grease dirt, loose rust, loose mill scale, and loose paint by water at pressures of 2,000 to 2,500 psi at a flow of 4 to 14 gallons per minute.
19. Stucco: Must be clean and free of any loose stucco. If recommended procedures for applying stucco are followed, and normal drying conditions prevail, the surface may be painted in 30 days. The pH of the surface should be between 6 and 9, unless the products are designed to be used in high pH environments such as Loxon.
20. Wood—Exterior: Must be clean and dry. Knots and pitch streaks must be scraped, sanded, and spot primed before a full priming coat is applied. Patch all nail holes and imperfections with a wood filler or putty and sand smooth.

21. Vinyl Siding, Architectural Plastics & Fiberglass or other PVC, plastic building products. Clean the surface thoroughly by scrubbing with warm, soapy water. Rinse thoroughly, prime with appropriate white primer. Do not paint vinyl with any color darker than the original color. Do not paint vinyl with a color having a Light Reflective Value (LRV) of less than 56 unless VinylSafe® Colors are used. If VinylSafe® Colors are not used and darker colors lower than an LRV of 56 are, the vinyl may warp. Follow all painting guidelines of the vinyl manufacturer when painting. Only paint properly installed vinyl siding. Deviating from the manufacturer's painting guidelines may cause the warranty to be voided.

### **3.3 APPLICATION**

- A. Examination and Verification of Condition: Contractor shall verify the areas and conditions under which the work is to be performed and notify the Owner in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until satisfactory conditions have been corrected. Do not coat over chalk, dirt, scale, moisture, oil, surface contaminants, coatings that have exceeded the manufacturer's re-coat guidelines, or conditions otherwise detrimental to the formation of a durable high quality coating system.
- B. Comply with manufacturer's instructions and SSPC Good Paint Practices Volumes 1 and 2.
- C. Comply with OSHA regulations, State of Ohio and Federal laws, ordinances, and guidelines.
- D. Follow manufacturer's requirements for temperature and humidity at time of application.
- E. Refer to SDS sheets before using any product.
- F. All surfaces must be thoroughly dry before coating applications. Do not apply to wet or damp surfaces.
  1. Wait at least 30 days before applying to new concrete or masonry or follow manufacturer's procedures to apply appropriate coatings prior to 30 days.
  2. Test new concrete for moisture content.
  3. Wait until wood is fully dry after rain or morning fog or dew.
- G. Apply coatings using brush or roller only.
- H. Apply all coatings and materials with the manufacturer's specifications in mind. Mix and thin coatings according to manufacturer's recommendation.
- I. Apply coatings using methods recommended by manufacturer.
- J. Uniformly apply coatings without runs, drips, or sags, without brush marks, and with consistent sheen.
- K. Apply coatings at spreading rate required to achieve the manufacturer's recommended dry film thickness.
- L. Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- M. Exterior Woodwork: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 2 weeks.
- N. Inspection: The coated surface must be inspected and approved by the Architect or Engineer just prior to the application of each coat.

### **3.4 CLEAN UP**

- A. Clean site and remove debris and empty cans daily. Remove all paint from adjacent surfaces. Clean spills and splatters immediately.
- B. Clean hands and tools immediately after use with soap and water for water based products and with mineral spirits for oil based products.

- C. Follow manufacturer's safety recommendations when using mineral spirits.

**3.5 ENVIRONMENTAL REQUIREMENTS**

- A. Store and apply materials in environmental conditions required by manufacturer's instructions.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**



## SECTION 10 14 00 - SIGNAGE

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes: Plastic interior panel signs for room identification.

#### 1.2 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- B. Shop Drawings: Detail drawings showing sizes, lettering and graphics, construction details of each type of sign and mounting details with appropriate fasteners for specific project substrates.
- C. Manufacturer's Installation Instructions: Printed installation instructions for each signage system.
- D. Message List: Signage report indicating signage location, text, and sign type.
- E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and available pictograms, characters, and Braille indications.

#### 1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum three years documented experience in work of this Section.
- B. Installer Qualifications: Minimum three years documented experience in work of this Section.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in unopened factory packaging.
- B. Inspect materials at delivery to verify there are no defects or damage.
- C. Store products in manufacturer's original packaging until ready for installation in climate controlled location away from direct sunlight.
- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials in accordance with requirements of local authorities having jurisdiction.

#### 1.5 PROJECT CONDITIONS

- A. Install products in an interior climate controlled environment.
- B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

### PART 2 PRODUCTS

#### 2.1 INTERIOR SIGNAGE

- A. Manufacturers
  - 1. ASI Sign Systems
  - 2. Diskey Architectural Signage
  - 3. Nova Polymers
  - 4. Equal

## 2.2 PERFORMANCE REQUIREMENTS

- A. General Requirements:
  - 1. Comply with all applicable provisions of the ANSI A117.1 Accessibility Requirements.
  - 2. Character Proportion: Letters and numbers on signs must have a width-to-height ratio between 3:5 and 1:1 and a stroke width-to-height ratio between 1:5 and 1:10.
  - 3. Color Contrast: Characters and symbols must contrast with their background - either light characters on a dark background or dark characters on a light background.
  - 4. Raised Characters or Symbols: Letters and numbers on signs must be raised 1/32 inch minimum and be sans serif characters. Raised characters or symbols must be at least 5/8 inch high but no higher than 2 inches. Symbols or pictograms on signs must be raised 1/32 inch minimum.
  - 5. Symbols of Accessibility: Accessible facilities required to be identified must use the international symbol of accessibility.
  - 6. Braille: Type II with accompanying text.

## 2.3 MATERIALS

- A. Acrylic Sheet: ASTM D4802, Category A-1 cell-cast sheet; Type UVF [UV filtering]
- B. Vinyl Film: UV-resistant vinyl film of nominal thickness indicated, with pressure-sensitive, permanent adhesive on back; die cut to form characters or images as indicated and suitable for exterior applications.
- C. Molded Plastic Characters: Thermoformed or injection molded
  - 1. Laminated impact acrylic sheet signage:
  - 2. Finish: non-Glare
  - 3. Engraving Method: Rotating carbide
  - 4. Thickness: 1/8 inch
  - 5. Engraving Depth: 0.012
  - 6. Braille: Type II, Raised room numbers
  - 7. Colors: to be selected, 2 colors, with contrasting color scheme
  - 8. Installation: Adhered

## 2.4 INTERIOR SIGNS

- A. Acrylic Panel, fabricated in accordance with one of the following methods:
  - 1. Inlaid acrylic signs
    - a. Acrylic sheet shall be CNC cut to specifications with square or radius corners, and/or custom shapes, 0.080 inch minimum.
    - b. 1/32 inch modified acrylic plate shall be adhered to the acrylic plate with a high bond chemical adhesive and the text and/or symbols shall be CNC cut to specifications.
    - c. Corresponding text and/or symbols shall be CNC cut from 1/16 inch modified acrylic embedded 1/32 inch and bond with chemical adhesive to the acrylic plate.
    - d. Domed grade 2 Braille shall be embedded in the surface.
    - e. Comply with requirements indicated for material, color, finish, design, shape, size, and details of construction.
  - 2. Double panel (window) sign with changeable insert(s).
    - a. Tactile appliqué: Opaque, single ply, modified acrylic sheet not less than 0.032 inch in thickness.
    - b. Braille: Braille dots shall consist of 0.0625 optically clear UV stable acrylic spheres.
    - c. Face laminate: Clear, non-glare, cast acrylic sheet not less than 0.080 inch in thickness.
    - d. Backing sheet: Expanded PVC sign board or acrylic sheet not less than 0.125 inch in thickness.
    - e. Changeable insert: Provide one of the following:
      - 1) Polystyrene not more than 0.032 inch in thickness with pressure sensitive vinyl copy or digitally printed graphics.

- 2) 0.020 inch thick clear lexan with vinyl letters.
- B. Interior Panel Sign Types:
1. Provide capacity signs for rooms constituting a place of assembly.
    - a. Provide capacity sign on the interior of all assembly spaces indicating "MAXIMUM CAPACITY XX OCCUPANTS". For number of occupants, refer to Room Finish Schedule.
  2. Toilet Room Handicapped Signs: Provide one sign depicting International Men/Women Symbol along with the words "Men" or "Women" indicated on the sign at each toilet room, equipped with facilities for the handicapped.
  3. Interior Room Name and Number Signs
    - a. Layout of room name and number shall be as directed by the A/E.
    - b. Number of signs required:
      - 1) Doors off halls, corridors, and passages.
      - 2) All spaces listed in Finish Schedule. If more than one door to a space, a sign will be required for each door.
    - c. Provide signs with clear acrylic nameplate as indicated on Signage Types.
  4. Storage Signs: Provide signs at mechanical, electrical rooms to read as follows: "COMBUSTIBLE STORAGE NOT PERMITTED"
  5. Equipment Intended for the Use of the Fire Department or Other Emergency Responders: Provide signs identifying and locating the following equipment. Locate signs in corridors near rooms containing the following:
    - a. Air-conditioning systems.
    - b. Sprinkler risers and valves.
    - c. Other fire-detection, -suppression, or -control elements.
- C. Contractor to provide temporary signage as needed to obtain final inspections for building permits.

## 2.5 FABRICATION

- A. General: Provide manufacturer's standard signs of configurations indicated.
1. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
  2. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.
  3. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.
  4. Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.
- B. Subsurface-Applied Graphics: Apply graphics to back face of clear faced-sheet material to produce precisely formed image. Image shall be free of rough edges.
- C. Shop and Subsurface-Applied Vinyl: Align vinyl film in final position and apply to surface. Firmly press film from the middle outward to obtain good bond without blisters or fish mouths.

## 2.6 ACRYLIC SHEET FINISHES

- A. Colored Coatings for Acrylic Sheet: For copy and background colors, provide colored coatings, including inks, dyes, and paints, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and that are UV and water resistant for five years for application intended.

## **PART 3 EXECUTION**

### **3.1 INSTALLATION**

- A. General: Install signs and accessories, using mounting methods of types described and complying with manufacturer's written instructions.
  - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
  - 2. Install signs on walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within 3 inches of sign without encountering protruding objects or standing within swing of door.
  - 3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
  - 4. Install signs so they do not protrude or obstruct according to the accessibility standard.
- B. Accessibility Signs: Installation height and location shall comply with applicable provisions in the U.S. Architectural and Transportations Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for signs.
  - 1. Height above finish floor or ground: Tactile characters on signs shall be located 48 inches minimum above the "finish" floor or ground surface, measured from the base line of the lowest tactile character and 60 inches maximum above the finish floor or ground surface, measured from the baseline of the height tactile character.
  - 2. Location: Where a tactile sign is provided at a door, the sign shall be located alongside the door latch side. Where a tactile sign is provided at double doors with one active leaf, the sign shall be located on the inactive leaf. Where a tactile sign is provided at double doors with two active leaves, the sign shall be located to the right of the right hand door. Where there is no wall space at the latch side of a single door or at the right side of double doors, signs shall be located on the nearest adjacent wall. Signs containing tactile characters shall be located so that a clear floor space of 18 inches minimum by 18 inches minimum, centered on tactile characters, is provided beyond the arc of any door swing between the closed position and 45 degree open position.

**END OF SECTION**

## SECTION 10 28 00 - TOILET, BATH, AND LAUNDRY ACCESSORIES

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Toilet accessories.

#### 1.2 SUBMITTALS

- A. Product Data: Accessories, describing size, finish, details of function, and attachment methods.

#### 1.3 QUALITY ASSURANCE

- A. Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the project, including but not limited to ADA and ICC/ANSI A117.1 requirements as applicable.
  - 1. Where the bottoms of units are between 27 and 80 inches above the finished floor, accessories mounted on or in the wall cannot protrude more than 4 inches into a clear access aisle.

#### 1.4 WARRANTY

- A. Furnish fifteen-year manufacturer's warranty for mirror glass and stainless steel mirror frames.

### PART 2 PRODUCTS

#### 2.1 TOILET AND BATH ACCESSORIES

- A. Manufacturer List:
  - 1. ASI
  - 2. Bobrick
  - 3. Bradley
  - 4. Approved Equal
- B. Performance and Design Criteria: Design grab bars and attachments to resist minimum 250 lb concentrated load applied at any point in any direction.

#### 2.2 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.0312-inch minimum nominal thickness, unless otherwise indicated.
- B. Steel Sheet: ASTM A 1008, Designation CS (cold-rolled, commercial steel), 0.0359-inch minimum nominal thickness.
- C. Galvanized-Steel Sheet: ASTM A 653, with G60 hot-dip zinc coating.
- D. Galvanized-Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.
- E. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper and-theft resistant where exposed, and of galvanized steel where concealed.
- F. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- G. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0-mm thick.
  - 1. Provide mirror furnished with a uniform plastic film 8 mils nominal thickness with acrylic adhesive which is moisture resistant and non-corrosive, meeting 16 CFR 1201-11 and ANSI 297.1 requirements category II tape back.

## **2.3 FINISHES**

- A. Stainless Steel: No. 4 satin brushed finish, unless otherwise indicated.
- B. Chrome/Nickel Plating: ASTM B456, Type SC 2, polished finish, unless otherwise indicated.
- C. Baked Enamel: Pretreat to clean condition, apply one coat primer and minimum two coats electrostatic-baked enamel.
- D. Galvanizing: ASTM A123; hot-dip galvanize after fabrication.

## **2.4 TOILET ROOM ACCESSORIES [COORDINATE WITH DRAWINGS]**

- A. Toilet Paper Dispenser: surface mounted, provided by Owner, installed by GC
- B. Paper Towel Dispenser: surface mounted, provided by Owner, installed by GC
- C. Waste Receptacle: loose installation, provided by Owner, installed by GC
- D. Soap Dispenser: wall mounted, provided by Owner, installed by GC
- E. Mirrors: Stainless-steel-framed, 6-mm-thick float glass mirror.
  - 1. Size: as indicated on Drawings.
  - 2. Frame: 0.05 in angle shapes, with mitered, welded and ground smooth corners, and tamper-proof hanging system; satin stainless steel finish.
  - 3. Backing: Full mirror sized, galvanized steel sheet and nonabsorptive filler material.
- F. Grab Bars: Stainless steel, 1-1/2 in outside diameter, minimum 0.05 in wall thickness, nonslip grasping surface finish, concealed flange mounting; 1-1/2 in clearance between wall and inside of grab bar.
  - 1. Length and configuration: As indicated on Drawings.
- G. Sanitary Napkin Disposal Unit: surface mounted.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify:
  - 1. Exact location of accessories for installation.
  - 2. Field measurements and rough-in dimensions for recessed accessories are as indicated on product data or as instructed by manufacturer.
- B. Coordinate locations for installation of blocking, reinforcing plates, concealed anchors in walls.

### **3.2 PREPARATION**

- A. Deliver inserts and rough-in frames to Site for timely installation.
- B. Provide templates and rough-in measurements as required.

### **3.3 INSTALLATION**

- A. Do not install accessories until after completion of all finishes to adjacent wall and ceiling surfaces.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Turn over to Owner all keys and special tools required for lockable or secured accessories.
- D. Mounting Heights and Locations: As required by accessibility regulations and as indicated on Drawings:

**3.4 CLEANING**

- A. Clean mirrors and exposed surfaces using procedures as recommended by accessory manufacturer.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**



## **SECTION 10 44 00 - FIRE PROTECTION SPECIALTIES**

### **PART 1 GENERAL**

#### **1.1 SUMMARY**

- A. Section Includes: Fire extinguishers.

#### **1.2 PERFORMANCE REQUIREMENTS**

- A. Conform to **NFPA 10 and Local Fire Department Requirements**.
- B. Provide extinguishers classified and labeled by UL for purpose specified and indicated.
- C. Provide fire extinguisher cabinets classified and labeled by UL or testing firm acceptable to authority having jurisdiction for purpose specified and indicated.

#### **1.3 SUBMITTALS**

- A. Shop Drawings: Indicate cabinet physical dimensions, rough-in measurements for recessed cabinets, wall bracket mounted measurements, location, fire ratings.
- B. Product Data: Extinguisher operational features, color and finish, anchorage details.
- C. Manufacturer's Installation Instructions: Special criteria and wall opening coordination requirements.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

#### **1.4 CLOSEOUT SUBMITTALS**

- A. Operation and Maintenance Data: Test, refill or recharge schedules, and re-certification requirements.

#### **1.5 ENVIRONMENTAL REQUIREMENTS**

- A. Do not install extinguishers when ambient temperature are capable of freezing extinguisher ingredients.

### **PART 2 PRODUCTS**

#### **2.1 FIRE EXTINGUISHERS**

- A. Manufacturers:
  - 1. Larsen
  - 2. Kidde
  - 3. Equal
- B. Dry Chemical Type: Aluminum tank, with pressure gage; Class A: B: C, Size 10.

#### **2.2 ACCESSORIES**

- A. Extinguisher Brackets: Formed steel, white enamel finish.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify rough openings for cabinet are correctly sized and located.

#### **3.2 INSTALLATION**

- A. Install wall brackets maximum 48 inches from finished floor to top of extinguisher handle.
- B. Position cabinet signage as required by authorities having jurisdiction.

**END OF SECTION**

## SECTION 12 21 13 - WINDOW BLINDS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes manually operated aluminum mini-blinds; and operating hardware.

#### 1.2 SUBMITTALS

- A. Shop Drawings: Indicate method of attachment and anchorage. Indicate locations for operating controls.
- B. Product Data: Submit data indicating physical and dimensional characteristics, operating features
- C. Samples: Submit two samples, long illustrating slat materials and finish, color, cord type and color.

### PART 2 PRODUCTS

#### 2.1 ALUMINUM BLINDS

- A. Manufacturers:
  - 1. Lafayette Interior Fashions
  - 2. Approved Equal

#### 2.2 1" HORIZONTAL ALUMINUM MINI-BLINDS

- A. PRODUCT: Traditions Model 820 [BASIS OF DESIGN]
- B. MATERIAL
  - 1. SLATS: 1" wide X .008 thick slat with heat treated and spring tempered aluminum alloy 6011. Corners shall be rounded smooth and free of all manufacturing burrs. Furnish not less than 15.2 slats per foot to ensure tight closure and light control. Furnish with manufacturer's standard baked on enamel finish in colors selected by Architect from manufacturers available contract colors using Dust Shield finish to inhibit dust build up for easier maintenance.
  - 2. Slat Support: Braided ladders of 100% polyester yarn color compatible with slats and spacing of ladder no more than 20mm.
  - 3. HEADRAIL: Traditions aluminum blinds utilize a 1" X 1" head rail that minimizes the amount of space needed for an inside installation. Headrail to have a U-Shaped profile with rolled edges, measuring 1" X 1" X .024 constructed of corrosion resistant steel. Internally fit with components required for specified performance and designed for smooth, quiet, trouble free operation. Headrail finish to be standard baked on polyester and to coordinate with slats.
  - 4. BOTTOM RAIL: Steel with corrosion resistant finish formed with double-lock seam into closed oval shape for optimum beam and torsion strength. Ends fitted with color coordinated polymer caps. Color coordinated polymer tape buttons secure the ladder and cord. Bottom rail finish to be standard baked on polyester color coordinated to slats.
  - 5. LIFTING MECHANISM: Crash proof cordlock in polymer housing with nickel plated die cast bearing surface and brass locking clips, two-ply polyester cord filler in braided polyester jacket lift cords, cord equalizers, cordlock adapter and Cord Stop/Single Pull Cord. Locate on either side of individual blind unit.
  - 6. TILTING MECHANISM: Permanently lubricated die-cast worm and gear type tilter gear mechanism in fully enclosed housing with clutch action to protect ladder tapes from over rotation of the solid steel corrosion resistant tilt rod.
  - 7. TILT CONTROL WAND: Tubular construction 9/32" diameter extruded clear acrylic hexagonal and detachable without tools. Located on either side of individual blind unit.

8. MOUNTING HARDWARE: Manufacturers standard .042 steel brackets with baked on enamel polyester finish to match head rail. Additional support brackets for blinds over 60"wide.

**2.3 FABRICATION**

- A. Fabricate blinds to fit within openings with uniform edge clearance of 1/4 inch.

**2.4 FINISHES**

- A. Color as selected from full range of manufacturer colors.

**PART 3 EXECUTION**

**3.1 INSPECTION**

- A. Subcontractor shall be responsible for inspection on site, approval of mounting surfaces, installation conditions and field measurement for his work.
- B. Other interacting trades shall receive information regarding dual roller shade dimensions, assembly and installation methods from subcontractor upon request.

**3.2 INSTALLATION**

- A. Install systems in accordance with approved submittals and manufacturer's written instructions. Install in proper relationship to adjacent construction.
- B. Test for operation as recommended by manufacturer. Repair or replace units until satisfactory results are obtained.
- C. Installation shall comply with manufacturers specifications, standards and procedures as detailed in submittals.
- D. Adequate clearance shall be provided to permit unencumbered operation of shade and hardware.

**3.3 CLEANING AND PROTECTION**

- A. Clean installed products in accordance with manufacturer's recommendations. Touch-up, repair or replace damaged products before Substantial Completion.
- B. Protect installed products until completion of project.

**END OF SECTION**

## SECTION 13 12 10 – PRE-ENGINEERED TIMBER COLUMN STRUCTURES

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Pre-Engineered building systems, including but not limited to primary and secondary structural framing systems, roofing, siding, and accessories; Timber Column Structure; Prefinished metal roofing and siding panels; Prefinished metal trim items; Prefinished soffits; Pre finished gutters and downspouts; and liner package.
1. Clear-span truss and above grade columns bearing on concrete foundation.

#### 1.2 REFERENCES

- A. ASTM International (ASTM):
1. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  2. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  3. ASTM C991 - Standard Specification for Flexible Glass Fiber Insulation for Metal Buildings.
  4. ASTM D3363 - Standard Test Method for Film Hardness by Pencil Test.
  5. ASTM D4145 - Standard Test Method for Coating Flexibility of Prepainted Sheet.
  6. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
  7. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- B. Preservative Treated Lumber
1. American Wood Protection Association (AWPA)
    - a. Commodity Specification C2 (2001), Preservative Treatment By Pressure Processes
    - b. Use Category System U1, User Specification for Treated Wood
    - c. Items treated under AWPA standards shall bear the quality mark of an independent testing agency or service
  2. International Code Council Evaluation Service (ICC-ES)
    - a. Items treated under ICC-ES reports shall meet or exceed the applicable standard and shall bear the quality mark of an independent testing agency or service
  3. Federal Specification TT-W-571-J.
- C. Framing Lumber
1. Lumber Grading Rules and Wood Species
    - a. National Design Specification for Wood Construction, current edition
    - b. Northeastern Lumber Manufacturer's Association, Inc. (NELMA)
    - c. Southern Pine Inspection Bureau (SPIB)
    - d. West Coast Lumber Inspection Bureau (WCLIB)
    - e. Western Wood Products Association (WWPA)
- D. Wood Trusses
1. All lumber used in the design of wood trusses shall be kiln dried to maximum 19% moisture content and graded in accordance with the current grading rules. Design stresses allowed are those listed in the current editions of the respective Lumber Association's grading rules.
  2. The design of wood members shall be in accordance with the formulas published in the 2001 edition of the National Design Specification for Wood Construction.
  3. Light metal toothed connector plates and joint design shall conform to specifications as set forth in the Truss Plate Institute's Design Specification for Metal Plate Connected Wood Trusses (TPI).
    - a. Connector plates shall be fabricated in accordance with applicable ICC-ES standards.

4. Truss members and joints shall be designed in accordance with TPI. All truss designs shall be accompanied by complete and accurate shop drawings and contain the following information:
  - a. Slope or depth, span and spacing of the truss
  - b. Heel bearing height
  - c. Design loading to include:
    - 1) Top chord live load
    - 2) Top chord dead load
    - 3) Bottom chord dead load
    - 4) Concentrated loads and their points
  - d. Adjustments to lumber and plate design values for conditions of use
  - e. Plate type, thickness of gauge and size
  - f. Lumber size, species and grade for each member

### 1.3 SYSTEM DESCRIPTION

- A. Structural Frame Design:
  1. Design shall be based on the building framing and enclosure as manufactured by wood frame pole structure company.
    - a. Type: Clear span roof truss.
    - b. Maximum Width: Refer to Drawings.
    - c. Maximum Clear Height: Refer to Drawings.
    - d. Columns: Bolted to foundation.
    - e. Purlins: Laid flat above truss, factory drilled and fastened per manufacturer requirements.
- B. Dimensions:
  1. Building width, depth, and height as per Drawings. Design to be free-span with no interior columns.
  2. Roof Slope: 4:12
- C. Structural Requirements:
  1. Building Code: International building Code (IBC) and ASCE-7-16, current edition.
  2. Design Loads: Refer to Section 1.4
  3. Structural Design:
    - a. Perform calculations using diaphragm and/or frame analysis. Incorporate bracing as required.
    - b. Comply with AF&PA "National Design Specification for Wood Construction (NDS)."
    - c. Trusses:
      - 1) Limit deflection for live or snow loads to L/240 for trusses supporting steel ceilings and to L/180 for overhangs and trusses not supporting ceilings.
      - 2) Limit deflection for live or snow loads to L/360 for trusses supporting GWB or plaster ceilings and to L/180 for overhangs and trusses not supporting ceilings.
      - 3) Comply with appropriate NDS and Truss Plate Institute (TPI) standards.
    - d. Metal Wall and Roof Panels:
      - 1) Design in accordance with AISI "Specifications for the Design of Light-Gauge, Cold-Formed Steel Structural Members" and in accordance with sound engineering methods and practices.
    - e. Plywood or Oriented Strand Board Sheathing: Comply with APA "Plywood Design Specification."
    - f. Expansion/Contraction Provisions: Design roof attachment system to allow for expansion and contraction of metal roofing, due to seasonal temperature variations, without detrimental effect to the roof panels.
  4. Clear span as indicated on Drawings.
  5. Bay spacing of nominal 4'-0" oc., coordinate with design intent on drawings.
- D. Primary framing

- a. Columns
  - b. Trusses
  - c. Wind bracing
- E. Secondary framing
- 1. Perimeter baseboards and preservative treatment
  - 2. Wall girts
  - 3. Purlins
  - 4. Overhang rafters and fascia
  - 5. Ancillary blocking or furring as required
- F. Roof Covering
- 1. Prefinished ribbed metal panels
- G. Wall Covering
- 1. Prefinished ribbed metal panels
- H. Insulation and Liner package
- 1. Foundation Insulation
  - 2. Wall insulation
  - 3. Ceiling insulation
  - 4. Air baffles
  - 5. Vapor retarder
  - 6. Wall stripping
  - 7. Prefinished ribbed metal panels

#### 1.4 DESIGN CRITERIA

- A. Submit engineering drawings and applicable calculations for pre-engineered design of timber column structure signed and sealed by Professional Engineer licensed in the State of Ohio.
- 1. Architect will review engineering drawings for design intent.
  - 2. Engineer shall provide drawings for building permit application with Preble County Building Department. Contractor will coordinate application of building permits.
- B. Design Loads:
- 1. Ground Snow Load: 20 psf
  - 2. Ground Exposure Factor: 1.0.
  - 3. Roof Load, Live load: 20 psf
  - 4. Roof Dead Load: 20 psf
  - 5. Ceiling Dead Load: 4 psf
  - 6. Wind Load: Wind speed (3 sec gust): 115 mph
  - 7. Maximum Considered Earthquake 1.0 Second Spectral Response Acceleration.
  - 8. Collateral Loads: Additional loads imposed by contract documents other than weight of building systems specified in this section.
  - 9. Combination Loads: Comply with Building Code.
- C. Roof Design Loads
- 1. Top Chord Live Load: 20 PSF
  - 2. Top Chord Dead Load: 10 PSF
  - 3. Bottom Chord Dead Load: 10 PSF; as required to support supplemental ceiling framing and metal liner panels / gypsum board ceiling finishes
  - 4. Bottom Chord Point Loads: Refer to Drawings for locations of point load requirements.
  - 5. Unbalanced Snow Loads: As applicable to Building Design
  - 6. Special Loads: As applicable to the Building Design
  - 7. All loads in accordance with Ohio Building Code and ASCE 7-16.
- D. Roof and wall system shall be able to withstand the imposed loads with maximum allowable deflection of L/180.

- E. Assembly shall permit movement of components without buckling, failure of joint seals, undue stress on fasteners or other detrimental effects.
- F. Size and fabrication of wall and roof systems to be free of distortion or defects that would be detrimental to appearance or performance.

### **1.5 SUBMITTALS**

- A. Pre-Engineered Timber Column Building Shop Drawings: Submit shop and erection drawings for fabrication and installation of timber column building showing size and location of each part and component, certifying that the building design meets specified roof and wind loading requirements including the following:
  - 1. Framing plans.
  - 2. Truss Design Engineering Drawings
  - 3. Elevations.
  - 4. Detail sections of framing members.
  - 5. Hardware, mounting heights.
  - 6. Anchorage and reinforcements.
  - 7. Opening framing details
- B. Truss engineering analysis and design data, including the following:
  - 1. Axial forces and bending moments for each member
  - 2. Basic plate design value
  - 3. Design analysis of each joint showing that proper plates have been applied
- C. Product Data: Submit data indicating technical product data, systems data, and installation instructions for each component, performance criteria, preparation, limitations, and color / finish options.
- D. Structural Engineer Certification: Letter signed by a Structural Engineer, registered to practice in the State of Ohio, verifying compliance with Design Requirements. Letter shall reference specific dead loads, live loads, wind loads, tributary area load reductions (if applicable) collateral loads, seismic loads, end use categories, and governing building code including edition and load applications.
- E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- F. Submittals shall meet structural requirements of all local codes for building permits.

### **1.6 GENERAL REQUIREMENTS**

- A. It is the intent of this specification to include the furnishing and erection of the timber column building superstructure as shown on plans and/or hereinafter described such work to be the responsibility of the Pre-Engineered Timber Column Building Manufacturer. Building installation is the responsibility of the Building Manufacturer and shall be included with bid on bid day.
- B. Refer to other applicable sections for sitework, concrete foundation, interior buildout and finishes, and plumbing, mechanical, and electrical related work.
- C. Coordinate foundation layout and installation with the engineered design of the Building Manufacturer. Approved Pre-Engineered Timber Column Building drawings shall be coordinated with foundation installation. Dimensions may vary slightly from the contract documents to accommodate manufacturer's standards. Coordinate with Architect.

### **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Store products in manufacturer's unopened packaging until ready for installation. Follow manufacturer's recommended storage procedures. Do not allow steel siding and roofing to contact the ground.



- B. Protect materials during delivery, storage, and handling to comply with Manufacturer's directions and as required to prevent damage or deterioration.

### **1.8 QUALIFICATIONS**

- A. Manufacturer Qualifications: Manufacturer shall have a minimum of 20 years experience in fabrication and erection of pre-engineered timber column structures for similar projects.
  - 1. Design structural components under direct supervision of a Professional Engineer experienced in design of this work and licensed in the State of Ohio.
- B. Installer Qualifications: Installer shall have a minimum of 10 years experience in the erection of pre-engineered timber column structures for similar projects.

### **1.9 DELIVERY, STORAGE AND HANDLING**

- A. Deliver and store prefabricated components (trusses, columns, steel panels and other items) so that they will not be damaged or deformed.
- B. Stack materials on platforms, pallets or other structures covered with tarpaulins or other suitable weather-tight ventilated covering. Handle and store structural parts in a manner that will avoid deforming members or subjecting parts to excessive stresses.
- C. Store roofing and siding panels to allow water to drain freely.
- D. Panels shall not be stored in contact with other materials that may cause staining or discoloration.

### **1.10 WARRANTY**

- A. Structural Design - Lifetime: Manufacturer warrants that the building designed by Lester will not experience an occurrence of structural failure or an occurrence of structural damage due to improper structural design (excepting ventilation systems) on account of weather conditions, such as wind, ice, and snow, as indicated on the Lester Sales Agreement, "Building Description Section". The foregoing warranty is limited to 50 years with respect to any Owner which is not an individual.
- B. Preservative Treated Materials: 50 years. Preservative treated lumber, including structural columns, are warranted by the original materials manufacturer against failures due to fungal decay and termite infestation.
- C. Roofing and Siding Finish, steel panel: Warranted by the original materials manufacturer for 40 years from the date of shipment. Refer to Warranty document for complete details.
- D. Individual Building Products: Manufacturer's standard warranty.
- E. Installation Warranty: One year general installation warranty, five years against roof leaks.

## **PART 2 PRODUCTS**

### **2.1 PRE-ENGINEERED TIMBER COLUMN BUILDING SYSTEM MANUFACTURER**

- A. Manufacturers:
  - 1. Lester Building Systems [Uni-Frame II, Basis of Design]
  - 2. Morton Buildings
  - 3. Wick Buildings
  - 4. Approved Equal

### **2.2 MATERIALS**

- A. Note: Materials indicated herein are a general outline, refer and coordinate with the building drawings and the necessary applicable pre-engineered timber column building design requirements to meet and/or exceed all applicable codes and standards.
- B. Foundation: Concrete Foundation per Drawings, refer to Section 03 30 00.

C. Primary Framing

1. Columns:
  - a. Treated Lumber Section:
    - 1) Lumber: No. 1 or Better Southern Yellow Pine, pressure treated with Chromated Copper Arsenate, Type III, to a retention of 0.6 pcf (9.6 kg/m<sup>3</sup>) and kiln dried after treating to 19 percent maximum moisture content.
    - 2) Fabrication: Laminate individual pieces using ring shank feed nails per manufacturer's engineered nailing pattern. Fasteners shall have ASTM A153 galvanizing.
  - b. Untreated Lumber Section:
    - 1) Lumber: Lumber: No. 1 or Better Southern Yellow Pine or Douglas Fir-Larch or other equivalent NDS approved species/grade kiln dried to 19 percent maximum moisture content.
    - 2) Fabrication: Laminate individual pieces using ring shank feed nails per manufacturer's engineered nailing pattern.
    - 3) Grade and size shall be selected to support imposed loads within deflection limits.
  - c. End Joint Connection of Treated and Untreated Sections: Factory fabricated finger joint.
  - d. Configuration:
    - 1) Sidewall and Endwall Columns: 3 ply or 4 ply combining 2x4, 2x6, 2x8, or 2x10 dimension lumber as required by "Structural Design" requirements specified herein.
    - 2) Corner Columns: 2 ply or 3 ply 2x4, 2x6 or 2x8 dimension lumber as required by "Structural Design" requirements specified herein.
  - e. Column on Concrete Foundation:
    - 1) Provide screw in concrete anchors.
    - 2) Provide cast-in-place anchors per shop drawings.
2. Trusses: Comply with "Structural Design" and "Quality Assurance" requirements as specified herein.
  - a. Comply with TPI "Design Specification for Metal Plate Connected Wood Trusses" and "Quality Standard for Metal Plate Connected Wood Trusses."
  - b. Manufacturer shall have a third party inspection program to verify compliance with requirements of TPI.
  - c. Stamp trusses with inspection agency identification.
  - d. Top Chord: Southern Yellow Pine of size and grade to meet design requirements
  - e. Bottom Chord: Southern Yellow Pine of size and grade to meet design requirements
  - f. Webs: Southern Yellow Pine of size and grade to meet design requirements
  - g. Trusses shall be constructed of surfaced lumber (S4S) and compliant with SPIB visual and structural grade requirements
  - h. Plates: Connector plates shall meet design requirements and shall be compliant with applicable ICC-ES standards and specifications
  - i. Design and fabricate trusses and connections to withstand snow, wind and all dead loads.
  - j. Fabricate trusses in plant, using mechanical or hydraulic fixtures as required to bring members into contact. Install plates in accordance with manufacturer's instructions.

D. Secondary Framing:

1. Purlins and Girts:
  - a. Lumber: No. 2 or Better dimension lumber kiln dried to 19 percent maximum moisture content.
  - b. Configuration: 2x4 or 2x6 or 2x8 as required by "Structural Design" requirements specified herein.

- 1) Girts: Size, grade and spacing to meet wind and deflection criterion. Face mounted to exterior side of column.
  - 2) Purlins: Factory drilled and dadoed to accept 3/16 inch diameter x 6 inch screw fastener and ensure building modularity.
  - c. Spacing: As required by "Structural Design" requirements specified herein.
  2. Splashplank:
    - a. Lumber: No. 2 or Better Southern Yellow Pine, preservative treated, to a retention of 14 pcf (2.2 kg/m<sup>3</sup>) of micronized copper azole.
    - b. Configuration: 2x6 or 2x8 (50x 150 or 50x200 mm) dimension lumber. Milled S4S for single row and milled T&G for multiple rows.
  3. Sill Plate:
    - a. Lumber: No. 2 or Better Southern Yellow Pine, preservative treated, to a retention of 0.17 pcf (B2O3) borate (0.25 pcf disodium octaborate tetrahydrate DOT) and kiln dried after treating to 19 percent maximum moisture content.
    - b. Configuration: 2x4 or 2x6 or 2x8 or 2x10 dimension lumber as required by "Structural Design" requirements specified herein.
  4. Bracing, Wall and Lateral Truss Type where required by "Structural Design":
    - a. Lumber: No. 2 or Better dimension lumber.
    - b. Configuration:
      - 1) 2x4 or 2x6 as required by "Structural Design" requirements specified herein.
- E. Overhang framing
1. Provide factory fabricated rafter frames.
  2. Provide 2x6 No. 2 or better SPF factory beveled fascia boards.
- F. Wind bracing
1. 2x6 No. 2 or better SPF from endwall column to first truss back.
- G. Framing around openings
1. 2x6 No. 2 or better SPF around door and window openings
- H. Headers
1. Provide built-up headers as required for proper installation.
- I. Incidental Framing
1. 2x4 and/or 2x6 No. 2 or better SPF

## 2.3 EXPOSED FASTENER, LAP SEAM, METAL ROOF PANELS

- A. Metal Roof Panels: metal panels as manufactured by Building Manufacturer. [UNI-RIB panel, Basis of Design]
1. Material and Finish: 26 Gauge, ASTM A 653, Structural Quality, Grade 80, AZ50 zinc coating both sides, Triple Spot Test.
    - a. Exterior Surface Finish: Lester Pewter Gray [Basis of Design], or as selected from full range of available colors / finishes.
      - 1) Bonderize and provide baked on primer and factory applied, baked-on 70% Kynar 500 or Hylar 5000 PVDF fluoropolymer resin based Fluropon paint coating as manufactured by Valspar, 0.9 mil minimum dry film thickness.
      - 2) Gloss (60 Degrees): ASTM D523, 20 to 80.
      - 3) Pencil Hardness: ASTM D3363, F to 2H.
      - 4) T-Bend: ASTM D4145: 2T to 4T.
  2. Configuration:
    - a. Roll-formed; 36 inch coverage width. Provide panels covering up to 35 foot lengths in single pieces.
    - b. Four major corrugations, 7/8 inch high, spaced 12 inches on center with 3 minor corrugations, 1/8 inch high, spaced 3 inches on center between each major corrugation.
    - c. Form one outboard corrugation as overlapping corrugation.

- d. Form opposite outboard corrugation as underneath corrugation with full return leg to support side lap and a continuous anti-siphon drain channel.
  - e. Factory cut to required length.
  3. Material and Finish: As shown on Erection Drawings, except as specified herein.
  4. Fasteners: Color coated No. 10 piercing screws with 1/4 inch hex head pre-assembled to 1/2 inch O.D. dome seal or bond seal galvanized steel and EPDM washers.
- B. Roofing Accessories
1. Steel Ridge Cap: The cap materials and construction shall match the roof steel materials and construction.
  2. Vents: Ridge vent, and/or low profile ridge ventilator as shown on Drawings.
  3. Eave Overhang Fascia Flashing:
    - a. Size: 12 inches nominal.
  4. End Overhang Fascia Flashing:
    - a. Size: 12 inches nominal.
  5. Gutters and Downspouts: Refer to Section 07 62 00.
  6. Closure Strips: Closed cell, 2 pcf density polyethylene foam, premolded to match configuration of panels.

## 2.4 EXPOSED FASTENER, LAP SEAM, METAL SIDING PANELS

- A. Metal Siding Panels: metal panels as manufactured by Building Manufacturer. [UNI-RIB panel, Basis of Design]
1. Material and Finish: 26 Gauge, ASTM A 653, Structural Quality, Grade 80, AZ50 zinc coating both sides, Triple Spot Test.
    - a. Exterior Surface Finish: Lester Regal Red [Basis of Design]
      - 1) Bonderize and provide baked on primer and factory applied, baked-on 70% Kynar 500 or Hylar 5000 PVDF fluoropolymer resin based Fluorpon paint coating as manufactured by Valspar, 0.9 mil minimum dry film thickness.
      - 2) Gloss (60 Degrees): ASTM D523, 20 to 80.
      - 3) Pencil Hardness: ASTM D3363, F to 2H.
      - 4) T-Bend: ASTM D4145: 2T to 4T.
  2. Configuration:
    - a. Roll-formed; 36 inch coverage width. Provide panels covering up to 35 foot lengths in single pieces.
    - b. Four major corrugations, 7/8 inch high, spaced 12 inches on center with 3 minor corrugations, 1/8 inch high, spaced 3 inches on center between each major corrugation.
    - c. Form one outboard corrugation as overlapping corrugation.
    - d. Form opposite outboard corrugation as underneath corrugation with full return leg to support side lap and a continuous anti-siphon drain channel.
    - e. Factory cut to required length.
    - f. Factory miter cut gable ends.
    - g. Material and Finish: As shown on Erection Drawings, except as specified herein.
    - h. Fasteners: Color coated No. 10 piercing screws with 1/4 inch hex head pre-assembled to 1/2 inch O.D. dome seal or bond seal galvanized steel and EPDM washers.
- B. Siding Accessories:
1. Wall Trim and Flashings: Manufacturer's standard wall trim and flashings.
  2. Closure Strips: Closed cell, 2 pcf density polyethylene foam, premolded to match configuration of panels.
  3. Material and Finish: As shown on Erection Drawings, except as specified herein.
    - a. Corner Boards / Trim Boards: Lester Pewter Gray [Basis of Design]

## **2.5 INSULATION**

- A. Refer to Section 07 21 00.

## **2.6 EXPOSED FASTENER, LAP SEAM, INTERIOR METAL PANELS**

- A. Steel Panel – Walls and Ceilings:
  - 1. Type: 29 Gauge, ASTM A 653, Structural Quality, Grade 80, galvanized steel with G40 zinc coating both sides, Triple Spot Test.
  - 2. Color: White, or as selected from full range of manufacturer colors / finishes.
  - 3. Type: Metal Panels with adhered DripStop Condensation Control membrane: UL 723 approved for flame spread and smoke generation; 20 year adhesion warranty.

## **2.7 MATERIALS – OTHER ITEMS**

- A. Corner bracing
  - 1. Provide 1-1/4" wide high tensile steel strapping in all unobstructed corners in an "X" configuration. Coordinate locations with pre-engineered building design drawings.
- B. Roofing and siding fasteners
  - 1. EPDM washered, painted, center drive stainless steel screws for ribbed steel panels
- C. Closure strips
  - 1. Closed cell foam as applicable to the conditions.
- D. Sealant [also refer to Section 07 90 00]
  - 1. 100% neutral curing silicone sealant, and paintable sealant where required
  - 2. Sealant Type and Application shall be approved by the Building Manufacturer.
- E. Vapor Retarder
  - 1. 10 mil thick polyethylene sheets, Refer to Section 03 30 00.

## **2.8 FABRICATION**

- A. Fabricate components in accordance with shop drawings. Shop fabricate to greatest extent practical to minimize field cutting, splicing, and assembly.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that site conditions are acceptable for erection/installation of pre-engineered wood building system.
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory conditions.
- C. Commencement of work by erector/installer is acceptance of site conditions.

### **3.2 PREPARATION**

- A. Examine areas and conditions under which work is to be installed. Notify Contractor in writing of conditions detrimental to proper and timely installation of work.
- B. Coordinate and furnish anchorages, setting diagrams, templates and directions for installation of anchorages. Coordinated delivery of such items to project site.

### **3.3 ERECTION**

- A. Erect in accordance with manufacturer's instructions and approved shop drawings.
- B. Provide temporary erection and wind load bracing to maintain structure plumb and in alignment until installation of permanent bracing and/or roofing and wall coverings are completed.
- C. Do not field cut or alter structural members without approval of Architect and manufacturer.

### 3.4 INSTALLATION OF EQUIPMENT

- A. General: Install equipment in accordance with Manufacturer's installation instructions and recognized industry practices to insure intended function.

### 3.5 ERECTION – FRAMING – GENERAL

- A. Provide all required framing components, ancillary framing, blocking, bracing, and sheathing as required to provide a complete structurally independent and stable building. Design requirements indicated within this specification may not include every component required to provide a complete system. The Manufacturer and Contractor shall coordinate all specific requirements with the design intent indicated herein and on Drawings. Advise Architect of any discrepancies which may deviate from the design intent.
- B. Erect framing in accordance with manufacturer's established construction procedures.
- C. Make all components and building plumb, square, straight and true to lines, according to industry standards and building code requirements.
- D. Provide adequate temporary bracing to assure structure remains plumb and square until permanent bracing is installed.
- E. Altering of structural members will not be permitted.

### 3.6 ERECTION – PREFINISHED MATERIALS – GENERAL

- A. Roofing Panels
  - 1. Install panels perpendicular to supports, aligned straight with end fascia
  - 2. Fasten panels to purlins with screw fasteners.
  - 3. Sidelap: Minimum one full corrugation.
  - 4. Endlap: 8 inches for slopes 4 in 12. Secure together over and to structural members.
  - 5. Endlap: 12 inches for slopes 4 in 12. Secure together over and to structural members.
  - 6. Accessories: Install as shown on Erection Drawings.
- B. Siding and wainscot panels
  - 1. Install panels perpendicular to supports, aligned level and plumb to industry standards.
  - 2. Fasten panels to wall girts with screw fasteners.
- C. Trim items
  - 1. Install trim items at the base, wainscot transition, corners, top of steel siding, fascia, gables and ridge using appropriate fasteners.
- D. Soffits
  - 1. Install soffits to interlock with trim items at top of steel siding and at fascia.
  - 2. Use solid soffit at end overhang.
  - 3. Use a combination of solid and perforated soffits to provide balanced ventilation at side overhangs.
- E. Gutter and downspouts
  - 1. Install gutters with hidden screw fasteners spaced 24" on-center.
  - 2. Silicone sealant and silicone rubber gaskets shall be used at laps to maintain leak prevention and to relieve stress due to thermal movement.
- F. Filler strips
  - 1. Provide closed cell foam filler strips at the top and bottom of the roofing panels.
- G. Interior Panels
  - 1. Install panels perpendicular to supports, aligned level and plumb
  - 2. Fasten panels to wall girts with 1" painted screws
  - 3. Fasten panels to lower truss chords with 1" painted screws

**3.7 TOLERANCES**

- A. Framing Members
  - 1. 1/4" from level.
  - 2. 1/8" from plumb
- B. Siding and roofing
  - 1. 1/8" from true position

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**



**SECTION 220553  
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Nameplates.
- B. Stencils.

**1.02 REFERENCE STANDARDS**

- A. ASME A13.1 - Scheme for the Identification of Piping Systems 2020.
- B. ASTM D709 - Standard Specification for Laminated Thermosetting Materials 2017.

**PART 2 PRODUCTS**

**2.01 PLUMBING COMPONENT IDENTIFICATION GUIDELINE**

- A. Nameplates:
  - 1. Heat exchangers, water heaters, and other heat transfer products.
  - 2. Control panels, transducers, and other related control equipment products.
  - 3. Pumps, tanks, filters, water treatment devices, and other plumbing equipment products.

**2.02 NAMEPLATES**

- A. Description: Laminated piece with up to three lines of text.
  - 1. Letter Color: White.
  - 2. Letter Height: 1/4 inch (6 mm).
  - 3. Background Color: Black.
  - 4. Nameplate Material:
    - a. Flexible: Polycarbonate with adhesive backing per ASTM D709.
    - b. Metal: Brass with center-side holes for screw fastening.

**2.03 STENCILS**

- A. Pipe: Stencil size required per external insulated or uninsulated pipe diameter.
  - 1. 3/4 to 1-1/4 inch (20 to 30 mm) Range: 1/2 inch (15 mm) text over 8 inch (200 mm) long background.
  - 2. 1-1/2 to 2 inch (40 to 50 mm) Range: 3/4 inch (20 mm) text over 8 inch (200 mm) long background.
  - 3. 2-1/2 to 6 inch (65 to 150 mm) Range: 1-1/4 inch (30 mm) text over 12 inch (300 mm) long background.

**PART 3 EXECUTION**

**3.01 PREPARATION**

- A. Degrease and clean surfaces to receive identification products.

**3.02 INSTALLATION**

- A. Install flexible nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
- B. Install tags in clear view and align with axis of piping

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 220719  
PLUMBING PIPING INSULATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Piping insulation.
- B. Jackets and accessories.

**1.02 RELATED REQUIREMENTS**

**1.03 REFERENCE STANDARDS**

**PART 2 PRODUCTS**

**2.01 REGULATORY REQUIREMENTS**

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

**2.02 GLASS FIBER**

- A. Manufacturers:
  - 1. CertainTeed Corporation
  - 2. Johns Manville Corporation
  - 3. Knauf Insulation
  - 4. Owens Corning Corporation
- B. Insulation: ASTM C547 and ASTM C795; semi-rigid, noncombustible, end grain adhered to jacket.
  - 1. K (Ksi) Value: ASTM C177, 0.24 at 75 degrees F (0.035 at 24 degrees C).
  - 2. Maximum Service Temperature: 650 degrees F (343 degrees C).
  - 3. Maximum Moisture Absorption: 0.2 percent by volume.
- C. Vapor Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm-inches (0.029 ng/Pa s m).

**2.03 CELLULAR GLASS**

- A. Insulation: ASTM C552, Type II, Grade 6.
  - 1. K (Ksi) Value: 0.35 (0.050) at 100 degrees F (38 degrees C).
  - 2. Service Temperature Range: From 250 degrees F (121 degrees C) to 800 degrees F (427 degrees C).
  - 3. Water Vapor Permeability: 0.005 perm inch (0.007 ng/Pa s m) maximum per inch.
  - 4. Water Absorption: 0.5 percent by volume, maximum.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Exposed Piping: Locate insulation and cover seams in least visible locations.
- C. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.
- D. Glass fiber insulated pipes conveying fluids below ambient temperature:
  - 1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.
  - 2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.
- E. For hot piping conveying fluids 140 degrees F (60 degrees C) or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.

- F. Inserts and Shields:
  - 1. Application: Piping 1-1/2 inches (40 mm) diameter or larger.
  - 2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
  - 3. Insert Location: Between support shield and piping and under the finish jacket.
  - 4. Insert Configuration: Minimum 6 inches (150 mm) long, of same thickness and contour as adjoining insulation; may be factory fabricated.
- G. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to Section 078400.

**END OF SECTION**

**SECTION 221005  
PLUMBING PIPING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Pipe, pipe fittings, specialties, and connections for piping systems.
  - 1. Sanitary sewer.
  - 2. Domestic water.
  - 3. Flanges, unions, and couplings.
  - 4. Pipe hangers and supports.
  - 5. Valves.

**1.02 RELATED REQUIREMENTS**

- A. Section 220553 - Identification for Plumbing Piping and Equipment.
- B. Section 220719 - Plumbing Piping Insulation.
- C. Section 330110.58 - Disinfection of Water Utility Piping Systems.

**1.03 REFERENCE STANDARDS**

- A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings 2021.
- B. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings 2021.
- C. ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings: DWV 2021.
- D. ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings—DWV 2017.
- E. ASME B31.9 - Building Services Piping 2020.
- F. ASME BPVC-IX - Boiler and Pressure Vessel Code, Section IX - Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators 2021.
- G. ASTM B32 - Standard Specification for Solder Metal 2020.
- H. ASTM B88 - Standard Specification for Seamless Copper Water Tube 2022.
- I. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric) 2020.
- J. ASTM B306 - Standard Specification for Copper Drainage Tube (DWV) 2020.
- K. ASTM B813 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube 2016.
- L. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings 2016.
- M. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems 2020.
- N. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings 2020.
- O. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings 2021.
- P. ASTM D2855 - Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets 2020.
- Q. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings 2021.
- R. ASTM F876 - Standard Specification for Crosslinked Polyethylene (PEX) Tubing 2022a, with Editorial Revision.

- S. ASTM F1960 - Standard Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing 2022.
- T. CISPI 301 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications 2021.
- U. 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 2020.
- V. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry Elements 2015.
- W. ICC-ES AC308 - Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements 2016.
- X. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation 2018, with Amendment (2019).
- Y. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends 2010, with Errata .
- Z. NSF 61 - Drinking Water System Components - Health Effects 2022, with Errata.
- AA. NSF 372 - Drinking Water System Components - Lead Content 2022.
- BB. PPI TR-4 - PPI HSB Listing of Hydrostatic Design Basis (HDB), Hydrostatic Design Stress (HDS), Strength Design Basis (SDB), Pressure Design Basis (PDB) and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe 2021.

#### **1.04 QUALITY ASSURANCE**

- A. Perform work in accordance with applicable codes.
- B. Valves: Manufacturer's name and pressure rating marked on valve body.
- C. Welding Materials and Procedures: Comply with ASME BPVC-IX and applicable state labor regulations.
- D. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

#### **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

### **PART 2 PRODUCTS**

#### **2.01 GENERAL REQUIREMENTS**

- A. Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

#### **2.02 SANITARY SEWER PIPING, BURIED WITHIN 5 FEET (1500 MM) OF BUILDING**

- A. Cast Iron Pipe: CISPI 301, hubless.
  - 1. Fittings: Cast iron.
  - 2. Joints: CISPI 310, neoprene gasket and stainless steel clamp and shield assemblies.
- B. PVC Pipe: ASTM D2665 or ASTM D3034.
  - 1. Fittings: PVC.
  - 2. Joints: Solvent welded, with ASTM D2564 solvent cement.

#### **2.03 SANITARY SEWER PIPING, ABOVE GRADE**

- A. Cast Iron Pipe: CISPI 301, hubless, service weight.
  - 1. Fittings: Cast iron.
  - 2. Joints: CISPI 310, neoprene gaskets and stainless steel clamp-and-shield assemblies.
- B. Copper Tube: ASTM B306, DWV.
  - 1. Fittings: ASME B16.29, wrought copper, or ASME B16.23, sovent.

2. Joints: ASTM B32, alloy Sn50 solder.
- C. PVC Pipe: ASTM D2729.
  1. Fittings: PVC.
  2. Joints: Solvent welded, with ASTM D2564 solvent cement.

#### **2.04 DOMESTIC WATER PIPING, ABOVE GRADE**

- A. Copper Tube: ASTM B88 (ASTM B88M), Type K (A), Drawn (H).
  1. Fittings: ASME B16.18, cast copper alloy or ASME B16.22, wrought copper and bronze.
  2. Joints: ASTM B32, alloy Sn95 solder.
- B. Cross-Linked Polyethylene (PEX) Pipe: ASTM F876 or ASTM F877.
  1. Manufacturers:
    - a. Uponor, Inc: [www.uponorengineering.com/#sle](http://www.uponorengineering.com/#sle).
    - b. Viega LLC: [www.viega.us/#sle](http://www.viega.us/#sle).
    - c. Zurn Industries, LLC: [www.zurn.com/#sle](http://www.zurn.com/#sle).
  2. PPI TR-4 Pressure Design Basis:
    - a. 100 psig (689 kPa) at maximum 180 degrees F (82 degrees C).
  3. Fittings: Brass and engineered polymer (EP) ASTM F1960.
  4. Joints: Mechanical compression fittings.
  5. Joints: ASTM F1960 cold-expansion fittings.

#### **2.05 FLANGES, UNIONS, AND COUPLINGS**

- A. Unions for Pipe Sizes 3 Inches (80 mm) and Under:
  1. Ferrous pipe: Class 150 malleable iron threaded unions.
  2. Copper tube and pipe: Class 150 bronze unions with soldered joints.
- B. Flanges for Pipe Size Over 1 Inch (25 mm):
  1. Ferrous Pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets.
- C. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

#### **2.06 PIPE HANGERS AND SUPPORTS**

- A. Provide hangers and supports that comply with MSS SP-58.
  1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
  2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
  3. Trapeze Hangers: Welded steel channel frames attached to structure.
  4. Vertical Pipe Support: Steel riser clamp.
- B. Plumbing Piping - Drain, Waste, and Vent:
  1. Hangers for Pipe Sizes 1/2 Inch (15 mm) to 1-1/2 Inches (40 mm): Malleable iron, adjustable swivel, split ring.
  2. Hangers for Pipe Sizes 2 Inches (50 mm) and Over: Carbon steel, adjustable, clevis.
- C. Plumbing Piping - Water:
  1. Hangers for Pipe Sizes 1/2 Inch (15 mm) to 1-1/2 Inches (40 mm): Malleable iron, adjustable swivel, split ring.
  2. Hangers for Cold Pipe Sizes 2 Inches (50 mm) and Over: Carbon steel, adjustable, clevis.
  3. Hangers for Hot Pipe Sizes 2 Inches (50 mm) to 4 Inches (100 mm): Carbon steel, adjustable, clevis.
- D. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
  1. Concrete Wedge Expansion Anchors: Complying with ICC-ES AC193.
  2. Masonry Wedge Expansion Anchors: Complying with ICC-ES AC01.
  3. Concrete Screw Type Anchors: Complying with ICC-ES AC193.
  4. Masonry Screw Type Anchors: Complying with ICC-ES AC106.

5. Concrete Adhesive Type Anchors: Complying with ICC-ES AC308.

## **2.07 BALL VALVES**

- A. Manufacturers:
  1. Apollo Valves
  2. Grinnell Products
  3. Nibco, Inc
- B. Construction, 4 Inches (100 mm) and Smaller: MSS SP-110, Class 150, 400 psi (2760 kPa) CWP, bronze or ductile iron body, 304 stainless steel or chrome plated brass ball, regular port, teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, threaded or grooved ends with union.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that excavations are to required grade, dry, and not over-excavated.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- G. Provide access where valves and fittings are not exposed.
- H. Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.
- I. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.
- J. Pipe Hangers and Supports:
  1. Install in accordance with ASME B31.9.
  2. Install hangers to provide minimum 1/2 inch (15 mm) space between finished covering and adjacent work.
  3. Provide copper plated hangers and supports for copper piping.
- K. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

### **3.03 APPLICATION**

- A. Install unions downstream of valves and at equipment or apparatus connections.

### **3.04 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM**

- A. Disinfect water distribution system in accordance with Section 330110.58.
- B. Ensure acidity (pH) of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).
- C. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual.
- D. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
- E. Maintain disinfectant in system for 24 hours.
- F. If final disinfectant residual tests less than 25 mg/L, repeat treatment.



- G. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.

**3.05 SERVICE CONNECTIONS**

- A. Provide new sanitary sewer services. Before commencing work check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.
- B. Provide new water service complete with approved reduced pressure backflow preventer and water meter with by-pass valves, pressure reducing valve, and sand strainer.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 221006  
PLUMBING PIPING SPECIALTIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Drains.
- B. Cleanouts.
- C. Hose bibbs.
- D. Hydrants.
- E. Refrigerator valve and recessed box.
- F. Backflow preventers.
- G. Double check valve assemblies.
- H. Water hammer arrestors.
- I. Sanitary waste interceptors.
- J. Mixing valves.

**1.02 RELATED REQUIREMENTS**

- A. Section 221005 - Plumbing Piping.
- B. Section 223000 - Plumbing Equipment.
- C. Section 224000 - Plumbing Fixtures.

**1.03 REFERENCE STANDARDS**

- A. ASME A112.6.3 - Floor and Trench Drains 2019.
- B. ASSE 1011 - Performance Requirements for Hose Connection Vacuum Breakers 2017.
- C. ASSE 1012 - Performance Requirements for Backflow Preventers with an Intermediate Atmospheric Vent 2021.
- D. ASSE 1019 - Performance Requirements for Wall Hydrant with Backflow Protection and Freeze Resistance 2011 (Reaffirmed 2016).
- E. NSF 61 - Drinking Water System Components - Health Effects 2022, with Errata.
- F. NSF 372 - Drinking Water System Components - Lead Content 2022.
- G. PDI-WH 201 - Water Hammer Arresters 2017.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate dimensions, weights, and placement of openings and holes.
- C. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. Specialties in Potable Water Supply Systems: Provide products that comply with NSF 61 and NSF 372 for maximum lead content.

**2.02 DRAINS**

- A. Manufacturers:
  - 1. Jay R. Smith Manufacturing Company
  - 2. Josam Company
  - 3. Zurn Industries, LLC
- B. Floor Drain:
  - 1. ASME A112.6.3; lacquered cast iron or stainless steel, two piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable nickel-

bronze strainer.

### **2.03 CLEANOUTS**

- A. Manufacturers:
  - 1. Jay R. Smith Manufacturing Company
  - 2. Josam Company
  - 3. Zurn Industries, LLC
- B. Cleanouts at Interior Finished Floor Areas:
  - 1. Lacquered cast iron body with anchor flange, reversible clamping collar, threaded top assembly, and round gasketed scored cover in service areas and round gasketed depressed cover to accept floor finish in finished floor areas.

### **2.04 HOSE BIBBS**

- A. Interior Hose Bibbs:
  - 1. Bronze or brass with integral mounting flange, replaceable hexagonal disc, hose thread spout, chrome plated where exposed with handwheel, integral vacuum breaker in compliance with ASSE 1011.
- B. Interior Mixing Type Hose Bibbs:
  - 1. Bronze or brass, wall mounted, double service faucet with hose thread spout, integral stops, chrome plated where exposed with handwheels, and vacuum breaker in compliance with ASSE 1011.

### **2.05 HYDRANTS**

- A. Wall Hydrants:
  - 1. ASSE 1019; freeze resistant, self-draining type with chrome plated wall plate hose thread spout, handwheel, and integral vacuum breaker.

### **2.06 REFRIGERATOR VALVE AND RECESSED BOX**

- A. Description: Plastic preformed rough-in box with brass valves, slip in finishing cover.

### **2.07 BACKFLOW PREVENTERS**

- A. Manufacturers:
  - 1. Apollo Valves
  - 2. Watts Regulator Company, a part of Watts Water Technologies
  - 3. Zurn Industries, LLC

### **2.08 DOUBLE CHECK VALVE ASSEMBLIES**

- A. Manufacturers:
  - 1. Apollo Valves
  - 2. Cash Acme, a brand of Reliance Worldwide Corporation
  - 3. Watts Regulator Company, a part of Watts Water Technologies
  - 4. Zurn Industries, LLC
- B. Double Check Valve Assemblies:
  - 1. ASSE 1012; Bronze body with corrosion resistant internal parts and stainless steel springs; two independently operating check valves with intermediate atmospheric vent.

### **2.09 WATER HAMMER ARRESTORS**

- A. Manufacturers:
  - 1. Jay R. Smith Manufacturing Company
  - 2. Watts Regulator Company, a part of Watts Water Technologies
  - 3. Zurn Industries, LLC
- B. Water Hammer Arrestors:
  - 1. Stainless steel construction, piston type sized in accordance with PDI-WH 201, precharged suitable for operation in temperature range minus 100 to 300 degrees F (minus 73 to 149 degrees C) and maximum 250 psi (1700 kPa) working pressure.

### **2.10 SANITARY WASTE INTERCEPTORS**

- A. Grease Interceptors:
  - 1. Construction:
    - a. Material: Polyethylene.
    - b. Rough-in: Fully recessed flush with floor (deep rough-in) with anchor flange.
    - c. Cover: Steel, epoxy coated, with gasket, securing handle, and enzyme injection port.

## **2.11 MIXING VALVES**

- A. Thermostatic Mixing Valves:
  - 1. Valve: Chrome plated cast brass body, stainless steel or copper alloy bellows, integral temperature adjustment.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.
- C. Install approved potable water protection devices on plumbing lines where contamination of domestic water may occur; on boiler feed water lines, janitor rooms, fire sprinkler systems, premise isolation, irrigation systems, flush valves, interior and exterior hose bibbs.
- D. Install water hammer arrestors complete with accessible isolation valve on hot and cold water supply piping to lavatory sinks or washing machine outlets.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 223000  
PLUMBING EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Water Heaters:
  - 1. Commercial gas fired.
  - 2. Residential electric.
- B. Diaphragm-type compression tanks.

**1.02 REFERENCE STANDARDS**

- A. ASME BPVC-VIII-1 - Boiler and Pressure Vessel Code, Section VIII, Division 1: Rules for Construction of Pressure Vessels 2021.

**1.03 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittals procedures.
- B. Shop Drawings:
  - 1. Indicate dimensions of tanks, tank lining methods, anchors, attachments, lifting points, tappings, and drains.
- C. Operation and Maintenance Data: Include operation, maintenance, and inspection data, replacement part numbers and availability, and service depot location and telephone number.
- D. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

**1.04 QUALITY ASSURANCE**

- A. Identification: Provide pumps with manufacturer's name, model number, and rating/capacity identified by permanently attached label.
- B. Performance: Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, operate within 25 percent of midpoint of published maximum efficiency curve.

**1.05 WARRANTY**

- A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer warranty for domestic water heaters.

**PART 2 PRODUCTS**

**2.01 WATER HEATERS**

- A. Manufacturers:
  - 1. A.O. Smith Water Products Co.
  - 2. Rheem Manufacturing Company
- B. Commercial Gas Fired:
  - 1. Type: Automatic, natural gas-fired, vertical storage.
  - 2. Tank: Glass lined welded steel ASME labeled; multiple flue passages, 4 inch (100 mm) diameter inspection port, thermally insulated with minimum 2 inches (50 mm) glass fiber, encased in corrosion-resistant steel jacket; baked-on enamel finish; floor shield and legs.
  - 3. Accessories:
    - a. Water Connections: Brass.
    - b. Dip Tube: Brass.
    - c. Drain valve.
    - d. Anode: Magnesium.
  - 4. Controls: Automatic water thermostat with temperature range adjustable from 120 to 180 degrees F (49 to 82 degrees C), automatic reset high temperature limiting thermostat factory set at 195 degrees F (90 degrees C), gas pressure regulator, multi-ribbon or tubular burner, 100 percent safety shut-off pilot and thermocouple, flue baffle and draft

hood.

## **2.02 DIAPHRAGM-TYPE COMPRESSION TANKS**

- A. Manufacturers:
  - 1. Amtrol Inc; [ ]
  - 2. Bell & Gossett, a xylem brand
  - 3. Taco, Inc
- B. Construction: Welded steel, tested and stamped in accordance with ASME BPVC-VIII-1; supplied with National Board Form U-1, rated for working pressure of 125 psig (860 kPa), with flexible EPDM diaphragm sealed into tank, and steel legs or saddles.
- C. Accessories: Pressure gauge and air-charging fitting, tank drain; precharge to 12 psig (80 kPa).

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions of certification, if any.
- B. Coordinate with plumbing piping and related electrical work to achieve operating system.
- C. Domestic Water Storage Tanks:
  - 1. Provide steel pipe support, independent of building structural framing members.
  - 2. Clean and flush prior to delivery to site. Seal until pipe connections are made.

**END OF SECTION**



## SECTION 224000 PLUMBING FIXTURES

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. Water closets.
- B. Lavatories.
- C. Sinks.
- D. Mop sinks.
- E. Under-lavatory pipe supply covers.

#### 1.02 RELATED REQUIREMENTS

- A. Section 221005 - Plumbing Piping.
- B. Section 221006 - Plumbing Piping Specialties.

#### 1.03 REFERENCE STANDARDS

- A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.
- B. ASME A112.18.9 - Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures 2011 (Reaffirmed 2022).
- C. ASME A112.18.1 - Plumbing Supply Fittings 2018, with Errata.
- D. ASME A112.19.2 - Ceramic Plumbing Fixtures 2018, with Errata.
- E. ASSE 1070 - Performance Requirements for Water Temperature Limiting Devices 2020.
- F. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.
- G. NSF 61 - Drinking Water System Components - Health Effects 2022, with Errata.
- H. NSF 372 - Drinking Water System Components - Lead Content 2022.

#### 1.04 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Accept fixtures on site in factory packaging. Inspect for damage.
- B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

### PART 2 PRODUCTS

#### 2.01 GENERAL REQUIREMENTS

- A. Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

#### 2.02 REGULATORY REQUIREMENTS

- A. Comply with applicable codes for installation of plumbing systems.

#### 2.03 TANK TYPE WATER CLOSETS

- A. Tank Type Water Closet Manufacturers:
  - 1. American Standard, Inc: [www.americanstandard-us.com/#sle](http://www.americanstandard-us.com/#sle).
  - 2. Kohler Company: [www.kohler.com/#sle](http://www.kohler.com/#sle).
- B. Bowl: ASME A112.19.2; floor mounted, vitreous china reverse trap, close-coupled closet combination with regular rim, insulated vitreous china closet tank with fittings and lever flushing valve, bolt caps.
  - 1. Water Consumption: Maximum 1.6 gallons (6 liters) per flush.

- C. Seat: Solid white plastic, open front, extended back, less cover, complete with self-sustaining hinge.

#### **2.04 LAVATORIES**

- A. Lavatory Manufacturers:
  - 1. American Standard, Inc
  - 2. Kohler Company
- B. Vitreous China Wall Hung Basin: ASME A112.19.2; vitreous china wall hung lavatory, with 4 inch (100 mm) high back, rectangular basin with splash lip, front overflow, and soap depression.
  - 1. Drilling Centers: 4 inch (100 mm).
- C. Supply Faucet: ASME A112.18.1; chrome plated combination supply fitting with pop-up waste, water economy aerator with maximum flow of 0.5 gallon per minute (low-flow) (1.9 liters per minute (low-flow)), indexed handles.
- D. Thermostatic Mixing Valve: Thermostatic mixing valve, ASSE 1070 listed, with combination stop, strainer, and check valves, and flexible stainless steel connectors.
  - 1. Manufacturers:
    - a. Acorn Engineering Company: [www.acorneng.com/#sle](http://www.acorneng.com/#sle).
    - b. Cash Acme, a brand of Reliance Worldwide Corporation: [www.cashacme.com/#sle](http://www.cashacme.com/#sle).

#### **2.05 SINKS**

- A. Sink Manufacturers:
  - 1. American Standard, Inc
  - 2. Kohler Company

#### **2.06 UNDER-LAVATORY PIPE SUPPLY COVERS**

- A. General:
  - 1. Insulate exposed drainage piping including hot, cold and tempered water supplies under lavatories or sinks per ADA Standards.
  - 2. Construction: 1/8 inch (3.2 mm) PVC with antimicrobial, antifungal and UV resistant properties.
    - a. Comply with ASME A112.18.9 for covers on accessible lavatory piping.
    - b. Comply with ICC A117.1.
  - 3. Color: High gloss white.

#### **2.07 MOP SINKS**

- A. Mop Sink Manufacturers:
  - 1. Just Manufacturing Company
  - 2. Zurn Industries, Inc
  - 3. Mustee
- B. Type: Rectilinear.
- C. Grid Strainer: Stainless steel; integral; removable.
- D. Dimensions: As indicated on drawings.
- E. Accessories:
  - 1. Hose clamp hanger.
  - 2. Mop hanger.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.
- B. Confirm that millwork is constructed with adequate provision for the installation of counter top lavatories and sinks.

#### **3.02 PREPARATION**

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

**3.03 INSTALLATION**

- A. Install components level and plumb.
- B. Install and secure fixtures in place with wall supports and bolts.

**3.04 ADJUSTING**

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

**3.05 PROTECTION**

- A. Protect installed products from damage due to subsequent construction operations.
- B. Repair or replace damaged products before Date of Substantial Completion.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 230513  
COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. General construction and requirements.

**1.02 REFERENCE STANDARDS**

- A. NEMA MG 1 - Motors and Generators 2021.
- B. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

**PART 2 PRODUCTS**

**2.01 GENERAL CONSTRUCTION AND REQUIREMENTS**

- A. Construction:
  - 1. Open drip-proof type except where specifically noted otherwise.
  - 2. Design for continuous operation in 104 degrees F (40 degrees C) environment.
  - 3. Design for temperature rise in accordance with NEMA MG 1 limits for insulation class, service factor, and motor enclosure type.
- B. Visible Nameplate: Indicating motor horsepower, voltage, phase, cycles, RPM, full load amps, locked rotor amps, frame size, manufacturer's name and model number, service factor, power factor, efficiency.
- C. Wiring Terminations:
  - 1. Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70, threaded for conduit.
  - 2. For fractional horsepower motors where connection is made directly, provide threaded conduit connection in end frame.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install securely on firm foundation. Mount ball bearing motors with shaft in any position.
- C. Check line voltage and phase and ensure agreement with nameplate.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 230529  
HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Support and attachment components.

**1.02 REFERENCE STANDARDS**

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- C. ASTM A181/A181M - Standard Specification for Carbon Steel Forgings, for General-Purpose Piping 2022.
- D. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2019.
- E. ASTM A47/A47M - Standard Specification for Ferritic Malleable Iron Castings 1999, with Editorial Revision (2022).
- F. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates 2018.
- G. ASTM A395/A395M - Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures 1999 (Reapproved 2022).
- H. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel 2023.
- I. FM (AG) - FM Approval Guide Current Edition.
- J. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation 2018, with Amendment (2019).
- K. UL (DIR) - Online Certifications Directory Current Edition.

**PART 2 PRODUCTS**

**2.01 SUPPORT AND ATTACHMENT COMPONENTS**

- A. General Requirements:
  - 1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of plumbing work.
  - 2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
  - 3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.
  - 4. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
    - a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
    - b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Prefabricated Trapeze-Framed Metal Strut Systems:
  - 1. Strut Channel or Bracket Material:
  - 2. Accessories: Provide bracket covers, cable basket clips, cable tray clips, clamps, conduit clamps, fire-retarding brackets, j-hooks, protectors, and vibration dampeners.
- C. Hanger Rods:
  - 1. Threaded zinc-plated steel unless otherwise indicated.
  - 2. Minimum Size, Unless Otherwise Indicated or Required:
    - a. Equipment Supports: 1/2 inch (13 mm) diameter.

- D. Beam Clamps:
1. MSS SP-58 types 19 through 23, 25 or 27 through 30 based on required load.
  2. Beam C-Clamp: MSS SP-58 type 23, malleable iron and steel with plain, stainless steel, and zinc finish.
  3. Small or Junior Beam Clamp: MSS SP-58 type 19, malleable iron with plain finish. For inverted usage provide manufacturer listed size(s).
  4. Wide Mouth Beam Clamp: MSS SP-58 type 19, malleable iron with plain finish.
  5. Centerload Beam Clamp with Extension Piece: MSS SP-58 type 30, malleable iron with plain finish.
  6. FM (AG) and UL (DIR) Approved Beam Clamp: MSS SP-58 type 19, plain finish,
  7. Provide clamps with hardened steel cup-point set screws and lock-nuts for anchoring in place.
  8. Material: ASTM A395/A395M ductile iron, ASTM A36/A36M carbon steel, ASTM A47/A47M malleable iron, ASTM A181/A181M forged steel, or ASTM A283/A283M steel.
- E. Anchors and Fasteners:
1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
  2. Hollow Stud Walls: Use toggle bolts.
  3. Beam Ceiling Flanges: ASTM A47/A47M Grade 32510, malleable iron or stainless steel with copper, plain, stainless steel, or zinc finish.
  4. Sheet Metal: Use sheet metal screws.
  5. Wood: Use wood screws.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Provide independent support from building structure. Do not provide support from piping, ductwork, conduit, or other systems.
- C. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.
- D. Unless specifically indicated or approved by Architect, do not provide support from roof deck.
- E. Do not penetrate or otherwise notch or cut structural members without approval of Architect.
- F. Equipment Support and Attachment:
1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
  2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
  3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
  4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
- G. Secure fasteners according to manufacturer's recommended torque settings.
- H. Remove temporary supports.

**END OF SECTION**



**SECTION 230553  
IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Nameplates.
- B. Tags.
- C. Stencils.
- D. Pipe markers.
- E. Ceiling tacks.

**1.02 REFERENCE STANDARDS**

- A. ASTM D709 - Standard Specification for Laminated Thermosetting Materials 2017.

**PART 2 PRODUCTS**

**2.01 IDENTIFICATION APPLICATIONS**

- A. Small-sized Equipment: Nameplates.

**2.02 NAMEPLATES**

- A. Letter Color: White.
- B. Letter Height: 1/4 inch (6 mm).
- C. Background Color: Black.
- D. Plastic: Comply with ASTM D709.

**2.03 TAGS**

**2.04 STENCILS**

**2.05 PIPE MARKERS**

**2.06 CEILING TACKS**

- A. Description: Steel with 3/4 inch (20 mm) diameter color coded head.
- B. Color code as follows:
  - 1. HVAC Equipment: Red.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
- B. Install tags with corrosion resistant chain.
- C. Install plastic pipe markers in accordance with manufacturer's instructions.
- D. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 230713  
DUCT INSULATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Duct insulation.
- B. Duct liner.

**1.02 RELATED REQUIREMENTS**

- A. Section 230553 - Identification for HVAC Piping and Equipment.
- B. Section 233100 - HVAC Ducts and Casings: Glass fiber ducts.

**1.03 REFERENCE STANDARDS**

**PART 2 PRODUCTS**

**2.01 REGULATORY REQUIREMENTS**

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

**2.02 GLASS FIBER, FLEXIBLE**

- A. Manufacturer:
  - 1. CertainTeed Corporation
  - 2. Johns Manville
  - 3. Knauf Insulation
- B. Insulation: ASTM C553; flexible, noncombustible blanket.
  - 1. K (Ksi) value: 0.36 at 75 degrees F (0.052 at 24 degrees C), when tested in accordance with ASTM C518.

**2.03 GLASS FIBER, RIGID**

- A. Manufacturer:
  - 1. CertainTeed Corporation
  - 2. Johns Manville
  - 3. Knauf Insulation
- B. Insulation: ASTM C612; rigid, noncombustible blanket.
  - 1. K (Ksi) Value: 0.24 at 75 degrees F (0.036 at 24 degrees C), when tested in accordance with ASTM C518.

**2.04 DUCT LINER**

- A. Manufacturers:
  - 1. Armacell LLC
  - 2. CertainTeed Corporation
  - 3. Ductmate Industries, Inc, a DMI Company
  - 4. Johns Manville
- B. Elastomeric Foam Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1, in sheet form.
  - 1. Minimum Service Temperature: Minus 40 degrees F (Minus 40 degrees C).
  - 2. Maximum Service Temperature: 180 degrees F (82 degrees C).
  - 3. Connection: Waterproof vapor barrier adhesive.
- C. Glass Fiber Insulation: Non-corrosive, incombustible glass fiber complying with ASTM C1071; rigid board and preformed round liner board; impregnated surface and edges coated with poly vinyl acetate polymer, acrylic polymer, or black composite.
- D. Liner Fasteners: Galvanized steel, self-adhesive pad with integral head.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Insulated ducts conveying air below ambient temperature:
  - 1. Provide insulation with vapor barrier jackets.
  - 2. Finish with tape and vapor barrier jacket.
  - 3. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
- C. Duct Liner Application:
  - 1. Secure insulation with mechanical liner fasteners. Refer to SMACNA (DCS) for spacing.
  - 2. Seal and smooth joints. Seal and coat transverse joints.

**END OF SECTION**

**SECTION 231123  
FACILITY NATURAL-GAS PIPING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Pipe, pipe fittings, valves, and connections for natural gas piping systems.

**1.02 RELATED REQUIREMENTS**

- A. Section 230553 - Identification for HVAC Piping and Equipment.

**1.03 REFERENCE STANDARDS**

- A. ANSI Z21.18/CSA 6.3 - Gas Appliance Pressure Regulators 2019.
- B. ANSI Z223.1 - National Fuel Gas Code 2021.
- C. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300 2021.
- D. ASME B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes 2018.
- E. ASME B31.1 - Power Piping 2022.
- F. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless 2022.
- G. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service 2022.
- H. ASTM B88 - Standard Specification for Seamless Copper Water Tube 2022.
- I. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric) 2020.
- J. AWWA C105/A21.5 - Polyethylene Encasement for Ductile-Iron Pipe Systems 2018.
- K. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry Elements 2015.
- L. ICC-ES AC193 - Acceptance Criteria for Mechanical Anchors in Concrete Elements 2015.
- M. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends 2010, with Errata .

**PART 2 PRODUCTS**

**2.01 NATURAL GAS PIPING, BURIED WITHIN 5 FEET (1500 MM) OF BUILDING**

- A. Steel Pipe: ASTM A53/A53M, Schedule 40 black.
  - 1. Fittings: ASTM A234/A234M, wrought steel welding type.
  - 2. Joints: ANSI Z223.1, welded.
  - 3. Jacket: AWWA C105/A21.5 polyethylene jacket or double layer, half-lapped 10 mil (0.25 mm) polyethylene tape.

**2.02 NATURAL GAS PIPING, ABOVE GRADE**

- A. Steel Pipe: ASTM A53/A53M, Schedule 40 black.
  - 1. Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M, wrought steel welding type.
  - 2. Joints: Threaded or welded to ASME B31.1.
- B. Copper Tube: ASTM B88 (ASTM B88M), Type K (A) or L (B) annealed.
  - 1. Fittings: ASME B16.26, cast bronze.
  - 2. Joints: Flared.

**2.03 FLANGES, UNIONS, AND COUPLINGS**

- A. Unions for Pipe Sizes 3 Inches (80 mm) and Under:
  - 1. Ferrous pipe: Class 150 malleable iron threaded unions.
  - 2. Copper tube and pipe: Class 150 bronze unions with soldered joints.
- B. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

## **2.04 PIPE HANGERS AND SUPPORTS**

- A. Provide hangers and supports that comply with MSS SP-58.
  - 1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
  - 2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
  - 3. Trapeze Hangers: Welded steel channel frames attached to structure.
  - 4. Vertical Pipe Support: Steel riser clamp.
- B. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:
  - 1. Concrete Screw Type Anchors: Complying with ICC-ES AC193.
  - 2. Masonry Screw Type Anchors: Complying with ICC-ES AC106.

## **2.05 BALL VALVES**

- A. Construction, 4 Inches (100 mm) and Smaller: MSS SP-110, Class 150, 400 psi (2760 kPa) CWP, bronze or ductile iron body, 304 stainless steel or chrome plated brass ball, regular port, Teflon seats and stuffing box ring, blow-out proof stem, lever handle with balancing stops, threaded ends.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- D. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- G. Sleeve pipes passing through partitions, walls and floors.
- H. Inserts:
  - 1. Provide inserts for placement in concrete formwork.
  - 2. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
- I. Pipe Hangers and Supports:
  - 1. Install hangers to provide minimum 1/2 inch (15 mm) space between finished covering and adjacent work.
  - 2. Place hangers within 12 inches (300 mm) of each horizontal elbow.
  - 3. Use hangers with 1-1/2 inch (40 mm) minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
  - 4. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
  - 5. Provide copper plated hangers and supports for copper piping.

### **3.02 APPLICATION**

- A. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.

**END OF SECTION**

**SECTION 233100  
HVAC DUCTS AND CASINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Metal ductwork.

**1.02 RELATED REQUIREMENTS**

- A. Section 230593 - Testing, Adjusting, and Balancing for HVAC.
- B. Section 230713 - Duct Insulation: External insulation and duct liner.
- C. Section 233300 - Air Duct Accessories.
- D. Section 233600 - Air Terminal Units.
- E. Section 233700 - Air Outlets and Inlets.

**1.03 REFERENCE STANDARDS**

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2019.
- B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2022.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2022.
- D. ICC-ES AC01 - Acceptance Criteria for Expansion Anchors in Masonry Elements 2015.
- E. ICC-ES AC106 - Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry Elements 2015.
- F. ICC-ES AC193 - Acceptance Criteria for Mechanical Anchors in Concrete Elements 2015.
- G. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems 2021.
- H. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible 2021.
- I. UL 181 - Standard for Factory-Made Air Ducts and Air Connectors current edition, including all revisions.

**PART 2 PRODUCTS**

**2.01 DUCT ASSEMBLIES**

- A. Regulatory Requirements: Construct ductwork to comply with NFPA 90A standards.
- B. Ducts: Galvanized steel, unless otherwise indicated.
- C. Low Pressure Supply (System with Cooling Coils): 2 inch w.g. (500 Pa) pressure class, galvanized steel.
- D. Return and Relief: 1 inch w.g. (250 Pa) pressure class, galvanized steel.
- E. General Exhaust: 1 inch w.g. (250 Pa) pressure class, galvanized steel.

**2.02 MATERIALS**

- A. Galvanized Steel for Ducts: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G60/Z180 coating.
- B. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.
  - 1. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.
  - 2. Surface Burning Characteristics: Flame spread index of zero and smoke developed index of zero, when tested in accordance with ASTM E84.
- C. Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded.
- D. Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:

1. Concrete Wedge Expansion Anchors: Complying with ICC-ES AC193.
2. Masonry Wedge Expansion Anchors: Complying with ICC-ES AC01.
3. Concrete Screw Type Anchors: Complying with ICC-ES AC193.
4. Masonry Screw Type Anchors: Complying with ICC-ES AC106.

### **2.03 DUCTWORK FABRICATION**

- A. Fabricate and support in accordance with SMACNA (DCS) and as indicated.
- B. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.
- C. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide air foil turning vanes of perforated metal with glass fiber insulation.
- D. Provide turning vanes of perforated metal with glass fiber insulation when acoustical lining is indicated.
- E. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
- F. Fabricate continuously welded round and oval duct fittings in accordance with SMACNA (DCS).

### **2.04 MANUFACTURED DUCTWORK AND FITTINGS**

- A. Round Ducts: Round lockseam duct with galvanized steel outer wall.
  1. Manufacture in accordance with SMACNA (DCS).
- B. Flexible Ducts: UL 181, Class 1, aluminum laminate and polyester film with latex adhesive supported by helically wound spring steel wire.
  1. Insulation: R-4.2 with foil jacket.
  2. Pressure Rating: 10 inches WG (2.50 kPa) positive and 1.0 inches WG (250 Pa) negative.
  3. Maximum Velocity: 4000 fpm (20.3 m/sec).
  4. Temperature Range: Minus 20 degrees F to 210 degrees F (Minus 28 degrees C to 99 degrees C).

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install, support, and seal ducts in accordance with SMACNA (DCS).
- B. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.
- C. Duct sizes indicated are inside clear dimensions. For lined ducts, maintain sizes inside lining.
- D. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
- E. Connect diffusers or light troffer boots to low pressure ducts directly or with 5 feet (1.5 m) maximum length of flexible duct held in place with strap or clamp.

**END OF SECTION**



**SECTION 233300  
AIR DUCT ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Backdraft dampers - metal.
- B. Duct access doors.
- C. Fire dampers.
- D. Flexible duct connections.
- E. Smoke dampers.
- F. Volume control dampers.

**1.02 REFERENCE STANDARDS**

- A. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems 2021.
- B. NFPA 92 - Standard for Smoke Control Systems 2021.
- C. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible 2021.
- D. UL 33 - Safety Heat Responsive Links for Fire-Protection Service Current Edition, Including All Revisions.
- E. UL 555 - Standard for Fire Dampers Current Edition, Including All Revisions.
- F. UL 555S - Standard for Smoke Dampers Current Edition, Including All Revisions.
- G. UL 2043 - Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces Current Edition, Including All Revisions.

**1.03 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate for shop fabricated assemblies including volume control dampers.
- C. Manufacturer's Installation Instructions: Provide instructions for fire dampers.

**1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Protect dampers from damage to operating linkages and blades.

**PART 2 PRODUCTS**

**2.01 BACKDRAFT DAMPERS - METAL**

- A. Gravity Backdraft Dampers, Size 18 by 18 inches (450 by 450 mm) or Smaller, Furnished with Air Moving Equipment: Air moving equipment manufacturer's standard construction.
- B. Multi-Blade, Parallel Action Gravity Balanced Backdraft Dampers: Galvanized steel, with center pivoted blades of maximum 6 inch (150 mm) width, with felt or flexible vinyl sealed edges, linked together in rattle-free manner with 90 degree stop, steel ball bearings, and plated steel pivot pin; adjustment device to permit setting for varying differential static pressure.

**2.02 DUCT ACCESS DOORS**

**2.03 FIRE DAMPERS**

- A. Manufacturers:
  - 1. Nailor Industries, Inc
  - 2. Ruskin Company
- B. Fabricate in accordance with NFPA 90A and UL 555, and as indicated.
- C. Horizontal Dampers: Galvanized steel, 22 gage, 0.0299 inch (0.76 mm) frame, stainless steel closure spring, and lightweight, heat retardant non-asbestos fabric blanket.
- D. Curtain Type Dampers: Galvanized steel with interlocking blades. Provide stainless steel closure springs and latches for horizontal installations. Configure with blades out of air stream except for 1.0 inch (250 Pa) pressure class ducts up to 12 inches (300 mm) in height.

- E. Fusible Links: UL 33, separate at 165 degrees F (73.8 degrees C) with adjustable link straps for combination fire/balancing dampers.

#### **2.04 FLEXIBLE DUCT CONNECTIONS**

- A. Fabricate in accordance with SMACNA (DCS) and as indicated.
- B. Flexible Duct Connections: Fabric crimped into metal edging strip.

#### **2.05 SMOKE DAMPERS**

- A. Manufacturers:
  - 1. Nailor Industries, Inc
  - 2. Ruskin Company

#### **2.06 VOLUME CONTROL DAMPERS**

- A. Single Blade Dampers:
  - 1. Fabricate for duct sizes up to 6 by 30 inch (150 by 760 mm).
  - 2. Blade: 24 gage, 0.0239 inch (0.61 mm), minimum.
- B. Multi-Blade Damper: Fabricate of opposed blade pattern with maximum blade sizes 8 by 72 inch (200 by 1825 mm). Assemble center and edge crimped blades in prime coated or galvanized channel frame with suitable hardware.
  - 1. Blade: 18 gage, 0.0478 inch (1.21 mm), minimum.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA (DCS). Refer to Section 233100 for duct construction and pressure class.
- B. Provide backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated.
- C. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, combination fire and smoke dampers, and elsewhere as indicated. Provide minimum 8 by 8 inch (200 by 200 mm) size for hand access, size for shoulder access, and as indicated. Provide 4 by 4 inch (100 by 100 mm) for balancing dampers only. Review locations prior to fabrication.
- D. Provide fire dampers and smoke dampers at locations indicated, where ducts and outlets pass through fire rated components, and where required by Authorities Having Jurisdiction. Install with required perimeter mounting angles, sleeves, breakaway duct connections, corrosion resistant springs, bearings, bushings and hinges.
- E. Install smoke dampers and combination smoke and fire dampers in accordance with NFPA 92.
- F. Demonstrate re-setting of fire dampers to Owner's representative.
- G. At fans and motorized equipment associated with ducts, provide flexible duct connections immediately adjacent to the equipment.
- H. At equipment supported by vibration isolators, provide flexible duct connections immediately adjacent to the equipment.
- I. Provide balancing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Install minimum 2 duct widths from duct take-off.
- J. Provide balancing dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly.

**END OF SECTION**

**SECTION 233423  
HVAC POWER VENTILATORS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Wall exhausters.
- B. Ceiling exhaust fans.

**1.02 RELATED REQUIREMENTS**

- A. Section 230513 - Common Motor Requirements for HVAC Equipment.
- B. Section 233300 - Air Duct Accessories: Backdraft dampers.

**1.03 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on fans and accessories including fan curves with specified operating point clearly plotted, power, RPM, sound power levels at rated capacity, and electrical characteristics and connection requirements.
- C. Manufacturer's Instructions: Indicate installation instructions.

**PART 2 PRODUCTS**

**2.01 WALL EXHAUSTERS**

- A. Manufacturers:
  - 1. Carnes, a division of Carnes Company Inc; [\_\_\_\_\_]
  - 2. Greenheck Fan Corporation; [\_\_\_\_\_]
  - 3. PennBarry, Division of Air System Components; [\_\_\_\_\_]
- B. Fan Unit: V-belt or direct driven with spun aluminum housing; resiliently mounted motor; 1/2 inch (13 mm) mesh, 0.062 inch (1.6 mm) thick aluminum wire bird screen.
- C. Backdraft Damper: Gravity actuated, aluminum multiple blade construction, felt edged with offset hinge pin, nylon bearings, blades linked.
- D. Sheaves: For V-belt drives, provide cast iron or steel, dynamically balanced, bored to fit shafts and keyed; variable and adjustable pitch motor sheaves selected so required rpm is obtained with sheaves set at mid-position; fan shaft with self-aligning pre-lubricated ball bearings.

**2.02 CEILING EXHAUST FANS**

- A. Manufacturers:
  - 1. Carnes, a division of Carnes Company Inc; [\_\_\_\_\_]
  - 2. Greenheck Fan Corporation
  - 3. Panasonic Corporation of North America; WhisperRecessed LED
- B. Centrifugal Fan Unit: direct driven with galvanized steel housing lined with acoustic insulation, resilient mounted motor, gravity backdraft damper in discharge.
- C. Disconnect Switch: Cord and plug in housing for thermal overload protected motor.
- D. Grille: Molded white plastic.
- E. Sheaves: Cast iron or steel, dynamically balanced, bored to fit shafts and keyed; variable and adjustable pitch motor sheaves selected so required rpm is obtained with sheaves set at mid-position; fan shaft with self-aligning pre-lubricated ball bearings.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install backdraft dampers on inlet to roof and wall exhausters.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 233439  
HIGH-VOLUME, LOW-SPEED PROPELLER FANS**

**PART 1 GENERAL**

**1.01 REFERENCE STANDARDS**

- A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.
- B. UL 507 - Electric Fans Current Edition, Including All Revisions.

**1.02 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data on fans and accessories including fan curves with specified operating point clearly plotted, power, RPM, sound power levels at rated capacity, and electrical characteristics and connection requirements.

**PART 2 PRODUCTS**

**2.01 GENERAL REQUIREMENTS**

- A. UL Compliance: UL listed and labeled, designed, manufactured, and tested in accordance with UL 507.
- B. Electrical Components: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

**2.02 HIGH-VOLUME, LOW-SPEED PROPELLER FANS**

- A. Fan Diameter: 12 feet (3.657 m).
- B. Mounting Options: Structure.
- C. Direct Drive Fan:
  - 1. Statically and dynamically balanced.
  - 2. Motors:
    - a. Open drip-proof (ODP).
    - b. Heavy duty ball bearing type.
    - c. Mount on vibration isolators or resilient cradle mounts, out-of-airstream.
    - d. Fully accessible for maintenance.
- D. Shafts and Bearings:
  - 1. Fan Shaft:
    - a. Ground and polished steel with anti-corrosive coating.
    - b. First critical speed at least 25 percent over maximum cataloged operating speed.
  - 2. Bearings:
    - a. Permanently sealed or pillow block type.
    - b. Minimum L10 life in excess of 100,000 hours (equivalent to L50 average life of 500,000 hours), at maximum cataloged operating speed.
    - c. 100 percent factory tested.
- E. Disconnect Switches:
  - 1. Factory mounted and wired.
  - 2. NEMA 250 Enclosure: Unless otherwise indicated, as specified for the following installation locations:
  - 3. Finish for Painted Steel Enclosures: Provide manufacturer's standard unless otherwise indicated.
  - 4. Positive electrical shutoff.
  - 5. Wired from fan motor to junction box installed within motor compartment.
- F. Fan Controllers:
  - 1. Factory mounted and wired.
  - 2. Digital Fan Controllers:
    - a. Individually control or synchronize fan direction and speed.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Secure fan with stainless steel lag screws to structure.

**END OF SECTION**

**SECTION 233700  
AIR OUTLETS AND INLETS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Diffusers.
- B. Registers/grilles.
- C. Louvers.
- D. Goosenecks.

**1.02 REFERENCE STANDARDS**

- A. ASHRAE Std 70 - Method of Testing the Performance of Air Outlets and Air Inlets 2006 (Reaffirmed 2021).
- B. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible 2021.

**1.03 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Carnes, a division of Carnes Company Inc
- B. Krueger-HVAC
- C. Price Industries
- D. Titus, a brand of Air Distribution Technologies

**2.02 RECTANGULAR CEILING DIFFUSERS**

- A. Type: Provide square, stamped, multi-core diffuser to discharge air in four way pattern with sectorizing baffles where indicated.
- B. Connections: Round.
- C. Frame: Provide surface mount and inverted T-bar type. In plaster ceilings, provide plaster frame and ceiling frame.
- D. Color: As indicated.

**2.03 DUCT-MOUNTED SUPPLY AND RETURN REGISTERS/LOUVERS**

- A. Type: Duct-mounted, rectangular register for round-spiral duct with adjustable pivot-ended blades, end caps, built-in volume damper, and dual cover flanges to lay flush on duct surface regardless of diameter. Performance to match manufacturer's catalog data.
- B. Color: Painted to match ductwork.

**2.04 CEILING SUPPLY REGISTERS/GRILLES**

- A. Type: Streamlined and individually adjustable curved blades to discharge air along face of grille, one-way deflection.
- B. Frame: 1-1/4 inch (32 mm) margin with countersunk screw mounting and gasket.
- C. Color: As indicated.
- D. Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face.

**2.05 CEILING EXHAUST AND RETURN REGISTERS/GRILLES**

- A. Type: Streamlined blades, 3/4 inch (19 mm) minimum depth, 3/4 inch (19 mm) maximum spacing, with blades set at 45 degrees, vertical face.
- B. Fabrication: Steel with 20 gage, 0.0359 inch (0.91 mm) minimum frames and 22 gage, 0.0299 inch (0.76 mm) minimum blades, steel and aluminum with 20 gage, 0.0359 inch (0.91 mm) minimum frame, or aluminum extrusions, with factory baked enamel finish.
- C. Color: As indicated.

#### **2.06 CEILING EGG CRATE EXHAUST AND RETURN GRILLES**

- A. Type: Egg crate style face consisting of 1/2 by 1/2 by 1/2 inch (13 by 13 by 13 mm) grid core.
- B. Fabrication: Grid core consists of steel with baked enamel finish.
- C. Color: As indicated.
- D. Frame: Channel lay-in frame for suspended grid ceilings.

#### **2.07 WALL SUPPLY REGISTERS/GRILLES**

- A. Type: Streamlined and individually adjustable blades, 3/4 inch (19 mm) minimum depth, 3/4 inch (19 mm) maximum spacing with spring or other device to set blades, vertical face, single deflection.
- B. Frame: 1-1/4 inch (32 mm) margin with countersunk screw mounting and gasket.
- C. Fabrication: Steel with 20 gage, 0.0359 inch (0.91 mm) minimum frames and 22 gage, 0.0299 inch (0.76 mm) minimum blades, steel and aluminum with 20 gage, 0.0359 inch (0.91 mm) minimum frame, or aluminum extrusions, with factory baked enamel finish.
- D. Color: As indicated.
- E. Damper: Integral, gang-operated opposed blade type with removable key operator, operable from face.

#### **2.08 WALL EXHAUST AND RETURN REGISTERS/GRILLES**

- A. Type: Streamlined blades, 3/4 inch (19 mm) minimum depth, 3/4 inch (19 mm) maximum spacing, with spring or other device to set blades, vertical face.
- B. Frame: 1-1/4 inch (32 mm) margin with countersunk screw mounting.
- C. Fabrication: Steel frames and blades, with factory baked enamel finish.
- D. Color: As indicated on the drawings.
- E. Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face.

#### **2.09 LINEAR WALL REGISTERS/GRILLES**

- A. Type: Streamlined blades with 0 degree deflection, 1/8 by 3/4 inch (3.2 by 19 mm) on 1/4 inch (6 mm) centers.
- B. Frame: 1-1/4 inch (32 mm) margin with countersunk screw mounting and gasket.
- C. Fabrication: Aluminum extrusions, with factory baked enamel finish.
- D. Color: As indicated.

#### **2.10 LOUVERS**

- A. Type: 4 inch (100 mm) deep with blades on 45 degree slope with center baffle and return bend, heavy channel frame, 1/2 inch (13 mm) square mesh screen over exhaust and 1/2 inch (13 mm) square mesh screen over intake.
- B. Fabrication: 16 gage, 0.0598 inch (1.52 mm) thick galvanized steel welded assembly, with factory baked enamel finish.
- C. Color: To be selected by Architect from manufacturer's standard range.

#### **2.11 GOOSENECKS**

- A. Fabricate in accordance with SMACNA (DCS) of minimum 18 gage, 0.0598 inch (1.21 mm) galvanized steel.



- B. Mount on minimum 12 inch (300 mm) high curb base where size exceeds 9 by 9 inch (230 by 230 mm).

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Check location of outlets and inlets and make necessary adjustments in position to comply with architectural features, symmetry, and lighting arrangement.
- C. Install diffusers to ductwork with air tight connection.
- D. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.
- E. Paint ductwork visible behind air outlets and inlets matte black. Refer to Section 099123.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 235400  
FURNACES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Forced air furnaces.
- B. Thermostats.

**1.02 RELATED REQUIREMENTS**

- A. Section 231123 - Facility Natural-Gas Piping.
- B. Section 230513 - Common Motor Requirements for HVAC Equipment: Additional requirements for fan motors.
- C. Section 230548 - Vibration and Seismic Controls for HVAC.

**1.03 REFERENCE STANDARDS**

- A. ANSI Z21.47 - American National Standard for Gas-Fired Central Furnaces 2021.
- B. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- C. ASHRAE Std 103 - Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers 2022.
- D. NFPA 54 - National Fuel Gas Code 2021.
- E. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems 2021.
- F. NFPA 211 - Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances 2019.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate assembly, required clearances, and location and size of field connections.
- C. Warranty: Submit manufacturers warranty and ensure forms have been filled out in Owner's name and registered with manufacturer.

**1.05 WARRANTY**

- A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturers warranty for heat exchangers.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Carrier Corporation
- B. Trane Inc

**2.02 GAS FIRED FURNACES**

- A. Annual Fuel Utilization Efficiency (AFUE): 0.92 "condensing" in accordance with ASHRAE Std 103.
- B. Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, heating element, controls, air filter, humidifier, and accessories; wired for single power connection with control transformer.
  - 1. Safety certified by CSA in accordance with ANSI Z21.47.
  - 2. Venting System: Direct.
  - 3. Combustion: Sealed.
  - 4. Air Flow Configuration: Upflow and Downflow.
  - 5. Heating: Natural gas fired.

6. Accessories:
  - a. Condensate drain.
  - b. Concentric roof termination kit.
- C. Performance:
  1. Refer to Furnace Schedule. Gas heating capacities are sea level ratings.
- D. Cabinet: Steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with reflective liner. If not certified for combustible flooring, please provide additional steel base.
- E. Primary Heat Exchanger:
  1. Material: Hot-rolled steel.
  2. Shape: Tubular type.
- F. Gas Burner:
  1. Atmospheric type with adjustable combustion air supply.
  2. Gas valve, two stage provides 100 percent safety gas shut-off; 24 volt combining pressure regulation, safety pilot, manual set (On-Off), pilot filtration, automatic electric valve.
  3. Electronic pilot ignition, with electric spark igniter.
  4. Combustion air damper with synchronous spring return damper motor.
  5. Non-corrosive combustion air blower with permanently lubricated motor.
- G. Gas Burner Safety Controls:
  1. Thermocouple sensor: Prevents opening of gas valve until pilot flame is proven and stops gas flow on ignition failure.
  2. Flame rollout switch: Installed on burner box and prevents operation.
  3. Vent safety shutoff sensor: Temperature sensor installed on draft hood and prevents operation, manual reset.
  4. Limit Control: Fixed stop at maximum permissible setting, de-energizes burner on excessive bonnet temperature, automatic resets.
- H. Supply Fan: Centrifugal type rubber mounted with direct drive with adjustable variable pitch motor pulley.
- I. Motor:
  1. 1750 rpm single-speed, permanently lubricated, hinge mounted.
- J. Air Filters: 1 inch (25 mm) thick urethane, washable type arranged for easy replacement.
- K. Operating Controls:
  1. Room Thermostat: Cycles burner to maintain room temperature setting.
  2. Supply Fan Control: Energize from bonnet temperature independent of burner controls, with adjustable timed off delay and fixed timed on delay, with manual switch for continuous fan operation. Provide continuous low speed fan operation.

## **2.03 THERMOSTATS**

- A. Room Thermostat: Low voltage, electric solid state microcomputer based room thermostat with remote sensor:
  1. System selector switch (heat-off) and fan control switch (auto-on).
  2. Preferential rate control to minimize overshoot and deviation from setpoint.
  3. Programming based on weekdays, Saturday and Sunday.
  4. Thermostat Display:
    - a. Time of day.
    - b. Actual room temperature.
    - c. Programmed temperature.
    - d. Programmed time.
    - e. System Mode Indication: Heating, cooling, fan auto, off, and on, auto or on, off.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that substrates are ready for installation of units and openings are as indicated on shop drawings.
- B. Verify that proper power supply is available and located correctly.
- C. Verify that proper fuel supply is available for connection.

**3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions and requirements of authorities having jurisdiction.
- B. Install in accordance with NFPA 90A.
- C. Install gas fired furnaces in accordance with NFPA 54.
- D. Provide vent connections in accordance with NFPA 211.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 235533  
FUEL-FIRED UNIT HEATERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Tubular infrared heaters.

**1.02 RELATED REQUIREMENTS**

- A. Section 235100 - Breechings, Chimneys, and Stacks.

**1.03 REFERENCE STANDARDS**

- A. NFPA 54 - National Fuel Gas Code 2021.
- B. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems 2021.
- C. NFPA 211 - Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances 2019.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's literature and data indicating rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.
- C. Shop Drawings: Indicate assembly, required clearances, and locations and sizes of field connections.

**PART 2 PRODUCTS**

**2.01 TUBULAR INFRARED HEATERS**

- A. Infrared Heaters: Tubular type; packaged, partially factory assembled, pre-wired unit consisting of cabinet, burner, heat exchanger, radiant tube, reflector, controls; for natural gas.
- B. Heat Exchanger: Aluminized tubular steel combustion chamber with aluminized steel tube with aluminum reflector.
- C. Gas Burner:
  - 1. Gas Burner: Forced draft type with adjustable combustion air supply.
  - 2. Gas valve provides 100 percent safety gas shut-off; 24 volt combining pressure regulation, safety pilot, manual set (On-Off), pilot filtration, automatic electric valve.
  - 3. Electronic pilot ignition, with electric spark igniter.
  - 4. Non-corrosive burner air blower with permanently lubricated motor.
- D. Gas Burner Safety Controls: Thermo-couple sensor prevents opening of solenoid gas valve until pilot flame is proven and stops gas flow on ignition failure.
- E. Operating Controls: Low voltage room thermostat cycles burner to maintain room temperature setting.
- F. Performance:
  - 1. Refer to Schedule. Gas heating capacities are sea level ratings.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install in accordance with NFPA 90A.
- B. Install gas fired units in accordance with NFPA 54 and applicable codes.
- C. Provide vent connections in accordance with NFPA 211. Refer to Section 23 5100.

**3.02 SCHEDULES**

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**



**SECTION 238126.13  
SMALL-CAPACITY SPLIT-SYSTEM AIR CONDITIONERS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Air-source heat pumps.
- B. Air cooled condensing units.
- C. Indoor air handling (fan and coil) units for ductless systems.

**1.02 REFERENCE STANDARDS**

- A. AHRI 210/240 - Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment 2023.
- B. ASHRAE Std 15 - Safety Standard for Refrigeration Systems 2019, with All Amendments and Errata.
- C. ASHRAE Std 23.1 - Methods for Performance Testing Positive Displacement Refrigerant Compressors and Condensing Units that Operate at Subcritical Pressures of the Refrigerant 2019.
- D. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems 2021.
- F. NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems 2021.
- G. UL 207 - Standard for Refrigerant-Containing Components and Accessories, Nonelectrical Current Edition, Including All Revisions.

**1.03 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate assembly, required clearances, and location and size of field connections.
- C. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.

**PART 2 PRODUCTS**

**2.01 MANUFACTURERS**

- A. Mitsubishi
- B. L
- C. Carrier
- D. Condensing units shall match associated indoor unit..

**2.02 INDOOR AIR HANDLING UNITS FOR DUCTLESS SYSTEMS**

- A. Indoor Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, evaporator coil, and controls; wired for single power connection with control transformer.
  - 1. Location: High-wall and ceiling
  - 2. Cabinet: Galvanized steel.
    - a. Finish: White.
- B. Evaporator Coils: Copper tube aluminum fin assembly, galvanized or polymer drain pan sloped in all directions to drain, drain connection, refrigerant piping connections, restricted distributor or thermostatic expansion valve.
  - 1. Construction and Ratings: In accordance with AHRI 210/240 and UL 207.
  - 2. Manufacturer: System manufacturer.

### **2.03 OUTDOOR UNITS**

- A. Outdoor Units: Self-contained, packaged, pre-wired unit consisting of cabinet, with compressor and condenser.
  - 1. Refrigerant: R-410A.
  - 2. Cabinet: Galvanized steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with reflective liner.
  - 3. Construction and Ratings: In accordance with AHRI 210/240 with testing in accordance with ASHRAE Std 23.1 and UL 207.
- B. Air Cooled Condenser: Aluminum fin and copper tube coil, with direct drive axial propeller fan resiliently mounted, galvanized fan guard.
  - 1. Condenser Fans: Direct-drive propeller type.
  - 2. Condenser Fan Motor: Enclosed, 1-phase type, permanently lubricated.
- C. Accessories: Filter drier, high pressure switch (manual reset), low pressure switch (automatic reset), service valves and gauge ports, thermometer well (in liquid line).
  - 1. Provide thermostatic expansion valves.
- D. Operating Controls:
  - 1. Control by room thermostat to maintain room temperature setting.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions and requirements of local authorities having jurisdiction.
- B. Install in accordance with NFPA 90A and NFPA 90B.
- C. Install refrigeration systems in accordance with ASHRAE Std 15.

**END OF SECTION**

**SECTION 260519  
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Single conductor building wire.
- B. Underground feeder and branch-circuit cable.
- C. Service entrance cable.
- D. Metal-clad cable.
- E. Wiring connectors.
- F. Electrical tape.
- G. Heat shrink tubing.
- H. Oxide inhibiting compound.
- I. Wire pulling lubricant.
- J. Cable ties.
- K. Firestop sleeves.

**1.02 RELATED REQUIREMENTS**

- A. Section 078400 - Firestopping.
- B. Section 260526 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.
- C. Section 260553 - Identification for Electrical Systems: Identification products and requirements.
- D. Section 312316 - Excavation.
- E. Section 312323 - Fill: Bedding and backfilling.

**1.03 REFERENCE STANDARDS**

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire 2013 (Reapproved 2018).
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft 2011 (Reapproved 2017).
- C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes 2010, with Editorial Revision (2020).
- D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation 2004 (Reapproved 2020).
- E. ASTM B800 - Standard Specification for 8000 Series Aluminum Alloy Wire for Electrical Purposes - Annealed and Intermediate Tempers 2005 (Reapproved 2021).
- F. ASTM B801 - Standard Specification for Concentric-Lay-Stranded Conductors of 8000 Series Aluminum Alloy for Subsequent Covering or Insulation 2018.
- G. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape 2017.
- H. ASTM D4388 - Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes 2020.
- I. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- J. NECA 104 - Standard for Installing Aluminum Building Wire and Cable 2012.
- K. NECA 120 - Standard for Installing Armored Cable (AC) and Type Metal-Clad (MC) Cable 2018.
- L. NECA 121 - Standard for Installing Nonmetallic-Sheathed Cable (Type NM-B) and Underground Feeder and Branch-Circuit Cable (Type UF) 2007.

- M. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy 2021.
- N. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems 2021.
- O. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- P. UL 44 - Thermoset-Insulated Wires and Cables Current Edition, Including All Revisions.
- Q. UL 83 - Thermoplastic-Insulated Wires and Cables Current Edition, Including All Revisions.
- R. UL 267 - Outline of Investigation for Wire-Pulling Compounds Most Recent Edition, Including All Revisions.
- S. UL 486A-486B - Wire Connectors Current Edition, Including All Revisions.
- T. UL 486C - Splicing Wire Connectors Current Edition, Including All Revisions.
- U. UL 486D - Sealed Wire Connector Systems Current Edition, Including All Revisions.
- V. UL 493 - Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables Current Edition, Including All Revisions.
- W. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape Current Edition, Including All Revisions.
- X. UL 854 - Service-Entrance Cables Current Edition, Including All Revisions.
- Y. UL 1569 - Metal-Clad Cables Current Edition, Including All Revisions.

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
  - 2. Coordinate the installation of direct burial cable with other trades to avoid conflicts with piping or other potential conflicts.
  - 3. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
  - 4. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

#### **1.05 QUALITY ASSURANCE**

- A. Comply with requirements of NFPA 70.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

#### **1.07 FIELD CONDITIONS**

- A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F (-10 degrees C), unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Architect and obtain direction before proceeding with work.

### **PART 2 PRODUCTS**

#### **2.01 CONDUCTOR AND CABLE APPLICATIONS**

- A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
- B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.
- C. Nonmetallic-sheathed cable is not permitted.

- D. Service entrance cable is permitted only as follows:
  - 1. Where not otherwise restricted, may be used:
    - a. For overhead service drop, installed in raceway to service head.
    - b. For underground service entrance, installed in raceway.
- E. Metal-clad cable is permitted only as follows:
  - 1. Where not otherwise restricted, may be used:
    - a. Where concealed above accessible ceilings for final connections from junction boxes to luminaires.
      - 1) Maximum Length: 6 feet (1.8 m).
    - b. Where concealed in hollow stud walls, above accessible ceilings, and under raised floors for branch circuits up to 20 A.
      - 1) Exception: Provide single conductor building wire in raceway for circuit homerun from first outlet to panelboard.
  - 2. In addition to other applicable restrictions, may not be used:
    - a. Where exposed to view.
    - b. Where exposed to damage.
    - c. For damp, wet, or corrosive locations, unless provided with a PVC jacket listed as suitable for those locations.
    - d. For isolated ground circuits, unless provided with an additional isolated/insulated grounding conductor.

## 2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Provide new conductors and cables manufactured not more than one year prior to installation.
- D. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- E. Comply with NEMA WC 70.
- F. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- G. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- H. Conductors for Grounding and Bonding: Also comply with Section 260526.
- I. Conductor Material:
  - 1. Provide copper conductors except where aluminum conductors are specifically indicated or permitted for substitution. Conductor sizes indicated are based on copper unless specifically indicated as aluminum. Conductors designated with the abbreviation "AL" indicate aluminum.
    - a. Substitution of aluminum conductors for copper is permitted, when approved by Owner and authority having jurisdiction, only for the following:
      - 1) Services: Copper conductors size 1/0 AWG and larger.
      - 2) Feeders: Copper conductors size 1/0 AWG and larger.
    - b. Where aluminum conductors are substituted for copper, comply with the following:
      - 1) Size aluminum conductors to provide, when compared to copper sizes indicated, equivalent or greater ampacity and equivalent or less voltage drop.
      - 2) Increase size of raceways, boxes, wiring gutters, enclosures, etc. as required to accommodate aluminum conductors.
      - 3) Provide aluminum equipment grounding conductor sized according to NFPA 70.
      - 4) Equip electrical distribution equipment with compression lugs for terminating aluminum conductors.
  - 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
  - 3. Tinned Copper Conductors: Comply with ASTM B33.

4. Aluminum Conductors (only where specifically indicated or permitted for substitution): AA-8000 series aluminum alloy conductors recognized by ASTM B800 and compact stranded in accordance with ASTM B801 unless otherwise indicated.
- J. Minimum Conductor Size:
  1. Branch Circuits: 12 AWG.
    - a. Exceptions:
      - 1) 20 A, 120 V circuits longer than 75 feet (23 m): 10 AWG, for voltage drop.
      - 2) 20 A, 120 V circuits longer than 150 feet (46 m): 8 AWG, for voltage drop.
  2. Control Circuits: 14 AWG.
- K. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- L. Conductor Color Coding:
  1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
  2. Color Coding Method: Integrally colored insulation.
  3. Color Code:
    - a. 240/120 V, 1 Phase, 3 Wire System:
      - 1) Phase A: Black.
      - 2) Phase B: Red.
      - 3) Neutral/Grounded: White.
    - b. Equipment Ground, All Systems: Green.
    - c. Isolated Ground, All Systems: Green with yellow stripe.
    - d. Travelers for 3-Way and 4-Way Switching: Pink.

### **2.03 SINGLE CONDUCTOR BUILDING WIRE**

- A. Description: Single conductor insulated wire.
- B. Conductor Stranding:
  1. Feeders and Branch Circuits:
    - a. Size 10 AWG and Smaller: Solid.
    - b. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.
- D. Insulation:
  1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.

### **2.04 UNDERGROUND FEEDER AND BRANCH-CIRCUIT CABLE**

- A. Description: NFPA 70, Type UF multiple-conductor cable listed and labeled as complying with UL 493, Type UF-B.
- B. Provide equipment grounding conductor unless otherwise indicated.
- C. Conductor Stranding:
  1. Size 10 AWG and Smaller: Solid.
  2. Size 8 AWG and Larger: Stranded.
- D. Insulation Voltage Rating: 600 V.

### **2.05 SERVICE ENTRANCE CABLE**

- A. Service Entrance Cable for Above-Ground Use: NFPA 70, Type SE multiple-conductor cable listed and labeled as complying with UL 854, Style R.
- B. Service Entrance Cable for Underground Use: NFPA 70, Type USE single-conductor cable listed and labeled as complying with UL 854, Type USE-2, and with UL 44 Type RHH/RHW-2.
- C. Conductor Stranding: Stranded.
- D. Insulation Voltage Rating: 600 V.

### **2.06 METAL-CLAD CABLE**

- A. Description: NFPA 70, Type MC cable listed and labeled as complying with UL 1569, and listed for use in classified firestop systems to be used.
- B. Conductor Stranding:
  - 1. Size 10 AWG and Smaller: Solid.
  - 2. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.
- D. Insulation: Type THHN, THHN/THWN, or THHN/THWN-2.
- E. Provide dedicated neutral conductor for each phase conductor where indicated or required.
- F. Grounding: Full-size integral equipment grounding conductor.
- G. Armor: Steel, interlocked tape.
- H. Provide PVC jacket applied over cable armor where indicated or required for environment of installed location.

## 2.07 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Connectors for Grounding and Bonding: Comply with Section 260526.
- C. Wiring Connectors for Splices and Taps:
  - 1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
  - 2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.
- D. Wiring Connectors for Terminations:
  - 1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
  - 2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
  - 3. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
  - 4. Provide motor pigtail connectors for connecting motor leads in order to facilitate disconnection.
  - 5. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
  - 6. Aluminum Conductors: Use compression connectors for all connections.
  - 7. Stranded Conductors Size 10 AWG and Smaller: Use crimped terminals for connections to terminal screws.
- E. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.
- F. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.
- G. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F (105 degrees C) for standard applications and 302 degrees F (150 degrees C) for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
- H. Mechanical Connectors: Provide bolted type or set-screw type.
- I. Compression Connectors: Provide circumferential type or hex type crimp configuration.
- J. Crimped Terminals: Nylon-insulated, with insulation grip and terminal configuration suitable for connection to be made.

## 2.08 ACCESSORIES

- A. Electrical Tape:

1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
  2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F (-18 degrees C) and suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
  3. Rubber Splicing Electrical Tape: Ethylene Propylene Rubber (EPR) tape, complying with ASTM D4388; minimum thickness of 30 mil (0.76 mm); suitable for continuous temperature environment up to 194 degrees F (90 degrees C) and short-term 266 degrees F (130 degrees C) overload service.
  4. Electrical Filler Tape: Rubber-based insulating moldable putty, minimum thickness of 125 mil (3.2 mm); suitable for continuous temperature environment up to 176 degrees F (80 degrees C).
  5. Moisture Sealing Electrical Tape: Insulating mastic compound laminated to flexible, all-weather vinyl backing; minimum thickness of 90 mil (2.3 mm).
- B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.
- C. Oxide Inhibiting Compound: Listed; suitable for use with the conductors or cables to be installed.
- D. Wire Pulling Lubricant:
1. Listed and labeled as complying with UL 267.
  2. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
  3. Suitable for use at installation temperature.
- E. Cable Ties: Material and tensile strength rating suitable for application.
- F. Sealing Systems for Roof Penetrations: Premanufactured components and accessories as required to preserve integrity of roofing system and maintain roof warranty; suitable for cables and roofing system to be installed; designed to accommodate existing penetrations where applicable.
- G. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that interior of building has been protected from weather.
- B. Verify that work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that field measurements are as indicated.
- E. Verify that conditions are satisfactory for installation prior to starting work.

### **3.02 PREPARATION**

- A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

### **3.03 INSTALLATION**

- A. Circuiting Requirements:
  1. Unless dimensioned, circuit routing indicated is diagrammatic.
  2. When circuit destination is indicated without specific routing, determine exact routing required.
  3. Arrange circuiting to minimize splices.



4. Include circuit lengths required to install connected devices within 10 ft (3.0 m) of location indicated.
  5. Maintain separation of wiring for emergency systems in accordance with NFPA 70.
  6. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are indicated as separate, combining them together in a single raceway is not permitted.
  7. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among up to three single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.
- B. Install products in accordance with manufacturer's instructions.
- C. Perform work in accordance with NECA 1 (general workmanship).
- D. Install aluminum conductors in accordance with NECA 104.
- E. Install underground feeder and branch-circuit cable (Type UF-B) in accordance with NECA 121.
- F. Install metal-clad cable (Type MC) in accordance with NECA 120.
- G. Installation in Raceway:
1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
  2. Pull all conductors and cables together into raceway at same time.
  3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
  4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.
- H. Direct Burial Cable Installation:
1. Provide trenching and backfilling in accordance with Section 312316 - Excavation and Section 312323 - Fill.
  2. Install cable with minimum cover of 24 inches (610 mm) unless otherwise indicated or required.
  3. Protect cables from damage in accordance with NFPA 70.
  4. Provide underground warning tape in accordance with Section 260553 along entire cable length.
- I. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.
- J. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
1. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conductors and cables to lay on ceiling tiles.
- K. Terminate cables using suitable fittings.
1. Metal-Clad Cable (Type MC):
    - a. Use listed fittings.
    - b. Cut cable armor only using specialized tools to prevent damaging conductors or insulation. Do not use hacksaw or wire cutters to cut armor.
- L. Install conductors with a minimum of 12 inches (300 mm) of slack at each outlet.
- M. Where conductors are installed in enclosures for future termination by others, provide a minimum of 5 feet (1.5 m) of slack.
- N. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- O. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.

- P. Make wiring connections using specified wiring connectors.
  - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
  - 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
  - 3. Do not remove conductor strands to facilitate insertion into connector.
  - 4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.
  - 5. Connections for Aluminum Conductors: Fill connectors with oxide inhibiting compound where not pre-filled by manufacturer.
  - 6. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
  - 7. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- Q. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
  - 1. Dry Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
    - a. For taped connections, first apply adequate amount of rubber splicing electrical tape or electrical filler tape, followed by outer covering of vinyl insulating electrical tape.
  - 2. Damp Locations: Use insulating covers specifically designed for the connectors, electrical tape, or heat shrink tubing.
    - a. For connections with insulating covers, apply outer covering of moisture sealing electrical tape.
    - b. For taped connections, follow same procedure as for dry locations but apply outer covering of moisture sealing electrical tape.
  - 3. Wet Locations: Use heat shrink tubing.
- R. Insulate ends of spare conductors using vinyl insulating electrical tape.
- S. Field-Applied Color Coding: Where vinyl color coding electrical tape is used in lieu of integrally colored insulation as permitted in Part 2 under "Color Coding", apply half overlapping turns of tape at each termination and at each location conductors are accessible.
- T. Identify conductors and cables in accordance with Section 260553.
- U. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 078400.
- V. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

#### **3.04 FIELD QUALITY CONTROL**

- A. See Section 014000 - Quality Requirements, for additional requirements.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors. The resistance test for parallel conductors listed as optional is not required.
- D. Correct deficiencies and replace damaged or defective conductors and cables.

**END OF SECTION**

**SECTION 260526  
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Grounding and bonding requirements.
- B. Conductors for grounding and bonding.
- C. Connectors for grounding and bonding.
- D. Ground bars.
- E. Ground rod electrodes.
- F. Ground access wells.

**1.02 RELATED REQUIREMENTS**

- A. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.
- B. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

**1.03 REFERENCE STANDARDS**

- A. IEEE 81 - IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System 2012.
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- C. NEMA GR 1 - Grounding Rod Electrodes and Grounding Rod Electrode Couplings 2017.
- D. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems 2021.
- E. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- F. UL 467 - Grounding and Bonding Equipment Current Edition, Including All Revisions.

**1.04 QUALITY ASSURANCE**

- A. Comply with requirements of NFPA 70.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

**PART 2 PRODUCTS**

**2.01 GROUNDING AND BONDING REQUIREMENTS**

- A. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
- C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- D. Grounding System Resistance:
  - 1. Achieve specified grounding system resistance under normally dry conditions unless otherwise approved by Architect. Precipitation within the previous 48 hours does not constitute normally dry conditions.
  - 2. Grounding Electrode System: Not greater than 5 ohms to ground, when tested according to IEEE 81 using "fall-of-potential" method.
  - 3. Between Grounding Electrode System and Major Electrical Equipment Frames, System Neutral, and Derived Neutral Points: Not greater than 0.5 ohms, when tested using "point-to-point" methods.
- E. Grounding Electrode System:

1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
    - a. Provide continuous grounding electrode conductors without splice or joint.
    - b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.
  2. Metal Underground Water Pipe(s):
    - a. Provide connection to underground metal domestic and fire protection (where present) water service pipe(s) that are in direct contact with earth for at least 10 feet (3.0 m) at an accessible location not more than 5 feet (1.5 m) from the point of entrance to the building.
    - b. Provide bonding jumper(s) around insulating joints/pipes as required to make pipe electrically continuous.
    - c. Provide bonding jumper around water meter of sufficient length to permit removal of meter without disconnecting jumper.
  3. Metal In-Ground Support Structure:
    - a. Provide connection to metal in-ground support structure that is in direct contact with earth in accordance with NFPA 70.
  4. Concrete-Encased Electrode:
    - a. Provide connection to concrete-encased electrode consisting of not less than 20 feet (6.0 m) of either steel reinforcing bars or bare copper conductor not smaller than 4 AWG embedded within concrete foundation or footing that is in direct contact with earth in accordance with NFPA 70.
  5. Ground Rod Electrode(s):
    - a. Provide three electrodes in an equilateral triangle configuration unless otherwise indicated or required.
    - b. Space electrodes not less than 10 feet (3.0 m) from each other and any other ground electrode.
    - c. Where location is not indicated, locate electrode(s) at least 5 feet (1.5 m) outside building perimeter foundation as near as possible to electrical service entrance; where possible, locate in softscape (uncovered) area.
    - d. Provide ground access well for each electrode.
  6. Provide additional ground electrode(s) as required to achieve specified grounding electrode system resistance.
- F. Service-Supplied System Grounding:
1. For each service disconnect, provide grounding electrode conductor to connect neutral (grounded) service conductor to grounding electrode system. Unless otherwise indicated, make connection at neutral (grounded) bus in service disconnect enclosure.
  2. For each service disconnect, provide main bonding jumper to connect neutral (grounded) bus to equipment ground bus where not factory-installed. Do not make any other connections between neutral (grounded) conductors and ground on load side of service disconnect.
- G. Separately Derived System Grounding:
1. Separately derived systems include, but are not limited to:
    - a. Transformers (except autotransformers such as buck-boost transformers).
    - b. Generators, when neutral is switched in the transfer switch.
  2. Provide grounding electrode conductor to connect derived system grounded conductor to nearest effectively grounded metal building frame. Unless otherwise indicated, make connection at neutral (grounded) bus in source enclosure.
  3. Provide bonding jumper to connect derived system grounded conductor to nearest metal building frame and nearest metal water piping in the area served by the derived system, where not already used as a grounding electrode for the derived system. Make connection at same location as grounding electrode conductor connection.
  4. Outdoor Source: Where the source of the separately derived system is located outside the building or structure supplied, provide connection to grounding electrode at source in

- accordance with NFPA 70.
5. Provide system bonding jumper to connect system grounded conductor to equipment ground bus. Make connection at same location as grounding electrode conductor connection. Do not make any other connections between neutral (grounded) conductors and ground on load side of separately derived system disconnect.
  6. Where the source and first disconnecting means are in separate enclosures, provide supply-side bonding jumper between source and first disconnecting means.
- H. Bonding and Equipment Grounding:
1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
  2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
  3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
  4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
  5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
  6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.
  7. Provide bonding for interior metal piping systems in accordance with NFPA 70. This includes, but is not limited to:
    - a. Metal water piping where not already effectively bonded to metal underground water pipe used as grounding electrode.
  8. Provide bonding for metal building frame.
- I. Isolated Ground System:
1. Where isolated ground receptacles or other isolated ground connections are indicated, provide separate isolated/insulated equipment grounding conductors.
  2. Connect isolated/insulated equipment grounding conductors only to separate isolated/insulated equipment ground busses.
  3. Connect the isolated/insulated equipment grounding conductors to the solidly bonded equipment ground bus only at the service disconnect or separately derived system disconnect. Do not make any other connections between isolated ground system and normal equipment ground system on the load side of this connection.
- J. Communications Systems Grounding and Bonding:
1. Provide intersystem bonding termination at service equipment or metering equipment enclosure and at disconnecting means for any additional buildings or structures in accordance with NFPA 70.
  2. Provide bonding jumper in raceway from intersystem bonding termination to each communications room or backboard and provide ground bar for termination.
    - a. Bonding Jumper Size: 6 AWG, unless otherwise indicated or required.
    - b. Raceway Size: 3/4 inch (21 mm) trade size unless otherwise indicated or required.
    - c. Ground Bar Size: 1/4 by 2 by 12 inches (6 by 50 by 300 mm) unless otherwise indicated or required.

## 2.02 GROUNDING AND BONDING COMPONENTS

- A. General Requirements:
1. Provide products listed, classified, and labeled as suitable for the purpose intended.
  2. Provide products listed and labeled as complying with UL 467 where applicable.
- B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 260526:
1. Use insulated copper conductors unless otherwise indicated.
    - a. Exceptions:

- 1) Use bare copper conductors where installed underground in direct contact with earth.
  - 2) Use bare copper conductors where directly encased in concrete (not in raceway).
- C. Connectors for Grounding and Bonding:
1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
  2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
  3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.
- D. Ground Bars:
1. Description: Copper rectangular ground bars with mounting brackets and insulators.
  2. Size: As indicated.
  3. Holes for Connections: As indicated or as required for connections to be made.
- E. Ground Rod Electrodes:
1. Comply with NEMA GR 1.
  2. Material: Copper-bonded (copper-clad) steel.
  3. Size: 3/4 inch (19 mm) diameter by 10 feet (3.0 m) length, unless otherwise indicated.
- F. Ground Access Wells:
1. Description: Open bottom round or rectangular well with access cover for testing and inspection; suitable for the expected load at the installed location.
  2. Size: As required to provide adequate access for testing and inspection, but not less than minimum size requirements specified.
    - a. Round Wells: Not less than 8 inches (200 mm) in diameter.
    - b. Rectangular Wells: Not less than 12 by 12 inches (300 by 300 mm).
  3. Depth: As required to extend below frost line to prevent frost upheaval, but not less than 10 inches (250 mm).
  4. Cover: Factory-identified by permanent means with word "GROUND".

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that work likely to damage grounding and bonding system components has been completed.
- B. Verify that field measurements are as indicated.
- C. Verify that conditions are satisfactory for installation prior to starting work.

### **3.02 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Ground Rod Electrodes: Unless otherwise indicated, install ground rod electrodes vertically. Where encountered rock prohibits vertical installation, install at 45 degree angle or bury horizontally in trench at least 30 inches (750 mm) deep in accordance with NFPA 70 or provide ground plates.
  1. Outdoor Installations: Unless otherwise indicated, install with top of rod 6 inches (150 mm) below finished grade.
- D. Make grounding and bonding connections using specified connectors.
  1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
  2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.

3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
  4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
  5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- E. Identify grounding and bonding system components in accordance with Section 260553.

**3.03 FIELD QUALITY CONTROL**

- A. See Section 014000 - Quality Requirements, for additional requirements.
- B. Inspect and test in accordance with NETA ATS except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.13.
- D. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.
- E. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**



**SECTION 260529  
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

**1.02 RELATED REQUIREMENTS**

- A. Section 033000 - Cast-in-Place Concrete: Concrete equipment pads.

**1.03 REFERENCE STANDARDS**

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2016a.
- C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel 2023.
- D. MFMA-4 - Metal Framing Standards Publication 2004.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate sizes and arrangement of supports and bases with actual equipment and components to be installed.
  - 2. Coordinate work to provide additional framing and materials required for installation.
  - 3. Coordinate compatibility of support and attachment components with mounting surfaces at installed locations.
  - 4. Coordinate arrangement of supports with ductwork, piping, equipment and other potential conflicts.
  - 5. Notify Architect of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:
  - 1. Do not install products on or provide attachment to concrete surfaces until concrete has cured; see Section 033000.

**PART 2 PRODUCTS**

**2.01 SUPPORT AND ATTACHMENT COMPONENTS**

- A. General Requirements:
  - 1. Comply with the following. Where requirements differ, comply with most stringent.
    - a. NFPA 70.
    - b. Requirements of authorities having jurisdiction.
  - 2. Provide required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for complete installation of electrical work.
  - 3. Provide products listed, classified, and labeled as suitable for purpose intended, where applicable.
  - 4. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for load to be supported with minimum safety factor of [\_\_\_\_\_]. Include consideration for vibration, equipment operation, and shock loads where applicable.
  - 5. Do not use products for applications other than as permitted by NFPA 70 and product listing.

6. Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.
7. Steel Components: Use corrosion-resistant materials suitable for environment where installed.
  - a. Indoor Dry Locations: Use zinc-plated steel or approved equivalent unless otherwise indicated.
  - b. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel, stainless steel, or approved equivalent unless otherwise indicated.
  - c. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
  - d. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Conduit and Cable Supports: Straps and clamps suitable for conduit or cable to be supported.
  1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
  2. Conduit Clamps: Bolted type unless otherwise indicated.
- C. Outlet Box Supports: Hangers and brackets suitable for boxes to be supported.
- D. Metal Channel/Strut Framing Systems:
  1. Description: Factory-fabricated, continuous-slot, metal channel/strut and associated fittings, accessories, and hardware required for field assembly of supports.
  2. Comply with MFMA-4.
- E. Hanger Rods: Threaded, zinc-plated steel unless otherwise indicated.
- F. Anchors and Fasteners:
  1. Unless otherwise indicated and where not otherwise restricted, use anchor and fastener types indicated for specified applications.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive support and attachment components.
- C. Verify that conditions are satisfactory for installation prior to starting work.

#### **3.02 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Install hangers and supports in accordance with NECA 1.
- C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- D. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.
- E. Unless specifically indicated or approved by Architect, do not provide support from roof deck.
- F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- G. Equipment Support and Attachment:
  1. Use metal, fabricated supports or supports assembled from metal channel/strut to support equipment as required.
  2. Use metal channel/strut secured to studs to support equipment surface mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
  3. Use metal channel/strut to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
  4. Unless otherwise indicated, mount floor-mounted equipment on properly sized concrete pad 3 inches (80 mm) in height; see Section 033000.
  5. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

- H. Secure fasteners in accordance with manufacturer's recommended torque settings.
- I. Remove temporary supports.

**3.03 FIELD QUALITY CONTROL**

- A. Inspect support and attachment components for damage and defects.
- B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- C. Correct deficiencies and replace damaged or defective support and attachment components.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 260533.13  
CONDUIT FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Galvanized steel rigid metal conduit (RMC).
- B. Aluminum rigid metal conduit (RMC).
- C. Galvanized steel intermediate metal conduit (IMC).
- D. Flexible metal conduit (FMC).
- E. Liquidtight flexible metal conduit (LFMC).
- F. Galvanized steel electrical metallic tubing (EMT).
- G. Aluminum electrical metallic tubing (EMT).
- H. Rigid polyvinyl chloride (PVC) conduit.
- I. Liquidtight flexible nonmetallic conduit (LFNC).

**1.02 RELATED REQUIREMENTS**

- A. Section 033000 - Cast-in-Place Concrete: Concrete encasement of conduits.
- B. Section 078400 - Firestopping.
- C. Section 260526 - Grounding and Bonding for Electrical Systems.
  - 1. Includes additional requirements for fittings for grounding and bonding.
- D. Section 260529 - Hangers and Supports for Electrical Systems.
- E. Section 260553 - Identification for Electrical Systems: Identification products and requirements.
- F. Section 262100 - Low-Voltage Electrical Service Entrance: Additional requirements for electrical service conduits.
- G. Section 312316 - Excavation.
- H. Section 312316.13 - Trenching: Excavating, bedding, and backfilling.
- I. Section 312323 - Fill: Bedding and backfilling.

**1.03 REFERENCE STANDARDS**

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC) 2020.
- B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S) 2020.
- C. ANSI C80.5 - American National Standard for Electrical Rigid Metal Conduit -- Aluminum (ERMC-A) 2020.
- D. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit 2018.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- F. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT) 2020.
- G. NECA 102 - Standard for Installing Aluminum Rigid Metal Conduit 2004.
- H. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC) 2017.
- I. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.
- J. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit 2020.
- K. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing 2021.
- L. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- M. UL 1 - Flexible Metal Conduit Current Edition, Including All Revisions.

- N. UL 6 - Electrical Rigid Metal Conduit-Steel Current Edition, Including All Revisions.
- O. UL 6A - Electrical Rigid Metal Conduit-Aluminum, Red Brass, and Stainless Steel Current Edition, Including All Revisions.
- P. UL 360 - Liquid-Tight Flexible Metal Conduit Current Edition, Including All Revisions.
- Q. UL 514B - Conduit, Tubing, and Cable Fittings Current Edition, Including All Revisions.
- R. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings Current Edition, Including All Revisions.
- S. UL 797 - Electrical Metallic Tubing-Steel Current Edition, Including All Revisions.
- T. UL 797A - Electrical Metallic Tubing - Aluminum and Stainless Steel Current Edition, Including All Revisions.
- U. UL 1242 - Electrical Intermediate Metal Conduit-Steel Current Edition, Including All Revisions.
- V. UL 1660 - Liquid-Tight Flexible Nonmetallic Conduit Current Edition, Including All Revisions.
- W. UL 2419 - Outline of Investigation for Electrically Conductive Corrosion Resistant Compounds Current Edition, Including All Revisions.

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate minimum sizes of conduits with actual type and quantity of conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
  - 2. Coordinate arrangement of conduits with structural members, ductwork, piping, equipment, and other potential conflicts.
  - 3. Verify exact conduit termination locations required for boxes, enclosures, and equipment.
  - 4. Coordinate work to provide roof penetrations that preserve integrity of roofing system and do not void roof warranty.
  - 5. Notify Architect of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
- B. Sequencing:
  - 1. Do not begin installation of conductors and cables until installation of conduit between termination points is complete.

#### **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

### **PART 2 PRODUCTS**

#### **2.01 CONDUIT APPLICATIONS**

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70, manufacturer's instructions, and product listing.
- B. Unless otherwise indicated and where not otherwise restricted, use conduit types indicated for specified applications. Where more than one listed application applies, comply with most restrictive requirements. Where conduit type for particular application is not specified, use galvanized steel rigid metal conduit.
- C. Underground:
  - 1. Under Slab on Grade: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), PVC-coated galvanized steel rigid metal conduit (RMC), galvanized steel electrical metallic tubing (EMT), stainless steel electrical metallic tubing (EMT), rigid PVC conduit, or reinforced thermosetting resin conduit (RTRC).
  - 2. Exterior, Direct-Buried: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), PVC-coated galvanized steel rigid metal conduit, galvanized steel electrical metallic tubing (EMT), stainless steel electrical metallic tubing

- (EMT), rigid PVC conduit, or reinforced thermosetting resin conduit (RTRC).
3. Exterior, Embedded Within Concrete: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), PVC-coated galvanized steel rigid metal conduit (RMC), galvanized steel electrical metallic tubing (EMT), stainless steel electrical metallic tubing (EMT), rigid PVC conduit, or reinforced thermosetting resin conduit (RTRC).
  4. Where rigid polyvinyl chloride (PVC) conduit is provided, transition to galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), or schedule 80 rigid PVC conduit where emerging from underground.
  5. Where rigid polyvinyl (PVC) conduit larger than 2-inch (53 mm) trade size is provided, use galvanized steel rigid metal conduit (RMC) elbows, stainless steel rigid metal conduit (RMC) elbows, galvanized steel intermediate metal conduit (IMC) elbows, stainless steel intermediate metal conduit (IMC) elbows, PVC-coated galvanized steel rigid metal conduit (RMC) elbows, or concrete-encased PVC elbows for bends.
- D. Embedded Within Concrete:
1. Within Slab on Grade: Not permitted.
  2. Where rigid polyvinyl (PVC) conduit is provided, transition to galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT) where emerging from concrete.
- E. Concealed Within Masonry Walls: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), galvanized steel electrical metallic tubing (EMT), or stainless steel electrical metallic tubing (EMT).
- F. Concealed Within Hollow Stud Walls: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), galvanized steel electrical metallic tubing (EMT), or stainless steel electrical metallic tubing (EMT).
- G. Concealed Above Accessible Ceilings: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), galvanized steel electrical metallic tubing (EMT), or stainless steel electrical metallic tubing (EMT).
- H. Interior, Damp or Wet Locations: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), galvanized steel electrical metallic tubing (EMT), or stainless steel electrical metallic tubing (EMT).
- I. Exposed, Interior, Not Subject to Physical Damage: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), galvanized steel electrical metallic tubing (EMT), or stainless steel electrical metallic tubing (EMT).
- J. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), galvanized steel electrical metallic tubing (EMT), or stainless steel electrical metallic tubing (EMT).
1. Locations subject to physical damage include, but are not limited to:
    - a. Where exposed below 8 feet (2.4 m), except within electrical and communication rooms or closets.
    - b. Where exposed below 20 feet (6.1 m) in warehouse areas.
- K. Exposed, Interior, Subject to Severe Physical Damage: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or stainless steel intermediate metal conduit (IMC).

- L. Concealed, Exterior, Not Embedded in Concrete or in Contact With Earth: Use galvanized steel rigid metal conduit (RMC), stainless steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), stainless steel intermediate metal conduit (IMC), galvanized steel electrical metallic tubing (EMT), or stainless steel electrical metallic tubing (EMT).

## **2.02 CONDUIT - GENERAL REQUIREMENTS**

- A. Comply with NFPA 70.
- B. Electrical Service Conduits: See Section 262100 for additional requirements.
- C. Fittings for Grounding and Bonding: See Section 260526 for additional requirements.
- D. Provide conduit, fittings, supports, and accessories required for complete raceway system.
- E. Provide products listed, classified, and labeled as suitable for purpose intended.
- F. Minimum Conduit Size, Unless Otherwise Indicated:
  - 1. Branch Circuits: 3/4-inch (21 mm) trade size.
  - 2. Branch Circuit Homeruns: 3/4-inch (21 mm) trade size.
  - 3. Control Circuits: 1/2-inch (16 mm) trade size.
  - 4. Flexible Connections to Luminaires: 3/8-inch (12 mm) trade size.
  - 5. Underground, Interior: 3/4-inch (21 mm) trade size.
  - 6. Underground, Exterior: 1-inch (27 mm) trade size.
- G. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

## **2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)**

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
- B. Fittings:
  - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6.
  - 2. Material: Use steel or malleable iron.
  - 3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

## **2.04 ALUMINUM RIGID METAL CONDUIT (RMC)**

- A. Description: NFPA 70, Type RMC aluminum rigid metal conduit complying with ANSI C80.5 and listed and labeled as complying with UL 6A.
- B. Fittings:
  - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6A.
  - 2. Material: Use aluminum.
  - 3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

## **2.05 GALVANIZED STEEL INTERMEDIATE METAL CONDUIT (IMC)**

- A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.
- B. Fittings:
  - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 1242.
  - 2. Material: Use steel or malleable iron.
  - 3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

## **2.06 FLEXIBLE METAL CONDUIT (FMC)**

- A. Description: NFPA 70, Type FMC standard-wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems.



- B. Fittings:
  - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  - 2. Material: Use steel or malleable iron.

#### **2.07 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)**

- A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
- B. Fittings:
  - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  - 2. Material: Use steel or malleable iron.

#### **2.08 GALVANIZED STEEL ELECTRICAL METALLIC TUBING (EMT)**

- A. Description: NFPA 70, Type EMT galvanized steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
- B. Fittings:
  - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  - 2. Material: Use steel or malleable iron.
  - 3. Connectors and Couplings: Use compression/gland or set-screw type.
    - a. Do not use indenter type connectors and couplings.

#### **2.09 ALUMINUM ELECTRICAL METALLIC TUBING (EMT)**

- A. Description: NFPA 70, Type EMT aluminum electrical metallic tubing listed and labeled as complying with UL 797A.
- B. Fittings:
  - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B; listed for use with aluminum EMT.
  - 2. Material: Use aluminum.
  - 3. Connectors and Couplings: Use compression/gland or set-screw type.
    - a. Do not use indenter type connectors and couplings.

#### **2.10 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT**

- A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.
- B. Fittings:
  - 1. Manufacturer: Same as manufacturer of conduit to be connected.
  - 2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

#### **2.11 LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT (LFNC)**

- A. Description: NFPA 70, Type LFNC liquidtight flexible nonmetallic conduit listed and labeled as complying with UL 1660.
- B. Fittings:
  - 1. Manufacturer: Same as manufacturer of conduit to be connected.
  - 2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B; suitable for type of conduit to be connected.

#### **2.12 ACCESSORIES**

- A. Conduit Joint Compound: Corrosion-resistant, electrically conductive compound listed as complying with UL 2419; suitable for use with conduit to be installed.

- B. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.
- C. Pull Strings: Use nylon or polyester tape with average breaking strength of not less than 1,250 lbf (5.6 kN).
- D. Foam Conduit Sealant:
  - 1. Removable, two-part, closed-cell foam, specifically designed for sealing conduit openings against water, moisture, gases, and dust.
  - 2. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
  - 3. Rated to hold minimum of 10 ft (3.0 m) water head pressure.
- E. Conduit Mechanical Seals:
  - 1. Listed as complying with UL 514B.
  - 2. Specifically designed for sealing conduit openings against water, moisture, gases, and dust.
  - 3. Suitable for sealing around conductors/cables to be installed.
- F. Sealing Systems for Concrete Penetrations:
  - 1. Sleeves: Provide water stop ring or cement coating that bonds to concrete to prevent water infiltration.
  - 2. Rate for minimum of 40 psig; suitable for sealing around conduits to be installed.
- G. Sealing Systems for Roof Penetrations: Premanufactured components and accessories as required to preserve integrity of roofing system and maintain roof warranty; suitable for conduits and roofing system to be installed; designed to accommodate existing penetrations where applicable.
- H. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for conduits and facade materials to be installed.
- I. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.
- J. Duct Bank Spacers: Nonmetallic; designed for maintaining conduit/duct spacing for concrete encasement in open trench installation; suitable for conduit/duct arrangement to be installed.
- K. Bore Spacers: Nonmetallic; designed for maintaining conduit/duct spacing for installation within casing; furnished with roller wheels to facilitate installation, openings to facilitate grout flow, and holes for stabilization cable; suitable for casing and conduit/duct arrangement to be installed.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive conduits.
- C. Verify that conditions are satisfactory for installation prior to starting work.

#### **3.02 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Install conduit in accordance with NECA 1.
- C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
- D. Install aluminum rigid metal conduit (RMC) in accordance with NECA 102.
- E. Install intermediate metal conduit (IMC) in accordance with NECA 101.
- F. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.
- G. Install liquidtight flexible nonmetallic conduit (LFNC) in accordance with NECA 111.
- H. Conduit Routing:
  - 1. Unless dimensioned, conduit routing indicated is diagrammatic.

2. When conduit destination is indicated without specific routing, determine exact routing required.
  3. Conceal conduits unless specifically indicated to be exposed.
  4. Conduits in the following areas may be exposed, unless otherwise indicated:
    - a. Electrical rooms.
    - b. Mechanical equipment rooms.
    - c. Within joists in areas with no ceiling.
  5. Unless otherwise approved, do not route exposed conduits:
    - a. Across floors.
    - b. Across roofs.
    - c. Across top of parapet walls.
    - d. Across building exterior surfaces.
  6. Conduits installed underground or embedded in concrete may be routed in shortest possible manner unless otherwise indicated. Route other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.
  7. Arrange conduit to maintain adequate headroom, clearances, and access.
  8. Arrange conduit to provide no more than equivalent of four 90-degree bends between pull points.
  9. Arrange conduit to provide no more than 150 feet (46 m) between pull points.
  10. Route conduits above water and drain piping where possible.
  11. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
  12. Maintain minimum clearance of 6 inches (150 mm) between conduits and piping for other systems.
  13. Maintain minimum clearance of 12 inches (300 mm) between conduits and hot surfaces. This includes, but is not limited to:
    - a. Heaters.
    - b. Hot water piping.
    - c. Flues.
  14. Group parallel conduits in same area on common rack.
- I. Conduit Support:
1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by authorities having jurisdiction; see Section 260529.
  2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
  3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
  4. Use conduit strap to support single surface-mounted conduit.
    - a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.
  5. Use metal channel/strut with accessory conduit clamps to support multiple parallel surface-mounted conduits.
  6. Use conduit clamp to support single conduit from beam clamp or threaded rod.
  7. Use trapeze hangers assembled from threaded rods and metal channel/strut with accessory conduit clamps to support multiple parallel suspended conduits.
  8. Use nonpenetrating rooftop supports to support conduits routed across rooftops, where approved.
  9. Use of spring steel conduit clips for support of conduits is not permitted.
  10. Use of wire for support of conduits is not permitted.
  11. Where conduit support intervals specified in NFPA 70 and NECA standards differ, comply with most stringent requirements.
- J. Connections and Terminations:

1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
  2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
  3. Use suitable adapters where required to transition from one type of conduit to another.
  4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
  5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
  6. Where spare conduits stub up through concrete floors and are not terminated in box or enclosure, provide threaded couplings equipped with threaded plugs set flush with finished floor.
  7. Provide insulating bushings, insulated throats, or listed metal fittings with smooth, rounded edges at conduit terminations to protect conductors.
  8. Secure joints and connections to provide mechanical strength and electrical continuity.
- K. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
  2. Make penetrations perpendicular to surfaces unless otherwise indicated.
  3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
  4. Conceal bends for conduit risers emerging above ground.
  5. Provide suitable sealing system where conduits penetrate exterior wall below grade.
  6. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
  7. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty.
  8. Provide metal escutcheon plates for conduit penetrations exposed to public view.
  9. Install firestopping to preserve fire resistance rating of partitions and other elements; see Section 078400.
- L. Underground Installation:
1. Provide trenching and backfilling; see Section 312316.13.
  2. Provide trenching and backfilling; see Section 312316 and Section 312323.
  3. Minimum Cover, Unless Otherwise Indicated or Required:
    - a. Underground, Exterior: 18 inches (460 mm).
  4. Provide underground warning tape along entire conduit length for service entrance where not concrete-encased; see Section 260553.
- M. Concrete Encasement: Where conduits not otherwise embedded within concrete are indicated to be concrete-encased, provide minimum concrete cover of 3 inches (76 mm) on all sides unless otherwise indicated; see Section 033000.
- N. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
  2. Where calculated in accordance with NFPA 70 for rigid polyvinyl chloride (PVC) conduit installed above ground to compensate for thermal expansion and contraction.
  3. Where conduits are subject to earth movement by settlement or frost.
- O. Conduit Sealing:
1. Use foam conduit sealant to prevent entry of moisture and gases. This includes, but is not limited to:
    - a. Where conduits enter building from outside.
    - b. Where service conduits enter building from underground distribution system.

- c. Where conduits enter building from underground.
- d. Where conduits may transport moisture to contact live parts.
- 2. Where conduits cross barriers between areas of potential substantial temperature differential, use foam conduit sealant at accessible point near penetration to prevent condensation. This includes, but is not limited to:
  - a. Where conduits pass from outdoors into conditioned interior spaces.
  - b. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
- P. Provide grounding and bonding; see Section 260526.

### **3.03 FIELD QUALITY CONTROL**

- A. See Section 014000 - Quality Requirements for additional requirements.
- B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- C. Correct deficiencies and replace damaged or defective conduits.

### **3.04 CLEANING**

- A. Clean interior of conduits to remove moisture and foreign matter.

### **3.05 PROTECTION**

- A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 260533.16**  
**BOXES FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Outlet and device boxes up to 100 cubic inches (1,650 cu cm), including those used as junction and pull boxes.
- B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches (1,650 cu cm).
- C. Boxes and enclosures for integrated power, data, and audio/video.
- D. Underground boxes/enclosures.
- E. Accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 083100 - Access Doors and Panels: Panels for maintaining access to concealed boxes.
- B. Section 260529 - Hangers and Supports for Electrical Systems.
- C. Section 260553 - Identification for Electrical Systems: Identification products and requirements.
- D. Section 262726 - Wiring Devices:
  - 1. Wall plates.
  - 2. Additional requirements for locating boxes for wiring devices.
- E. Section 271000 - Structured Cabling: Additional requirements for communications systems outlet boxes.

**1.03 REFERENCE STANDARDS**

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices 2016.
- C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.
- D. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.
- E. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports 2013 (Reaffirmed 2020).
- F. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.
- H. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.
- I. UL 508A - Industrial Control Panels Current Edition, Including All Revisions.
- J. UL 514A - Metallic Outlet Boxes Current Edition, Including All Revisions.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
  - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
  - 3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.

4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
6. Coordinate the work with other trades to preserve insulation integrity.
7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
8. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

#### **1.05 QUALITY ASSURANCE**

- A. Comply with requirements of NFPA 70.
- B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

### **PART 2 PRODUCTS**

#### **2.01 BOXES**

- A. General Requirements:
  1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
  2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
  3. Provide products listed, classified, and labeled as suitable for the purpose intended.
  4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
  5. Provide grounding terminals within boxes where equipment grounding conductors terminate.
- B. Outlet and Device Boxes Up to 100 cubic inches (1,650 cu cm), Including Those Used as Junction and Pull Boxes:
  1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
  2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
  3. Use cast iron boxes or cast aluminum boxes where exposed galvanized steel rigid metal conduit or exposed intermediate metal conduit (IMC) is used.
  4. Use cast aluminum boxes where aluminum rigid metal conduit is used.
  5. Use suitable concrete type boxes where flush-mounted in concrete.
  6. Use suitable masonry type boxes where flush-mounted in masonry walls.
  7. Use raised covers suitable for the type of wall construction and device configuration where required.
  8. Use shallow boxes where required by the type of wall construction.
  9. Do not use "through-wall" boxes designed for access from both sides of wall.
  10. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
  11. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
  12. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.



13. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
14. Minimum Box Size, Unless Otherwise Indicated:
  - a. Wiring Devices (Other Than Communications Systems Outlets): 4 inch square by 1-1/2 inch deep (100 by 38 mm) trade size.
  - b. Ceiling Outlets: 4 inch octagonal or square by 1-1/2 inch deep (100 by 38 mm) trade size.
15. Wall Plates: Comply with Section 262726.
- C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):
  1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
  2. NEMA 250 Environment Type, Unless Otherwise Indicated:
    - a. Indoor Clean, Dry Locations: Type 1, painted steel.
    - b. Outdoor Locations: Type 3R, painted steel.
  3. Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):
    - a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
- D. Boxes and Enclosures for Integrated Power, Data, and Audio/Video: Size and configuration as indicated or as required with partitions to separate services; field-connected gangable boxes may be used.

## 2.02 ACCESSORIES

- A. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for boxes and facade materials to be installed.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive boxes.
- C. Verify that conditions are satisfactory for installation prior to starting work.

### 3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Unless otherwise indicated, provide separate boxes for line voltage and low voltage systems.
- E. Flush-mount boxes in finished areas unless specifically indicated to be surface-mounted.
- F. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.
- G. Box Locations:
  1. Locate boxes to be accessible. Provide access panels in accordance with Section 083100 as required where approved by the Architect.
  2. Unless dimensioned, box locations indicated are approximate.
  3. Locate boxes as required for devices installed under other sections or by others.
    - a. Switches, Receptacles, and Other Wiring Devices: Comply with Section 262726.
    - b. Communications Systems Outlets: Comply with Section 271000.
  4. Locate boxes so that wall plates do not span different building finishes.
  5. Locate boxes so that wall plates do not cross masonry joints.

6. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
  7. Fire Resistance Rated Walls: Install flush-mounted boxes such that the required fire resistance will not be reduced.
    - a. Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches (610 mm) separation where wall is constructed with individual noncommunicating stud cavities or protect both boxes with listed putty pads.
    - b. Do not install flush-mounted boxes with area larger than 16 square inches (0.0103 sq m) or such that the total aggregate area of openings exceeds 100 square inches (0.0645 sq m) for any 100 square feet (9.29 sq m) of wall area.
  8. Locate junction and pull boxes in the following areas, unless otherwise indicated or approved by the Architect:
    - a. Concealed above accessible suspended ceilings.
    - b. Within joists in areas with no ceiling.
    - c. Electrical rooms.
    - d. Mechanical equipment rooms.
- H. Box Supports:
1. Secure and support boxes in accordance with NFPA 70 and Section 260529 using suitable supports and methods approved by the authority having jurisdiction.
  2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
  3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.
  4. Use far-side support to secure flush-mounted boxes supported from single stud in hollow stud walls. Repair or replace supports for boxes that permit excessive movement.
- I. Install boxes plumb and level.
- J. Flush-Mounted Boxes:
1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch (6 mm) or does not project beyond finished surface.
  2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
  3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch (3 mm) at the edge of the box.
- K. Install boxes as required to preserve insulation integrity.
- L. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- M. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 078400.
- N. Close unused box openings.
- O. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.
- P. Provide grounding and bonding in accordance with Section 260526.
- Q. Identify boxes in accordance with Section 260553.

### **3.03 CLEANING**

- A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

### **3.04 PROTECTION**

- A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 260553**  
**IDENTIFICATION FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Electrical identification requirements.
- B. Identification nameplates and labels.
- C. Underground warning tape.
- D. Warning signs and labels.

**1.02 RELATED REQUIREMENTS**

- A. Section 099123 - Interior Painting.
- B. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.
- C. Section 260573 - Power System Studies: Arc flash hazard warning labels.

**1.03 REFERENCE STANDARDS**

- A. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- B. UL 969 - Marking and Labeling Systems Current Edition, Including All Revisions.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Verify final designations for equipment, systems, and components to be identified prior to fabrication of identification products.
- B. Sequencing:
  - 1. Do not conceal items to be identified, in locations such as above suspended ceilings, until identification products have been installed.
  - 2. Do not install identification products until final surface finishes and painting are complete.

**1.05 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements for submittals procedures.
- B. Shop Drawings: Provide schedule of items to be identified indicating proposed designations, materials, legends, and formats.

**1.06 QUALITY ASSURANCE**

- A. Comply with requirements of NFPA 70.

**1.07 FIELD CONDITIONS**

- A. Do not install adhesive products when ambient temperature is lower than recommended by manufacturer.

**PART 2 PRODUCTS**

**2.01 IDENTIFICATION REQUIREMENTS**

- A. Identification for Equipment:
  - 1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
    - a. Panelboards:
      - 1) Identify ampere rating.
      - 2) Identify voltage and phase.
      - 3) Identify power source and circuit number. Include location when not within sight of equipment.
      - 4) Identify main overcurrent protective device. Use identification label for panelboards with a door. For power distribution panelboards without a door, use

- identification nameplate.
- 5) Use typewritten circuit directory to identify load(s) served for panelboards with a door. Identify spares and spaces using pencil.
- 6) For power panelboards without a door, use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.
- b. Transformers:
  - 1) Identify kVA rating.
  - 2) Identify voltage and phase for primary and secondary.
  - 3) Identify power source and circuit number. Include location when not within sight of equipment.
  - 4) Identify load(s) served. Include location when not within sight of equipment.
- c. Enclosed switches, circuit breakers, and motor controllers:
  - 1) Identify voltage and phase.
  - 2) Identify power source and circuit number. Include location when not within sight of equipment.
  - 3) Identify load(s) served. Include location when not within sight of equipment.
- d. Enclosed Contactors:
  - 1) Identify ampere rating.
  - 2) Identify voltage and phase.
  - 3) Identify configuration, e.g., E.O.E.H. (electrically operated, electrically held) or E.O.M.H. (electrically operated, mechanically held).
  - 4) Identify coil voltage.
  - 5) Identify load(s) and associated circuits controlled. Include location.
- e. Centralized Emergency Lighting Inverters:
  - 1) Identify input and output voltage and phase.
  - 2) Identify power source and circuit number for normal power source. Include location when not within sight of equipment.
  - 3) Identify load(s) served. Include location.
- f. Electricity Meters:
  - 1) Identify load(s) metered.
- 2. Service Equipment:
  - a. For buildings or structures supplied by more than one service, or any combination of branch circuits, feeders, and services, use identification nameplate or means of identification acceptable to authority having jurisdiction at each service disconnecting means to identify all other services, feeders, and branch circuits supplying that building or structure. Verify format and descriptions with authority having jurisdiction.
- 3. Use identification nameplate to identify equipment utilizing series ratings, where permitted, in accordance with NFPA 70.
- 4. Use identification nameplate to identify disconnect location for equipment with remote disconnecting means.
- 5. Use identification label to identify overcurrent protective devices for branch circuits serving fire alarm circuits. Identify with text "FIRE ALARM CIRCUIT".
- 6. Available Fault Current Documentation: Use identification label to identify the available fault current and date calculations were performed at locations requiring documentation by NFPA 70 including but not limited to the following.
  - a. Service equipment.
  - b. Industrial control panels.
  - c. Motor control centers.
  - d. Elevator control panels.
  - e. Industrial machinery.
- 7. Arc Flash Hazard Warning Labels: Comply with Section 260573.
- B. Identification for Conductors and Cables:
  - 1. Color Coding for Power Conductors 600 V and Less: Comply with Section 260519.
  - 2. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or

branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.

## 2.02 IDENTIFICATION NAMEPLATES AND LABELS

- A. Identification Nameplates:
  - 1. Materials:
  - 2. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch (1.6 mm); engraved text.
  - 3. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch (25 mm) high; Four, located at corners for larger sizes.
- B. Identification Labels:
  - 1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
  - 2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.

## 2.03 WARNING SIGNS AND LABELS

- A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.
- B. Warning Signs:
  - 1. Materials:
  - 2. Minimum Size: 7 by 10 inches (178 by 254 mm) unless otherwise indicated.
- C. Warning Labels:
  - 1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
  - 2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
  - 3. Minimum Size: 2 by 4 inches (51 mm by 102 mm) unless otherwise indicated.

## PART 3 EXECUTION

### 3.01 PREPARATION

- A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

### 3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
  - 1. Surface-Mounted Equipment: Enclosure front.
  - 2. Flush-Mounted Equipment: Inside of equipment door.
  - 3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
  - 4. Elevated Equipment: Legible from the floor or working platform.
  - 5. Branch Devices: Adjacent to device.
  - 6. Interior Components: Legible from the point of access.
  - 7. Conductors and Cables: Legible from the point of access.
- C. Install identification products centered, level, and parallel with lines of item being identified.
- D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.
- E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.
- F. Mark all handwritten text, where permitted, to be neat and legible.

### 3.03 FIELD QUALITY CONTROL

- A. See Section 014000 - Quality Requirements, for additional requirements.
- B. Replace self-adhesive labels and markers that exhibit bubbles, wrinkles, curling or other signs of improper adhesion.

**END OF SECTION**



**SECTION 260583  
WIRING CONNECTIONS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Electrical connections to equipment.

**1.02 RELATED REQUIREMENTS**

- A. Section 260519 - Low-Voltage Electrical Power Conductors and Cables.
- B. Section 260533.13 - Conduit for Electrical Systems.
- C. Section 260533.16 - Boxes for Electrical Systems.
- D. Section 262726 - Wiring Devices.
- E. Section 262816.16 - Enclosed Switches.

**1.03 REFERENCE STANDARDS**

- A. NEMA WD 1 - General Color Requirements for Wiring Devices 1999 (Reaffirmed 2020).
- B. NEMA WD 6 - Wiring Devices - Dimensional Specifications 2021.
- C. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
  - 2. Determine connection locations and requirements.
- B. Sequencing:
  - 1. Install rough-in of electrical connections before installation of equipment is required.
  - 2. Make electrical connections before required start-up of equipment.

**1.05 QUALITY ASSURANCE**

- A. Comply with requirements of NFPA 70.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Cords and Caps: NEMA WD 6; match receptacle configuration at outlet provided for equipment.
  - 1. Colors: Comply with NEMA WD 1.
  - 2. Cord Construction: NFPA 70, Type SO, multiconductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.
  - 3. Size: Suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.
- B. Disconnect Switches: As specified in Section 262816.16 and in individual equipment sections.
- C. Wiring Devices: As specified in Section 262726.
- D. Flexible Conduit: As specified in Section 260533.13.
- E. Wire and Cable: As specified in Section 260519.
- F. Boxes: As specified in Section 260533.16.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that equipment is ready for electrical connection, wiring, and energization.

**3.02 ELECTRICAL CONNECTIONS**

- A. Make electrical connections in accordance with equipment manufacturer's instructions.

- B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.
- C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
- D. Provide receptacle outlet to accommodate connection with attachment plug.
- E. Provide cord and cap where field-supplied attachment plug is required.
- F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
- G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
- H. Install terminal block jumpers to complete equipment wiring requirements.
- I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

**END OF SECTION**

**SECTION 260923  
LIGHTING CONTROL DEVICES**

**PART 2 PRODUCTS**

**1.01 LIGHTING CONTROL DEVICES - GENERAL REQUIREMENTS**

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Unless specifically indicated to be excluded, provide all required conduit, wiring, connectors, hardware, components, accessories, etc. as required for a complete operating system.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 262100  
LOW-VOLTAGE ELECTRICAL SERVICE ENTRANCE**

**PART 2 PRODUCTS**

**1.01 ELECTRICAL SERVICE REQUIREMENTS**

- A. Provide new electrical service consisting of all required conduits, conductors, equipment, metering provisions, supports, accessories, etc. as necessary for connection between Utility Company point of supply and service entrance equipment.
- B. Products Furnished by Contractor: Comply with Utility Company requirements.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 262200  
LOW-VOLTAGE TRANSFORMERS**

**PART 2 PRODUCTS**

**1.01 TRANSFORMERS - GENERAL REQUIREMENTS**

- A. Description: Factory-assembled, dry type transformers for 60 Hz operation designed and manufactured in accordance with NEMA ST 20 and listed, classified, and labeled as suitable for the purpose intended.
- B. Unless noted otherwise, transformer ratings indicated are for continuous loading according to IEEE C57.96 under the following service conditions:
  - 1. Altitude: Less than 3,300 feet (1,000 m).
  - 2. Ambient Temperature:
    - a. Greater than 10 kVA: Not exceeding 104 degrees F (40 degrees C).
    - b. Less than 10 kVA: Not exceeding 77 degrees F (25 degrees C).
- C. Core: High grade, non-aging silicon steel with high magnetic permeability and low hysteresis and eddy current losses. Keep magnetic flux densities substantially below saturation point, even at 10 percent primary overvoltage. Tightly clamp core laminations to prevent plate movement and maintain consistent pressure throughout core length.
- D. Impregnate core and coil assembly with non-hydroscopic thermo-setting varnish to effectively seal out moisture and other contaminants.
- E. Basic Impulse Level: 10 kV.
- F. Ground core and coil assembly to enclosure by means of a visible flexible copper grounding strap.
- G. Isolate core and coil from enclosure using vibration-absorbing mounts.
- H. Nameplate: Include transformer connection data, ratings, wiring diagrams, and overload capacity based on rated winding temperature rise.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**



**SECTION 262416  
PANELBOARDS**

**PART 2 PRODUCTS**

**1.01 PANELBOARDS - GENERAL REQUIREMENTS**

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
  - 1. Altitude: Less than 6,600 feet (2,000 m).
  - 2. Ambient Temperature:
- C. Short Circuit Current Rating:
- D. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.
- E. Branch Overcurrent Protective Devices: Replaceable without disturbing adjacent devices.
- F. Bussing: Sized in accordance with UL 67 temperature rise requirements.
  - 1. Provide solidly bonded equipment ground bus in each panelboard, with a suitable lug for each feeder and branch circuit equipment grounding conductor.
- G. Conductor Terminations: Suitable for use with the conductors to be installed.
- H. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
  - 1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
  - 2. Boxes: Galvanized steel unless otherwise indicated.
    - a. Provide wiring gutters sized to accommodate the conductors to be installed.
  - 3. Fronts:
  - 4. Lockable Doors: All locks keyed alike unless otherwise indicated.
- I. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.

**1.02 OVERCURRENT PROTECTIVE DEVICES**

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 262713  
ELECTRICITY METERING**

**PART 2 PRODUCTS**

**1.01 EQUIPMENT FOR OWNER ELECTRICITY METERING**

- A. Provide microprocessor-based digital electricity metering systems including all instrument transformers, wiring, and connections necessary for measurements specified.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Provide electricity metering systems and associated components compatible with the equipment and associated circuits to be metered.
- D. Service Conditions: Provide electricity meters suitable for operation under the service conditions at the installed location.
- E. Enclosures:
  - 1. Where not furnished by manufacturer, provide required cabinets and enclosures in accordance with Section 260533.16.
  - 2. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
  - 3. Finish: Manufacturer's standard unless otherwise indicated.
- F. Instrument Transformers:
  - 1. Comply with IEEE C57.13, where applicable.
  - 2. Select suitable ratio, burden, and accuracy as required for connected devices.
  - 3. Current Transformers: Compatible with connected meters; replace meters damaged by connection of incompatible current transformers. Provide shorting terminal blocks for connection of secondaries where applicable.
  - 4. Potential Transformers: Include primary and secondary fuses with disconnecting means.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 262813  
FUSES**

**PART 2 PRODUCTS**

**1.01 FUSES**

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Unless specifically indicated to be excluded, provide fuses for all fusible equipment as required for a complete operating system.
- C. Provide fuses of the same type, rating, and manufacturer within the same switch.
- D. Comply with UL 248-1.
- E. Unless otherwise indicated, provide cartridge type fuses complying with NEMA FU 1, Class and ratings as indicated.
- F. Voltage Rating: Suitable for circuit voltage.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 262816.13  
ENCLOSED CIRCUIT BREAKERS**

**PART 2 PRODUCTS**

**1.01 ENCLOSED CIRCUIT BREAKERS**

- A. Description: Units consisting of molded case circuit breakers individually mounted in enclosures.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
  - 1. Altitude: Less than 6,600 feet (2,000 m).
  - 2. Ambient Temperature: Between 23 degrees F (-5 degrees C) and 104 degrees F (40 degrees C).
- D. Short Circuit Current Rating:
- E. Conductor Terminations: Suitable for use with the conductors to be installed.
- F. Provide solidly bonded equipment ground bus in each enclosed circuit breaker, with a suitable lug for terminating each equipment grounding conductor.
- G. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
  - 1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
- H. Provide externally operable handle with means for locking in the OFF position.

**1.02 MOLDED CASE CIRCUIT BREAKERS**

- A. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489, and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.
- B. Interrupting Capacity:
  - 1. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated, but not less than:
  - 2. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.
- C. Conductor Terminations:
  - 1. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
- D. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**



**SECTION 265100  
INTERIOR LIGHTING**

**PART 2 PRODUCTS**

**1.01 LUMINAIRES**

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.
- E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.
- F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

**SECTION 265600  
EXTERIOR LIGHTING**

**PART 2 PRODUCTS**

**1.01 LUMINAIRES**

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.
- E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, poles, foundations, supports, trims, accessories, etc. as necessary for a complete operating system.
- F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 31 20 00 - EARTH MOVING

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section includes site grading, removal of topsoil and subsoil, building excavating and trenching, backfilling, and compacting.

### PART 2 PRODUCTS

#### 2.1 SOIL MATERIALS [COORDINATE WITH GEO-TECHNICAL REPORT]

- A. Topsoil: Reusable excavated or Imported friable loam; free of subsoil, roots, grass, weeds, large stone, and foreign matter. ASTM D 4268, pH range of 5.5 to 7, minimum of 4 percent organic material content.
  - 1. Amend existing in place surface soil to produce topsoil. Verify suitability of surface soil to produce topsoil. Surface soil may be supplemented with imported or manufactured topsoil from off-site sources.
- B. Subsoil: Excavated material, graded free of lumps larger than 6 inches, rocks larger than 2 inches, organic material, and debris. ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM or a combination there of.

#### 2.2 FILL MATERIALS [COORDINATE WITH GEO-TECHNICAL REPORT]

- A. Type A - Select Granular Material: Coarse stone: Pit run, washed natural stone; free of shale, clay, friable material, sand, debris.
  - 1. Grading: AASHTO M147; Grade 57.

#### 2.3 ACCESSORIES

- A. Geotextile Fabric: See 32 90 00.

### PART 3 EXECUTION

#### 3.1 EXAMINATION AND PREPARATION

- A. Call OUPS to mark locations of all underground utilities a minimum of 3 working days prior to starting work.
- B. Identify required lines, levels, contours, and datum.
- C. Notify Architect/Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- D. Maintain and protect existing utilities to remain.
- E. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil bearing water runoff of airborne dust to adjacent properties.
- F. Prevent surface water and ground water from entering excavations, from ponding on prepared sub-grades, and from flooding the project site and surrounding areas.
- G. Verify foundation walls are braced to support surcharge forces imposed by backfilling operations.

#### 3.2 PROTECTION OF ADJACENT WORK

- A. Underpin adjacent structures which may be damaged by excavation work, including service utilities and pipe chases.
- B. Grade excavation top perimeter to prevent surface water run-off into excavation or to adjacent properties.

- C. Contractor shall be responsible for damage to existing utilities caused by construction operations.

**3.3 TOPSOIL EXCAVATING**

- A. Do not excavate wet topsoil.
- B. Excavate topsoil and stockpile for reuse. Remove excess topsoil not planned / required for reuse from the Site.

**3.4 SUBSOIL EXCAVATING**

- A. Do not remove wet subsoil. Remove groundwater by pumping to keep excavations dry.
- B. Excavate subsoil required for new building foundations and construction operations, and other Work.
- C. Slope banks [to angle of repose or less, until shored.
- D. Do not interfere with 45 degree bearing splay of foundations.
- E. Correct unauthorized excavation at no cost to Owner.
- F. Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity; follow requirements of Geo-Technical Report.
- G. Proof roll bearing surfaces. Fill soft spots with engineered fill and compact uniformly to 95 percent of maximum density.
- H. Correct unauthorized excavation at no cost to the Owner.
- I. Fill over-excavated areas under structure bearing surfaces in accordance with direction by Architect/Engineer.
- J. Stockpile subsoil in area designated on site. Remove excess subsoil not being reused from site.

**3.5 PREPARATION FOR BACKFILLING**

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with structural fill and compact to density equal to or greater than requirements for subsequent fill material.
- C. Scarify subgrade surface as recommended for the conditions.
- D. Proof roll to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

**3.6 FILLING**

- A. Fill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Place fill material in continuous layers and compact, Coordinate with Civil Drawings. Layer in maximum 8 inches compacted depth unless otherwise approved by Architect / Engineer.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Make grade changes gradual. Blend slope into level areas.
- F. Repair or replace items indicated to remain damaged by excavation or filling.

### **3.7 TRENCHING**

- A. Excavate for storm sewer, sanitary sewer, electric, water, gas and other utilities per the Civil Drawings and to meet the applicable installation standards by the local municipality.
- B. Cut trenches sufficiently wide to enable installation of utilities and allow inspection.
- C. Hand trim excavation and leave free of loose matter.
- D. Support pipe during placement and compaction of bedding fill.
- E. Backfill trenches to required contours and elevations.
- F. Place and compact fill materials as for Backfilling.

### **3.8 BACKFILLING**

- A. Backfill areas to contours and elevations. Use unfrozen and unsaturated materials.
- B. Backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- C. Place geotextile fabric over unstable subsoil.
- D. Place material in continuous layers as follows:
  - 1. Soil Materials: Maximum 8 inches compacted depth.
  - 2. Fill Materials: Maximum 8 inches compacted depth.
- E. Employ placement method so not to disturb or damage foundations or utilities in trenches.
- F. Maintain optimum moisture content of backfill materials to attain required compaction density.
- G. Backfill against supported foundation walls.
- H. Slope grade away from building minimum 2 percent for a minimum distance of 10 feet, unless noted otherwise. Coordinate with Civil Drawings.

### **3.9 PLACING TOPSOIL**

- A. Place topsoil in areas where seeding, sodding, and planting is scheduled.
- B. Fine grade topsoil eliminating rough or low areas. Maintain levels, profiles, and contours of subgrade.
- C. Remove large stone, roots, grass, weeds, debris, and foreign material while spreading.
- D. Lightly compact placed topsoil.
- E. Leave stockpile area and site clean and raked, ready to receive landscaping.

### **3.10 SCHEDULE**

- A. Coordinate with Civil Engineering Drawings.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**



## SECTION 31 23 17 - TRENCHING

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Excavating trenches for utilities outside building to utility service.
  - 2. Compacted fill from top of utility bedding to subgrade elevations.
  - 3. Backfilling and compaction.

#### 1.2 QUALITY ASSURANCE

- A. Perform Work according to City of Vandalia standards as applicable.

#### 1.3 FIELD MEASUREMENTS

- A. Verify field measurements, inverts, etc prior to fabrication.

#### 1.4 COORDINATION

- A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

### PART 2 PRODUCTS

#### 2.1 FILL MATERIALS

- A. Subsoil / Granular Fill: Type as required to suit conditions, suitability installed in compacted lifts.

#### 2.2 ACCESSORIES

- A. Geotextile Fabric: Non-biodegradable, woven.

### PART 3 EXECUTION

#### 3.1 LINES AND GRADES

- A. Lay pipes to lines and grades indicated.
  - 1. Architect/Engineer may make changes in lines, grades, and depths of utilities when changes are required for Project conditions.
- B. Use laser-beam instrument with qualified operator to establish lines and grades.

#### 3.2 PREPARATION

- A. Call local utility line information service not less than three working days before performing Work.
  - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.
- C. Protect plant life, lawns and other features remaining as portion of final landscaping.
- D. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Maintain and protect above and below grade utilities indicated to remain.
- F. Establish temporary traffic control when trenching is performed in public right-of-way. Relocate controls as required during progress of Work.

#### 3.3 TRENCHING

- A. Excavate subsoil required for utilities to utility service.

- B. Perform excavation within 24 inches of existing utility service according to utility's requirements.
- C. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- D. Excavate bottom of trenches maximum 24 inches wider than outside diameter of pipe.
- E. Excavate trenches to depth required for utilities. Provide uniform and continuous bearing and support for bedding material and pipe and utilities.
- F. Do not interfere with 45-degree bearing splay of foundations.
- G. When Project conditions permit, slope side walls of excavation starting 24 inches above top of pipe. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this Section.
- H. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Architect/Engineer until suitable material is encountered.
- I. Cut out soft areas of subgrade not capable of compaction in place. Backfill and compact to density equal to or greater than requirements for subsequent backfill material.
- J. Trim excavation. Remove loose matter.
- K. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Architect/Engineer.
- L. Remove excess subsoil not intended for reuse, from Site.

### **3.4 SHEETING AND SHORING**

- A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- C. Design sheeting and shoring to be removed at completion of excavation Work.
- D. Repair damage caused by failure of sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- E. Repair damage to [new] [and] [existing] Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

### **3.5 BACKFILLING**

- A. Backfill trenches to contours and elevations with unfrozen fill materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- C. Place geotextile fabric prior to placing subsequent fill materials.
- D. Place material in continuous layers as follows:
  - 1. Subsoil Fill: Maximum 8 inches compacted depth.
  - 2. Structural Fill: Maximum 6 inches compacted depth.
  - 3. Granular Fill: Maximum 6 inches compacted depth.
- E. Employ placement method that does not disturb or damage foundation perimeter drainage, utilities in trench, and any other obstructions or utilities encountered.
- F. Maintain optimum moisture content of fill materials to attain required compaction density.
- G. Protect open trench to protect the public/residents.

**3.6 TOLERANCES**

- A. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.
- B. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

**3.7 FIELD QUALITY CONTROL**

- A. Perform laboratory material tests according to ASTM D1557.
- B. Perform in place compaction tests according to following:
  - 1. Density Tests: ASTM D1556.
  - 2. Moisture Tests: ASTM D3017.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

**3.8 PROTECTION OF FINISHED WORK**

- A. Reshape and re-compact fills subjected to vehicular traffic during construction.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## **SECTION 31 31 16 - TERMITE CONTROL**

### **PART 1 GENERAL**

#### **1.1 SUMMARY**

- A. Section Includes:
  - 1. Soil treatment for termite control.

#### **1.2 SUBMITTALS**

- A. Product Data: Submit toxicants to be used, composition by percentage, dilution schedule, intended application rate. Include product label information.
- B. Test Reports: Indicate regulatory agency approval reports.
- C. Manufacturer's Application Instructions: Indicate caution requirements and in accordance with current product label of chosen pesticide.
- D. Certify applications followed NPMA WDO for termite control or other regional location guidance.

#### **1.3 CLOSEOUT SUBMITTALS**

- A. Project Record Documents: Record [moisture content of soil before application, date and rate of application, areas of application, diary of toxicity meter readings and corresponding soil coverage, and any other pertinent data.
- B. Operation and Maintenance Data: Indicate re-treatment schedule.

#### **1.4 WARRANTY**

- A. Furnish five year warranty for damage and repairs to building and building contents caused by termites. Repair damage. Re-treat where required.

### **PART 2 PRODUCTS**

#### **2.1 MATERIALS**

- A. Toxicant Chemical: EPA FIFRA approved; synthetically color dyed to permit visual identification of treated soil.
- B. Diluent: Recommended by toxicant manufacturer.

#### **2.2 MIXES**

- A. Mix toxicant to manufacturer's instructions.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify soil surfaces are unfrozen, sufficiently dry to absorb toxicant, and ready to receive treatment.
- B. Verify final grading and excavation are complete.

#### **3.2 APPLICATION**

- A. Apply toxicant at locations indicated in Schedule at end of section.
- B. Apply extra treatment to structure penetration surfaces including pipe or ducts, and soil penetrations including grounding rods or posts.
- C. Re-treat disturbed treated soil with same toxicant as original treatment.

- D. When inspection or testing identifies presence of termites, re-treat soil and re-test.

**3.3 SCHEDULES**

- A. Locations:
  - 1. Under Slabs-on-Grade.
  - 2. Both Sides of Foundation Surface.

**END OF SECTION**

## SECTION 32 11 23 - AGGREGATE BASE COURSES

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Aggregate subbase.
  - 2. Aggregate base course.

#### 1.2 SUBMITTALS

- A. Product Data:
  - 1. Geotextile fabric and herbicide.
- B. Materials Source: Name of aggregate materials suppliers.

#### 1.3 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout Work.
- B. Perform Work according to ODOT standards.

### PART 2 PRODUCTS

#### 2.1 AGGREGATE MATERIALS

- A. Subgrade: ODOT Item 204.
  - 1. Compact the subgrade materials that have a maximum dry density of 100 to 105 pounds per cubic foot to not less than 102 percent of maximum dry density. Compact all other subgrade materials to not less than 100 percent of maximum dry density. Determine the maximum dry density using AASHTO T99, AASHTOT T272, or test section method in Supplement 1015.
- B. Aggregate Base Course: ODOT Item 304 [304.01 and 304.02].
  - 1. 98% of the material's maximum dry density as determined by the modified Proctor Test (AASHTOT-180 or ASTM D-1557)
  - 2. Blended Aggregate Mix.

#### 2.2 ACCESSORIES

- A. Geotextile Fabric: AASHTO M288; non-woven, polypropylene.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Verify compacted substrate is dry and ready to support paving and imposed loads.
  - 1. Proof-roll substrate in minimum two perpendicular passes to identify soft spots.
  - 2. Remove soft substrate and replace with compacted fill.
- B. Verify substrate has been inspected, gradients and elevations are correct.

#### 3.2 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place fill on soft, muddy, or frozen surfaces.

#### 3.3 AGGREGATE PLACEMENT

- A. Install geotextile fabric over subgrade according to manufacturer's instructions.
  - 1. Lap ends and edges minimum **6 inches**.

2. Anchor fabric to subgrade when required to prevent displacement until aggregate is installed.
- B. Spread aggregate over prepared substrate to total compacted thickness indicated.
- C. Roller compact aggregate to 95 percent maximum density.
- D. Level and contour surfaces to elevations, profiles, and gradients indicated.
- E. Add small quantities of fine aggregate to coarse aggregate when required to assist compaction.
- F. Maintain optimum moisture content of fill materials to attain specified compaction density.
- G. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

### **3.4 TOLERANCES**

- A. Maximum Variation From Flat Surface: 1/2 inch measured with 10 foot straight edge.
- B. Maximum Variation From Thickness: 1/4 inch.
- C. Maximum Variation From Elevation: 1/2 inch.

### **3.5 COMPACTION**

- A. Compact materials to 98 percent of maximum density as determined from test strip, according to ASTM D2940.

**END OF SECTION**



## SECTION 32 13 13 - CONCRETE PAVING

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
1. Concrete paving for: paving, curbs, and sidewalks

#### 1.2 SUBMITTALS

- A. Product Data:
1. Submit product information for concrete, cement, and aggregate materials.
  2. Submit mix design with laboratory test results supporting design.

#### 1.3 QUALITY ASSURANCE

- A. Perform Work according to State of Ohio, ODOT standards as applicable.
1. State of Ohio Department of Transportation Construction and Materials Specifications Guide shall be used as a reference for all applicable materials, construction conditions, operations, and finished products, etc.
  2. Perform Work in accordance with ACI 330.

### PART 2 PRODUCTS

#### 2.1 MATERIALS

- A. Subgrade: ODOT Item 204.
1. Compact the subgrade materials that have a maximum dry density of 100 to 105 pounds per cubic foot to not less than 102 percent of maximum dry density. Compact all other subgrade materials to not less than 100 percent of maximum dry density. Determine the maximum dry density using AASHTO T99, AASHTOT T272, or test section method in Supplement 1015.
- B. Aggregate Base Course: ODOT Item 304 [304.01 and 304.02].
1. 98% of the material's maximum dry density as determined by the modified Proctor Test (AASHTOT-180 or ASTM D-1557)
- C. Concrete: ODOT Item 452 Nonreinforced Portland cement concrete pavement
- D. Concrete: ODOT Item 499.
1. Class QC 1, 4,000 PSI design strength at 28 days; 2,000 Coulombs maximum Permeability; Cement Content minimum 520 lb.; well -graded aggregate
  2. Maximum slump 4 inches.
  3. Air Content: 6% +/- 2%; ASTM C260
- E. Cement: ASTM C150 Normal Type I Portland type, gray color.
- F. Fine and Coarse Aggregates: ASTM C33, Class 4S.
- G. Water: ASTM C94, potable, Clean, not detrimental to concrete without deleterious amounts of chloride ions.

#### 2.2 REINFORCEMENT MATERIALS

- A. Reinforcement:
1. Reinforcing Steel: ASTM A615/A615M, 60 ksi yield grade, deformed billet bars, uncoated finish.
  2. Welded Deformed Wire Fabric: ASTM A497/A497M; in flat sheets; unfinished.
  3. Dowels: ASTM A615/A615M; 60 ksi yield strength, plain steel bars; cut to length indicated on Drawings, square ends with burrs removed; unfinished.

## 2.3 ACCESSORIES

- A. Forms: Wood or steel material, profiled to suit conditions; conform to ACI 301.
- B. Joint Filler: ASTM D1751; Asphalt impregnated wood fiberboard.
- C. Reinforcement Mesh: 6x6-W1.4xW1.4 welded wire reinforcement
- D. Liquid Surface Sealer: Penetrating Silane/Siloxane Sealer; clear, non-yellowing UV resistant; vapor permeable.
- E. Curing Compound: ASTM C309, white pigmented water based liquid membrane.
- F. Use accelerating admixtures in cold weather only when approved by the Architect/Engineer in writing. Use of admixtures will not relax cold weather placement requirements.
- G. Use set retarding admixtures during hot weather only when approved by the Architect/Engineer in writing.

## PART 3 EXECUTION

### 3.1 EXAMINATION AND PREPARATION

- A. Verify gradients and elevations of base.
- B. Verify compacted base is ready to support paving and imposed loads.
- C. Moisten substrate to minimize absorption of water from fresh concrete.
- D. Sawcut and remove existing concrete to allow installation of new concrete as indicated.

### 3.2 FORMING

- A. Place and secure forms to correct location, dimension, and profile. Secure forms to allow the placement of concrete to be continuous and true.
- B. Place joint filler in joints, vertical in position, in straight lines. Secure to formwork.
- C. Place control joints at maximum 30 foot intervals. Align joints.
- D. Place joint filler between paving components and other appurtenances.
- E. Chamfer outside corners and edges of permanently exposed concrete. – ¾" chamfer

### 3.3 PLACING CONCRETE - GENERAL

- A. Place concrete in accordance with ACI 330.
- B. Place reinforcement to achieve pavement and concrete alignment as appropriate.
- C. Check with electronic level that the correct slopes have been achieved to provide drainage.
- D. Do not disturb reinforcement or formwork components during concrete placement.
- E. Place concrete continuously between predetermined joints.
- F. Apply surface sealer per manufacturer's instructions.

### 3.4 INSTALLATION

- A. Finishing:
  - 1. Apply surface retarder where exposed aggregate finish is required.
  - 2. Area Paving: Light broom.
  - 3. Sidewalk Surfaces: Light broom, radiused and trowel joint edges.
  - 4. Curbs and Gutters: Light broom.
  - 5. Apply curing compound on exposed concrete surfaces immediately after finishing.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 32 17 23 - PAVEMENT MARKINGS

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Traffic lines and markings.
  - 2. Paint.

#### 1.2 SUBMITTALS

- A. Product Data: Paint formulation for each type of paint.
- B. Manufacturer's Certificate: Products meet or exceed specified requirements.
- C. Test and Evaluation Reports: Submit source and acceptance test results according to AASHTO M247.
- D. Manufacturer's Instructions: Application temperatures, eradication requirements, application rate, line thickness, type of glass beads, bead embedment and bead application rate, and any other data on proper installation.

#### 1.3 QUALITY ASSURANCE

- A. Perform Work according to State of Ohio, ODOT standards.
- B. Manufacturer: Company specializing in manufacturing products specified in this Section with five years' experience.
- C. Applicator: Company specializing in performing Work of this Section with five years' experience.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Invert containers several days prior to use when paint has been stored more than two months. Minimize exposure to air when transferring paint. Seal drums and tanks when not in use.

#### 1.5 AMBIENT CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.
- B. Do not apply exterior coatings during rain or snow when relative humidity is outside humidity ranges, or moisture content of surfaces exceed those required by paint product manufacturer.
- C. Do not apply paint when temperatures are expected to fall below 50 degrees F for 24 hours after application.
- D. Volatile Organic Content (VOC). Do not exceed State or U.S. EPA maximum VOC on traffic paint.

#### 1.6 WARRANTY

- A. Furnish one-year manufacturer's warranty for traffic paints.

### PART 2 PRODUCTS

#### 2.1 PAINTED PAVEMENT MARKINGS

- A. Performance / Design Criteria:
  - 1. Paint Adhesion: Adhere to road surface forming smooth continuous film one minute after application.
  - 2. Paint Drying: Tack free by touch so as not to require coning or other traffic control devices to prevent transfer by vehicle tires within two minutes after application.

- B. Paint: Ready mixed, conventional and fast dry waterborne traffic paints, lead-free, non-toxic, NASSHTO Test Deck, minimum retroreflectance of 100 mcds, durability rating of 6 or more after in place for nine months; within following limits: Sherwin Williams, Pro-Park 113.80 or Equal.
  - 1. Volume Solids: 62 +/- 2%
  - 2. Weight Solids 77 +/- 2%
  - 3. VOC <50 g/L; <0.42 lb/gal

## 2.2 EQUIPMENT

- A. Continuous Longitudinal Line Application Machine:
  - 1. Dual-nozzle paint gun to simultaneously apply parallel lines of indicated width in solid or broken patterns or various combinations of those patterns.
  - 2. Pressurized bead gun to automatically dispense glass beads onto painted surface, at required application rate.
  - 3. Measuring device to automatically and continuously measure length of each line placed, to nearest foot.
  - 4. Device to heat paint for fast dry applications.
- B. Machine Calibration:
  - 1. Calibrate equipment to be in conformance with ODOT requirements as applicable.
  - 2. Paint Guns: Calibrate to simultaneously apply paint binder at uniform rates as specified with an allowable tolerance of plus or minus 1 mil.
  - 3. Bead Guns: Calibrate to dispense glass beads simultaneously at specified rate. Check guns by dispensing glass beads into gallon container for predetermined fixed period of time. Verify weight of glass beads.
- C. Other Equipment:
  - 1. For application of crosswalks, intersections, stop lines, legends and other miscellaneous items by walk behind strippers, hand spray or stencil trucks, apply with equipment meeting requirements of this Section. Do not use hand brushes or rollers.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Maintenance and Protection of Traffic:
  - 1. Prevent interference with marking operations and to prevent traffic on newly applied markings before markings dry.
  - 2. Coordinate access requirements with Owner prior to application of markings.
- B. Surface Preparation.
  - 1. Clean and dry paved surface prior to painting.
  - 2. Blow or sweep surface free of dirt, debris, oil, grease or gasoline.
  - 3. Spot location of final pavement markings as specified and as indicated by applying pavement spots 25 feet o.c.

### 3.2 APPLICATION

- A. Agitate paint for 1 to 15 minutes prior to application to ensure even distribution of paint pigment.
- B. Dispense paint at ambient temperature or heated as applicable to wet film thickness of 15 mils.
- C. Unless material is track free at end of paint application convoy, use traffic cones to protect markings from traffic until track free. When vehicle crosses a marking and tracks it or when splattering or over spray occurs, eradicate affected marking and resultant tracking and apply new markings.

### 3.3 TOLERANCES

- A. Maximum Variation from Wet Film Thickness: 1 mil.

- B. Maximum Variation from Wet Paint Line Width: Plus or minus 1/8 inch.
- C. Maintain cycle length for skip lines at tolerance of plus or minus 6 inches per 40 feet and line length of plus or minus 3 inches per 10 feet.

### **3.4 FIELD QUALITY CONTROL**

- A. Inspect for incorrect location, insufficient thickness, line width, coverage, retention, uncured or discolored material, and insufficient bonding.
- B. Repair lines and markings, which after application and curing do not meet following criteria:
  - 1. Incorrect Location: Remove and replace incorrectly placed patterns.
  - 2. Insufficient Thickness, Line Width, Paint Coverage, Glass Bead Coverage or Retention: Prepare defective material by acceptably grinding or blast cleaning to remove substantial amount of beads and to roughen marking surface. Remove loose particles and debris. Apply new markings on cleaned surface according to this Section.
  - 3. Uncured or Discolored Material, Insufficient Bonding: Remove defective markings according to this Section and clean pavement surface 1 foot beyond affected area. Apply new markings on cleaned surface according to this Section.
- C. Replace defective pavement markings as specified throughout warranted period. Replace markings damaged by anti-skid materials, chemical deicers, snow plowing or other loss of marking material regardless of cause. When markings are damaged by pavement failure or by Owner's painting, crack sealing, or pavement repair operations, Contractor is released from warranty requirements for damaged Work.
- D. Replace failed or defective markings in entire section of defective markings within 30 days after notification when any of following exists during warranty period:
  - 1. Marking is discolored or exhibits pigment loss, and is determined to be unacceptable by Owner.
  - 2. More than 15 percent of area of continuous line, or more than 15 percent of combined area of skip lines, within any 528 foot section of roadway is missing.
- E. Replace pavement marking material under warranty using original or better type material. Continue warranty to end of original warranty period even when replacement materials have been installed as specified.
- F. When eradication of existing paint lines is necessary, eradicate by shot blast or water blast method. Do not gouge or groove pavement more than 1/16 inch during removal. Limit area of removal to area of marking plus 1 inch on all sides. Prevent damage to transverse and longitudinal joint sealers, and repair any damage according to requirements in Section 32 12 16.

### **3.5 PROTECTION**

- A. Protect painted pavement markings from vehicular and pedestrian traffic until paint is dry and track-free. Follow manufacturer's recommendations or use minimum of 30 minutes. Consider barrier cones as satisfactory protection for materials requiring more than two minutes dry time.

### **3.6 PAVEMENT MARKING APPLICATION / REQUIREMENTS**

- A. Thoroughly clean pavement surface of all dirt and debris.
- B. Stripe parking lot as indicated.
- C. Paint to be applied at a wet mil thickness of 15 mm, 1 coat.
- D. The all markings shall be applied with a commercial motorized striping machine.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**



## SECTION 32 31 13 - CHAIN LINK FENCES AND GATES

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Fence framework, fabric, and accessories.
  - 2. Excavation for post bases.
  - 3. Concrete foundation for posts and center drop for gates.
  - 4. Manual gates and related hardware.
  - 5. Privacy slats.

#### 1.2 SYSTEM DESCRIPTION

- A. Fence Height: 6 feet nominal as indicated.
- B. Line Post Spacing: At intervals not exceeding 10 feet.
- C. Fence Post and Rail Strength: Conform to ASTM F1043 Light Industrial Fence quality.

#### 1.3 SUBMITTALS

- A. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates, and schedule of components.
- B. Product Data: Fabric, posts, accessories, fittings and hardware.

#### 1.4 QUALITY ASSURANCE

- A. Supply material according to CLFMI - Product Manual.
- B. Perform installation according to ASTM F567.
- C. Manufacturer: Company specializing in manufacturing products specified in this Section with ten years' experience.
- D. Installer: Company specializing in performing work of this Section with five years' experience.

### PART 2 PRODUCTS

#### 2.1 CHAINLINK FABRIC

- A. Steel Chain Link Fabric: Height indicated on drawings 2 inch mesh size, 9 gauge core wire, top/bottom selvage knuckle end closed
  - 1. Zinc-Coated Steel Fabric: ASTM A392 hot dipped galvanized before weaving.
  - 2. Class 2 - 2.0 oz/ft<sup>2</sup>
- B. Barbed Wire: ASTM A121 Coating Type Z, galvanized steel; 12 gage thick wire, 3 strands, 4 points at 3 inch o.c.
- C. Tension Wire: 6 gage thick steel, single strand, marcelled, spiraled or crimped, aluminum-coated tension wire conforming to ASTM A824.

#### 2.2 PIPE MATERIALS

- A. Framing (Steel): ASTM F1083 Schedule 40 standard weight, 1.8 oz/SF galvanized steel pipe, welded construction, minimum yield strength of 25 ksi; coating conforming to ASTM F1043 Type A on pipe exterior and interior.
  - 1. Line Posts: 1.9 inch OD
  - 2. End, Corner, Pull Posts: 2.375 inch OD
  - 3. Top, brace, bottom, and intermediate rails: 1.66 inch OD
  - 4. Gate Posts: 3.5 inch diameter.

## 2.3 ACCESSORIES

- A. Caps: Cast steel, galvanized; sized to post diameter; set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; galvanized steel.
- C. Extension Arms: Cast steel galvanized to accommodate three strands of barbed wire, single arm, sloped to 45 degrees.
- D. Gate Hardware: Fork latch with gravity drop, Mechanical keepers; sliding gate hardware and hardware for padlock keyed per Owner direction.

## 2.4 GATES

- A. General:
  - 1. Gate Types, Opening Widths and Directions of Operation: As indicated.
  - 2. Factory assemble gates.
  - 3. Design gates for operation by one person.
- B. Sliding Gates:
  - 1. Framing and Posts: ASTM F1184, Class 2 for internal rollers.
  - 2. Rollers for overhead and cantilever sliding gates: Bearing type. Furnish non-sealed bearings with grease fitting for periodic maintenance.
  - 3. Secure rollers to post or frame without welding.

## 2.5 PRIVACY SLATS

- A. None

## 2.6 FINISHES

- A. Components and Fabric: Galvanized to ASTM A123/A123M for components; ASTM A153/A153M for hardware; ASTM A392 for fabric; 1.8 oz per sq ft coating.
- B. Hardware: Galvanized to ASTM A153/A153M, 1.8 oz per sq ft coating.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install framework, fabric, accessories and gates according to ASTM F567.
- B. Set intermediate, terminal, gate, posts plumb, in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.
- C. Line Post Footing Depth Below Finish Grade: ASTM F567 3 feet.
- D. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: [ASTM F567] 3 feet
- E. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail one bay from end and gate posts.
- F. Install top rail through line post tops and splice with 6 inch long rail sleeves.
- G. Install center and bottom brace rail on corner gate leaves.
- H. Place fabric on outside of posts and rails.
- I. Do not stretch fabric until concrete foundation has cured 28 days.
- J. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.
- K. Position bottom of fabric 2 inches above finished grade.

- L. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.
- M. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
- N. Install bottom tension wire stretched taut between terminal posts.
- O. Install support arms sloped outward and attach barbed wire; tension and secure.
- P. Support gates from gate posts. Do not attach hinged side of gate from building wall.
- Q. Install gate with fabric and barbed wire overhang to match fence.
- R. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.
- S. Excavate holes for posts to diameter and spacing indicated on Drawings without disturbing underlying materials.
- T. Center and align posts. Place concrete around posts, and vibrate or tamp for consolidation. Verify vertical and top alignment of posts and make necessary corrections.
- U. Extend concrete footings 1 inch above grade, and trowel, forming crown to shed water.
- V. Allow footings to cure minimum seven days before installing fabric and other materials attached to posts.

### **3.2 ERECTION TOLERANCES**

- A. Maximum Variation from Plumb: 1/4 inch.
- B. Maximum Offset from Indicated Position: 1 inch.
- C. Minimum distance from property line: 6 inches.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**

## SECTION 32 92 19 – SEEDING / SITE REPAIR

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Seeding and Site Repairs related to the site development.

#### 1.2 DEFINITIONS

- A. Weeds: Vegetative species other than specified species to be established in given area.

#### 1.3 SUBMITTALS

- A. Product Data: Topsoil, Seed mix, fertilizer, mulch, and other accessories.

#### 1.4 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

### PART 2 PRODUCTS

#### 2.1 SEED MIXTURE

- A. Seed Mixture: Green Velvet's Finest mixture, fescue or bluegrass to match existing and for soils conditions, sun/shade, etc. ODOT Item 659.
- B. Commercial Fertilizer for seed: Commercial-grade complete fertilizer, consisting of 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
- C. Slow-Release Fertilizer: Granular fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium; 5 percent nitrogen; 10 percent phosphorous; and 5 percent potassium; by weight.
- D. Straw Mulch: Clean, mildew- and seed-free salt hay or threshed straw.

#### 2.2 SOIL AND SOIL MODIFICATION MATERIALS

- A. Topsoil: ASTM D 5268, Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, free of subsoil, clay or impurities, plants, weeds and roots, free of stones 1 inch or larger. Equal to ODOT Item 653.
- B. Fertilizer: Fifty percent of elements derived from organic sources,
- C. Lime: ASTM C602, Class T agricultural limestone containing a minimum 80 percent calcium carbonate equivalent.
- D. Organic Compost: leaf and mushroom compost to be added to mulch at 1 cubic yard per 5 cubic yards of mulch.
- E. Weed-Control Additive: Preen weed control.

#### 2.3 ACCESSORIES

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are **not** acceptable.

## **2.4 SOURCE QUALITY CONTROL**

- A. Analyze to ascertain percentage of nitrogen, phosphorus, potash, soluble salt content, organic matter content, and pH value.
- B. Provide recommendation for fertilizer and lime application rates for specified seed mix as result of testing.
- C. Testing is not required when recent tests and certificates are available for imported topsoil. Submit these test results to testing laboratory. Indicate, by test results, information necessary to determine suitability.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify prepared soil base is ready to receive Work of this Section.

### **3.2 PLACING TOPSOIL**

- A. Spread topsoil to minimum depth of 6 inches. Rake smooth.
- B. Grade topsoil to eliminate rough, low or soft areas. Slope for positive drainage.
- C. Place topsoil into pits and beds intended for plant root balls to minimum thickness of 6 inches.
- D. At affected areas of the site, strip existing topsoil and stockpile for reuse. Spread as required to meet new grades.
- E. Provide additional fill as required to complete the work. Additional fill material shall be free of organic matter, rubbish, debris, and rocks greater than 4" diameter.

### **3.3 SEEDING**

- A. Apply seed at a rate of 10 lb per 1000 sq ft, evenly in two intersecting directions.
- B. Immediately following seeding, apply agricultural mulch to a thickness of 1/8 inches.
- C. Apply water with fine spray immediately after each area has been mulched.

### **3.4 SEED PROTECTION**

- A. Identify seeded areas with stakes and string around area periphery.

### **3.5 MAINTENANCE**

- A. Water to prevent grass and soil from drying out. Maintain until vigorously growing.
- B. Control growth of weeds. Apply herbicides. Remedy damage resulting from improper use of herbicides.
- C. Immediately reseed areas showing bare spots.
- D. Repair washouts or gullies.

### **3.6 SCHEDULE OF SITE REPAIR**

- A. Backfill areas impacted by work with topsoil.
- B. Re-seed area impacted by work.
- C. Apply mulch/straw.
- D. Water and maintain seed until vigorously growing.

**END OF SECTION**

## **SECTION 33 56 00 – ABOVE GROUND FUEL STORAGE TANK / EQUIPMENT**

### **PART 1 GENERAL**

#### **1.1 SUMMARY**

- A. Owner will relocate existing above ground fuel tank and related equipment to the new location. Contractor shall coordinate details and requirements to provide / extend utilities, etc. to the new location so that they may be connected.

#### **1.2 CLOSEOUT SUBMITTALS**

- A. Project Record Documents: Record actual locations of utilities, concealed utilities, subsurface obstructions, and any other documentation necessary for future reference.
- B. Any other information necessary for the intended installation of the fuel tank.

#### **1.3 QUALITY ASSURANCE**

- A. Owner will obtain required permits from authorities having jurisdiction.

#### **1.4 SCHEDULING**

- A. Schedule Work to coincide with proposed alterations and improvements.
- B. Coordinate Work with Work by Others and Work by Owner as needed.
- C. Coordinate utility and building service interruptions with Owner.

### **PART 2 PRODUCTS**

#### **2.1 ABOVE GROUND FUEL TANK**

- A. Existing Tank to be relocated: +/- 4,000 gallon, double wall cylindrical tank, diesel fuel, approximately 6 foot in diameter x 19'-0" long.
- B. Remote Spill Container: Relocate existing
- C. Dispenser: Relocate existing

### **PART 3 EXECUTION**

#### **3.1 PREPARATION**

- A. Notify affected utility companies before starting work and comply with their requirements.
- B. Mark location and termination of utilities.

#### **3.2 INSTALLATION**

- A. Field Coordinate all installation details and locations.

**END OF SECTION**

**THIS SHEET LEFT INTENTIONALLY BLANK**