

Centerville-Abington Community Schools Transportation Building



Centerville, Indiana

Commission No. 473003.00

March 2, 2022

Volume 1 of 2

Architect:

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7223 Engle Road, Suite 200

Fort Wayne, IN 46804

Phone: 260.424.6516

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Civil Engineer:

Engineering Resources, Inc.

4175 New Vision Drive

Fort Wayne, IN 46845

Phone: 260.490.1025

web: www.eri.consulting

Structural Engineer:

Structural Engineering

Services, LLC

15610 Lima Road

Huntertown, IN 46748

Phone: 260.637.7867

web: www.structuralengr.com

Mechanical/Electrical/Plumbing Engineer:

SCO Engineering, LLC

6534 Constitution Drive

Fort Wayne, IN 46804

Phone: 260.436.9213

web: www.sco-llc.com

Owner:

Centerville-Abington Community Schools

Superintendent:

Dr. Mike McCoy

Assistant Superintendent:

Sean Stevenson

Board of School Trustees:

Board President:

Todd Duke

Board Vice President:

Renee Westover

Board Secretary:

Susan Hamilton

Board Members:

Brad Lambright

Andy Wandersee

PROJECT MANUAL

for

CENTERVILLE-ABINGTON SCHOOL CORPORATION

Transportation Building

Centerville, IN

Commission No.: 473003.00

March 2, 2022

Prepared by:

The Moake Park Group, Inc.
7223 Engle Road, Suite 200
Fort Wayne, Indiana 46804

These Plans Certified By:



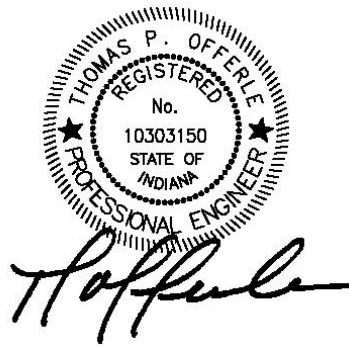
Jeff E. Schroeder
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Engineer No. AR00910099



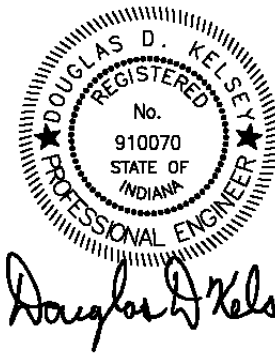
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BIDDING REQUIREMENTS & FORMS

NOTICE TO BIDDERS

Notice is hereby given that the Centerville – Abington School Corporation, located at 115 West South Street, Centerville, IN 47330, will receive sealed Bids for the Centerville–Abington Transportation Building, located at 200 West South Street, Centerville, IN 47330.

The Project consists of work necessary to create and construct a new Transportation Building on the grounds of the Centerville Abington-Elementary / Centerville-Abington High School campus.

The project will be a unified bid with single prime contractor.

The Bids will be received on a lump sum basis. Each proposal shall include all labor, material; and services necessary to complete the project in strict accordance with the Construction Drawings.

Bids will be received at the following place, date and time:

PLACE: Centerville – Abington Community Schools Administrative Offices
115 West South Street
Centerville, IN 47330

DATE: **March 29, 2022**

TIME: 2:00 p.m. (local time)

PROPOSALS ADDRESSED TO: Dr. Mike McCoy, Superintendent
Centerville – Abington Community Schools
115 West South Street
Centerville, IN 47330
Telephone: 765.855.3475

All Bids received at such place, date and time will be publicly opened and read aloud at the Centerville – Abington Administration building, 115 West South Street, Centerville, IN 47330. Bids received after such time will be returned to the respective Bidder, unopened.

Complete and detailed Bidding Documents are now on file and may be examined by prospective Bidders at the following locations:

Office of the Architect
MOAKE PARK GROUP, INC.
7223 Engle Road, Suite 200
Fort Wayne, Indiana 46804

Owner
Centerville – Abington Community Schools
115 West South Street
Centerville, IN 47330

Complete sets of Bidding Documents may be obtained by Bidders from the office of Eastern Engineering Supply, located at 1239 Wells Street, Fort Wayne, Indiana 46808. Phone: (260) 426-3119, Fax: (260) 426-3101, Easton Hawk, easton.hawk@easternengineering.com

The Contractor is responsible for the cost of all bid documents.

1 Each Bid must be accompanied by a bid security, which shall not be less than five percent (5%) of the
2 Base Bid, in the required form and submitted in accordance with the Instructions to Bidders.

3
4 The Bidder, to whom an award is made, shall furnish a 100% Performance Bond & Labor and Material
5 Payment Bond in accordance with the Instructions to Bidders.

6
7 No Bid shall be modified, withdrawn or canceled for a period of sixty (60) calendar days after the date
8 and time set for receipt of Bids.

9
10 Bidders and sub-contractors shall not discriminate in employment practices.

11
12 The Bidder shall submit a properly executed Contractor's Qualification Statement, AIA Document A305.

13
14 All Bidders are required to be licensed in the State of Indiana at the time of bidding as contractors to
15 perform the work required.

16
17 All Prime Bidders are recommended to attend the pre-bid conference with representatives of the Owner
18 and Architect to discuss construction sequence, security, contractor's work and storage areas and
19 requirements for contractor's personnel working on the Project. No additional costs of any type will be
20 allowed by the failure of the Bidder to avail themselves of the privilege of on-site inspection and pre-bid
21 conference.

22
23 All Bidders warrant that they have conducted a thorough inspection of the job site, existing facility, and
24 all existing conditions including the drawings and specifications. Bidder also represents by making their
25 bid on this project that they have included everything in their bid that is required to complete this
26 Project as the owner intends. Bidder also acknowledges he has no questions regarding the bid
27 documents where he has not asked in writing and gotten a response in writing from the Architect,
28 regarding any inconsistencies and/or ambiguities regarding said documents.

29
30 **Pre-Bid Walk Through: March 16, 2022, 2pm**

31 A Recommended pre-bid walk through at the Centerville – Abington Administration Building in
32 the Board Room, located at 115 West South Street, Centerville, IN 47330. Contractors shall
33 park in the large parking lot South of the school entering the lot from S Morton Ave. Enter the
34 elementary building at Door 9.

35
36 Centerville – Abington Community Schools reserves the right to reject any and all Bids; is not obligated
37 to accept the lowest or any other Bid; and may waive any formalities in bidding procedures.

38
39 Centerville – Abington Community Schools Board of Trustees

40 Centerville – Abington Community Schools

41 115 West South Street

42 Centerville, IN 47330

43
44 END OF NOTICE TO BIDDERS

45
46 Published: March 2, 2022

47 March 9, 2022



AIA[®] Document A701[™] – 2018

Instructions to Bidders

for the following Project:

(Name, location, and detailed description)

Centerville-Abington Transportation Building
200 West South Street
Centerville, IN 47330

THE OWNER:

(Name, legal status, address, and other information)

Centerville-Abington Community Schools
115 West South Street
Centerville, IN 47330

THE ARCHITECT:

(Name, legal status, address, and other information)

The Moake Park Group, Inc.
7223 Engle Road, Suite 200
Fort Wayne, IN 46804

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- 5 CONSIDERATION OF BIDS**
- 6 POST-BID INFORMATION**
- 7 PERFORMANCE BOND AND PAYMENT BOND**
- 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS**

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

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612[™]-2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

§ 1.10 In addition to the Architect, the following is a defined list of professional and technical collaborators:

1.10.1 Mechanical/Electrical/Plumbing Engineers:

SCO Engineering, LLC
6534 Constitution Drive
Fort Wayne, IN 46804
260.436.9213

1.10.2 Structural Engineer:

Structural Engineering Services, LLC
15610 Lima Road
Huntertown, IN 46748
260.637.7867

1.10.3 Civil Engineer:

Engineering Resources, Inc.
4175 New Vision Drive
Fort Wayne, IN 46845
260.490.1025

§ 1.11 Contractor is the Bidder whose proposal is accepted by the Owner and is as defined in AIA 201, Article 3.1.1.

§ 1.12 The work is as defined in A201, Article 1.1.3

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.
- 7. No Bidder, after being awarded the contract, shall be allowed any extra compensation for reason of his failure to inform himself fully, prior to his bidding, of all requirements of the contract documents, drawings, specifications and the circumstances of the building site.**
- 8. Bidders represent that at the time Bids re submitted for consideration, hav no questions regarding ambiguity and are submitting Bids that will result in a project completed as per the intent of the plans and specifications.**
- 9. By submitting this Bid, the bidder warrants that he has visited the project and has full understanding of the existing conditions of the existing building and site. Bidder further acknowledges he has thoroughly examined the drawings and specifications and has brought to the attention of the Architect ALL discrepancies and/or inconsistencies between the drawings and specifications and has received in writing clarification of same for the Architect. Bidder further acknowledges that he has all the information necessary to provide a completed project at his bid price and that no requests for additional compensation will be made due to his failures to adequately examine the existing project site, the drawings and specifications, and to express in writing to the Architect all items which may need to be clarified (PRIOR TO BIDDING).**

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)

Complete sets of Bidding Documents may be obtained by Bidders from the office of Eastern Engineering Supply, located at 1239 Wells Street, Fort Wayne, Indiana 46808. Phone: (260) 426-3119, Fax: (260) 426-3101, Easton Hawk at easton.hawk@easternengineering.com The Contractor is responsible for the cost of all bid documents.

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.1.1 In the event of an inconsistency between the Drawings and the Project Manual or within either Document not clarified by Addenda, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation, in every case the more expensive item or method specified or shown shall be provided in lieu of a less expensive one.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids. *(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)*

Requests can be submitted in writing to the Project Architect:

Jeremy M. Ogle

Moake Park Group, Inc.

7223 Engle Road, Suite 200

Fort Wayne, IN 46804

jogle@moakepark.com

Phone: 260.424.6516

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

§ 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents. See Specification Section 012500.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)

Addenda will be posted to Eastern Engineering's website and emailed by Eastern Engineering to all plan holders.

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.1.1 Bids shall be submitted in duplicate (one original and one copy).

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.5.1 Failure to bid requested alternates, may be considered justification for rejection of the entire bid.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

§ 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:

(Insert the form and amount of bid security.)

Five percent (5%) of Bae Bid on AIA Form A310-2010 Bid Bond or Insurance Company Bid Bond document containing the same information required on AIA Document A310-2010 Bid Bond.

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning days after the opening of Bids, withdraw its Bid and request the return of its bid security.

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:

(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

Paper Copy Address to:

Dr. Mike McCoy, Superintendent
Centerville – Abington School Corporation
115 West South Street
Centerville, IN 467330
Phone: 765.855.3475

At date and time indicated on Notice to Bidders.

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:
(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§5.3.1.1 The Owner will consider whether the bidder maintains a permanent place of business, is particularly responsible, has adequate plant facilities and employees, and has had sufficient experience to do the work properly, and is satisfied the proposal submitted meets all conditions of the plans and specifications.

§ 5.3.2 Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

§ 5.3.3 The Owner shall have the option, exercisable within sixty (60) days from and including the date of award, of including or excluding the work required by an alternate proposal, for the sum or sums established for said alternate bids.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Qualification Statement

~~Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, shall submit to the Architect, at the time of bid, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid Statement.~~

§ 6.2 Owner's Financial Capability

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 Submittals

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.
- .4 Submit a list of all subcontractor and material suppliers within 24 hours of bid opening. Failure to submit this list may result in disqualification of the bid.**
- .5. Along with the items in Article 6.3.1, the Bidder shall, within seven (7) days of notification of selection for the award of a Contract for the work, submit to the Architect a statement of costs for each major item of work included in the bid.**

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

.1 AIA Document A101™-2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

.2 AIA Document A101™-2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

.3 AIA Document A201™-2017, General Conditions of the Contract for Construction, unless otherwise stated below.
(Insert the complete AIA Document number, including year, and Document title.)

~~.4 AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:~~

~~*(Insert the date of the E203-2013.)*~~

.5 Drawings - Consisting of the following listed on the Title Page - Exhibit "A"

Number	Title	Date
--------	-------	------

.6 Specifications - Consisting of the following listed on the Table of Contents - Exhibit "B"

Section	Title	Date	Pages
---------	-------	------	-------

.7 Addenda: List issued during Bid time. See Addenda Section 3.4

Number **Date** **Pages**

.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

AIA Document E204™-2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017.)

~~The Sustainability Plan:~~

Title	Date	Pages
--------------	-------------	--------------

Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
-----------------	--------------	-------------	--------------

~~**.9 Other documents listed below:**~~

(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, Jeff E. Schroeder, RA & President, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with this certification 14:31:58 ET on 03/01/2022 under Order No. 2114247216 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A701™ - 2018, Instructions to Bidders, as published by the AIA in its software, other than changes shown in the attached final document by underscoring added text and striking over deleted text.

(Signed) 

Jeff E. Schroeder, RA President and Architect of Record
(Title)

March 1, 2022
(Dated)

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AIA Document A701 - 2018 EXHIBIT "A"

DRAWINGS:

TITLE PAGE

CIVIL:

C0.0	Topographic Survey
C1.0	Site Demolition Plan
C2.0	Site Layout Plan
C3.0	Site Grading Plan
C4.0	Site Utility Plan
C5.0	Site Construction Erosion Control Plan
C5.1	Site Post Construction Erosion Control Plan
C5.2	Erosion Control Details
C6.0	Site Details
C7.0	Site Details
C7.1	Site Details

STRUCTURAL:

S1.1	Foundation Plan
S1.1a	Lift Pit Enlarged Plan and Details
S2.1	Mezzanine Framing Plan

ARCHITECTURAL:

A0.1	First Floor Code Study, Life Safety Plans, Legends and Notes
A2.1	First Floor & Mezzanine Plan
A2.20	Enlarged Floor Plans and Toilet Accessory Schedule
A3.1	First Floor Reflected Ceiling Plan and Roof Plan
A4.0	Door and Window Schedule and Details
A4.10	Door Details
A5.0	Overall Reference Building Elevations and Sections
A6.10	Typ. Wall Sections
A6.15	Stair Sections and Details
A6.30	Enlarged Floor and Roof Conditions
A8.0	Building Floor Finish, Equipment and Casework Plan

PLUMBING:

FP2.1	First Floor Fire Protection Plan
FP2.2	Mezzanine Fire Protection Plan
FPG1.0	Fire Protection and Plumbing General Notes
P1.1	Underground Plumbing Plan
P2.1	Plumbing Plans
P5.1	Visual Plumbing Schedule
P6.1	Plumbing Schedules

AIA Document A701 - 2018 EXHIBIT "A"

MECHANICAL:

M2.1	First Floor Mechanical Plan
M2.2	Mezzanine Mechanical Plan
M5.1	Mechanical Details
M6.1	Mechanical Schedules
MG1.0	Mechanical General Notes

ELECTRICAL:

CE1.1	Electrical Site Power Plan
CE2.1	Electrical Site Lighting Plan
E1.1	First Floor Electrical Power Plan
E1.2	Second Floor Electrical Power Plan
E2.1	First Floor Electrical Lighting Plan
E2.2	Second Floor Electrical Lighting Plan
E3.1	First Floor Electrical Systems Plan
E3.2	Second Floor Electrical Systems Plan
E5.1	Electrical Details
E6.1	Electrical Schedules
EG1.0	Electrical General Notes

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Notice to Bidders

Instructions to Bidders (AIA Document A701)

Bid Bond (AIA Document A310)

Form 96, Contractor’s Bid for Public Works

Supplementary Bid Form

Contractor’s Statement of Equal Employment Opportunity

Contractor’s Qualification Statement (AIA Document A305)

Exhibit A – General Information (AIA Document A305)

Exhibit B – Financial & Performance Information (AIA Document A305)

Exhibit C – Project Specific Information (AIA Document A305)

Exhibit D – Contractor’s Past Project Experience (AIA Document A305)

Exhibit E – Contractor’s Past Project Experience, Continued (AIA Document A305)

Proposal Request (AIA Document G709)

Construction Change Directive (AIA Document G714)

Change Order (AIA Document G701)

Architect’s Supplemental Instructions (AIA Document G710)

Certificate of Substantial Completion (AIA Document G704)

Application and Certificate for Payment (AIA Document G702)

Continuation Sheet (AIA Document G703)

Standard Form of Agreement Between Owner and Contractor *where the basis of payment is a Stipulated Sum* (AIA Document A101-2017)

Insurance and Bonds Exhibit A – (AIA Document A101-2017)

GENERAL CONDITIONS

General Conditions of the Contract for Construction (AIA Document A201)

Supplementary Conditions

Performance Bond (AIA Document A312)

Payment Bond (AIA Document A312)

AIA Document A701 - 2018

EXHIBIT "B"

SPECIFICATIONS

DIVISION 01 – GENERAL REQUIREMENTS

011000	Summary
012100	Allowances
012300	Alternates
012500	Substitution Procedures
012600	Contract Modification Procedures
012900	Payment Procedures
013100	Project Management and Coordination
013200	Construction Progress Documentation
013300	Submittal Procedures
014500	Quality Control
015000	Temporary Facilities and Controls
016000	Product Requirements
017300	Execution
017329	Cutting and Patching
017400	Cleaning and Waste Management
017700	Closeout Procedures
017800	Closeout Submittals

DIVISION 03 – CONCRETE

033000	Cast-in-Place Concrete
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DIVISION 04 – MASONRY

042000	Unit Masonry
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DIVISION 05 – METALS

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053100	Steel Decking
054000	Cold Formed Metal Framing
055000	Metal Fabrications
055100	Metal Stairs
055213	Pipe and Tube Railings

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061600	Sheathing

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EXHIBIT “B”

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072100	Thermal Insulation
076200	Sheet Metal Flashing and Trim
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084113	Aluminum Framed Entrances & Storefronts
087100	Door Hardware (Issued via Addendum)
088000	Glazing

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095113	Acoustical Panel Ceilings
096513	Resilient Base and Accessories
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104413	Fire Protection Cabinets
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DIVISION 12 – FURNISHINGS

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210529	Hangers and Supports for Fire Suppression Piping and Equipment
210553	Identification for Fire-Suppression Piping and Equipment
211119	Fire Department Connections
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220500	Common Work Results for Plumbing
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220523.15	Gate Valves for Plumbing Piping
220529	Hangers and Supports for Plumbing Piping And Equipment
220553	Identification for Plumbing Piping and Equipment
220719	Plumbing Piping Insulation
221116	Domestic Water Piping
221119	Domestic Water Piping Specialties
221316	Sanitary Waste and Vent Piping
221319	Sanitary Waste Piping Specialties
221319.13	Sanitary Drains
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224000	Plumbing Fixtures
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224500	Emergency Plumbing Fixtures
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230500	Common Work Results for HVAC
230513	Common Motor Requirements for HVAC Equipment
230529	Hangers and Supports for HVAC Piping and Equipment
230553	Identification for HVAC Piping and Equipment
230593	Testing, Adjusting, and Balancing for HVAC
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232300	Refrigerant Piping
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233300	Air Duct Accessories
233346	Flexible Ducts
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233423	HVAC Power Ventilators
233439	High-Volume, Low Speed Fans
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235100	Breechings, Chimneys, and Stacks
235400	Furnaces
235523.13	Low-Intensity, Gas-Fired, Radiant Heaters
235533.16	Gas-Fired Unit Heaters
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260526	Grounding and Bonding for Electrical Systems
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321313 Portland Cement Concrete Pavement
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329200 Lawns and Grasses

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331116 Site Water Distribution
333114 Sanitary Sewer System
334100 Storm Drainage System

END OF TABLE OF CONTENTS

DRAFT AIA® Document A310™ - 2010

Bid Bond

CONTRACTOR:

(Name, legal status and address)

« »
« »

SURETY:

(Name, legal status and principal place of business)

« »
« »

OWNER:

(Name, legal status and address)

«Centerville-Abington Community Schools»
«115 West South Street
Centerville, IN 47330»

BOND AMOUNT: \$ « »

PROJECT:

(Name, location or address, and Project number, if any)

«Centerville-Abington Transportation Building»
«200 West South Street
Centerville, IN 47330»
« »

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

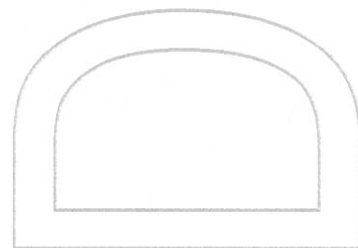
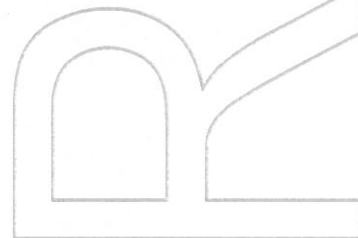
When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.



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.

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.



ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

Signed and sealed this « » day of « », « »

(Witness)

(Witness)

« »
(Contractor as Principal) (Seal)

« »
(Title)

« »
(Surety) (Seal)

« »
(Title)

LE
A
R
D



CONTRACTOR'S BID FOR PUBLIC WORK - FORM 96

State Form 52414 (R2 / 2-13) / Form 96 (Revised 2013)

Prescribed by State Board of Accounts

PART I

(To be completed for all bids. Please type or print)

Date (month, day, year): _____

1. Governmental Unit (Owner): _____

2. County : _____

3. Bidder (Firm): _____

Address: _____

City/State/ZIPcode: _____

4. Telephone Number: _____

5. Agent of Bidder (if applicable): _____

Pursuant to notices given, the undersigned offers to furnish labor and/or material necessary to complete the public works project of _____

(Governmental Unit) in accordance with plans and specifications prepared by _____

_____ and dated _____ for the sum of

_____ \$ _____

The undersigned further agrees to furnish a bond or certified check with this bid for an amount specified in the notice of the letting. If alternative bids apply, the undersigned submits a proposal for each in accordance with the notice. Any addendums attached will be specifically referenced at the applicable page.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the governmental unit. If the bid is to be awarded on a unit basis, the itemization of the units shall be shown on a separate attachment.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS

(If applicable)

I, the undersigned bidder or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States (I.C. 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel products on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

ACCEPTANCE

The above bid is accepted this _____ day of _____, _____, subject to the following conditions: _____

Contracting Authority Members:

PART II (For projects of \$150,000 or more – IC 36-1-12-4)

Governmental Unit: _____

Bidder (Firm) _____

Date (month, day, year): _____

These statements to be submitted under oath by each bidder with and as a part of his bid. Attach additional pages for each section as needed.

SECTION I EXPERIENCE QUESTIONNAIRE

- What public works projects has your organization completed for the period of one (1) year prior to the date of the current bid?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

- What public works projects are now in process of construction by your organization?

Contract Amount	Class of Work	Expected Completion Date	Name and Address of Owner

3. Have you ever failed to complete any work awarded to you? _____ If so, where and why?

4. List references from private firms for which you have performed work.

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed work. *(Examples could include a narrative of when you could begin work, complete the project, number of workers, etc. and any other information which you believe would enable the governmental unit to consider your bid.)*

2. Please list the names and addresses of all subcontractors *(i.e. persons or firms outside your own firm who have performed part of the work)* that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.

3. If you intend to sublet any portion of the work, state the name and address of each subcontractor, equipment to be used by the subcontractor, and whether you will require a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed project, you are under a continuing obligation to immediately notify the governmental unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.

4. What equipment do you have available to use for the proposed project? Any equipment to be used by subcontractors may also be required to be listed by the governmental unit.

5. Have you entered into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which would corroborate the prices listed.

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of bidder's financial statement is mandatory. Any bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the contract must be specific enough in detail so that said governing body can make a proper determination of the bidder's capability for completing the project if awarded.

SECTION IV CONTRACTOR'S NON – COLLUSION AFFIDAVIT

The undersigned bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to include anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporation has, have or will receive directly or indirectly, any rebate, fee, gift, commission or thing of value on account of such sale.

SECTION V OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES FOR PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR PUBLIC WORKS ARE TRUE AND CORRECT.

Dated at _____ this _____ day of _____, _____

(Name of Organization)

By _____

(Title of Person Signing)

ACKNOWLEDGEMENT

STATE OF _____)
) ss
COUNTY OF _____)

Before me, a Notary Public, personally appeared the above-named _____ and swore that the statements contained in the foregoing document are true and correct.

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

Notary Public

My Commission Expires: _____

County of Residence: _____

BID OF

(Contractor)

(Address)

FOR
PUBLIC WORKS PROJECTS
OF

Filed _____, _____

Action taken _____

SUPPLEMENTARY BID FORM

PROJECT NAME: **Centerville – Abington School Corporation
Transportation Building**

BID DATE: **March 29, 2022**

TIME: **2:00 p.m. (local time)**

LOCATION: **Centerville – Abington School Corporation Administrative Office
Attention: Dr. Mike McCoy
115 West South Street
Centerville, IN 47330**

I have also received, carefully reviewed, and understand the Contract Documents prepared by:

Moake Park Group, Inc.
7223 Engle Road, Suite 200
Fort Wayne, Indiana 46804

The successful Bidder/Contractor represents and warrants that by submitting this bid for this proposal work, he/she has been at the job site and has thoroughly and fully examined the existing conditions, all of the contract documents, and has to his/her satisfaction prepared this bid inclusive of all labor and materials necessary to complete this project.

Bidder/Contractor also affirms that he/she has completely and thoroughly examined **ALL** bid documents and represents and warrants that there are no inconsistencies, ambiguities or “gaps” contained therein, or if there were, he/she has requested in writing answers or clarifications of any and all inconsistencies, ambiguities, omissions or errors and has received information regarding same prior to submitting this bid. Once the Bidder/Contractor submits a bid for this work, no changes or additions to the contract shall be requested by Contractor or approved by Owner due to his/her failure to comply with this provision.

I have also received Addenda No(s). _____ and have included their provisions in my Bid.

BIDDER NAME: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

TELEPHONE: _____ **FAX:** _____

TOTAL BID AMOUNT **BID AMOUNT**
\$ _____

<u>BID CHECKLIST</u>
STATE FORM 96
BID BOND
SUPPLEMENTARY BID FORM
NON-COLLUSIVE BIDDING CERTIFICATION
SUBCONTRACTOR AND MANUFACTURER LIST
CONTRACTOR’S STATEMENT OF EEO
MANUFACTURER’S WARRANTY VERIFICATION

1 Clearly mark sealed bid envelope with your Name and Project Name & Number being bid.

2

3 NOTE: All lines and totals must be completed.

4

5

6 Completion Time: The undersigned here agrees, if awarded the contract, to pursue the work to
7 substantial completion within _____ calendar days after contract execution and authorization to
8 proceed barring strikes, civil strife, natural calamity or other events beyond control.

9

1 **ALTERNATES:** (Note: Add or Deduct Must Be Indicated.)

2
3

4 **Alternate No. 1 – Mezzanine:** State the cost to provide and install additional mezzanine floor as
5 indicated.

6 Dollars \$ _____

7
8

8 **Alternate No. 2 – Bus Lift:**

9 State the cost to provide and install bus lift pit and utilities as shown within documents. Bus lift itself is
10 under separate contract.

11 Dollars \$ _____

12
13

13 **Alternate No. 3 – Crane Lift:**

14 State the cost to provide and install crane lift as shown within documents.

15 Dollars \$ _____

16
17

18 **Alternate No. 4 – CMU in Maintenance Bays:**

19 State the cost to provide and install CMU in Maintenance Bays to a height of 48” a.f.f. in lieu of base bid
20 metal liner panel.

21 Dollars \$ _____

22
23

23 **Alternate No. 5 – PEMB Entrance Canopy:**

24 State the cost to provide and install PEMB entrance canopy as shown in drawings.

25 Dollars \$ _____

26
27

28 **Alternate No. 6 – Site Fencing:**

29 State the cost to provide and install site fencing and entrance gate as shown within Civil Drawings.

30 Dollars \$ _____

31
32

33 **Alternate No. 7 – North Site Entrance:**

34 State the cost to provide North site entrance as shown and detailed on Civil Drawings.

35 Dollars \$ _____

36
37

38 **Alternate No. 8 – Main Entrance Gate Operator and Access Control:**

39 State the cost to provide and install automatic gate operator and key gob access to main entrance gate
40 and shown in Civil and Electrical drawings.

41 Dollars \$ _____

42
43

43 **Alternate No. 9 – North Entrance Gate Operator and Access Control:**

44 State the cost to provide and install automatic gate operator and key gob access to north entrance gate
45 and shown in Civil and Electrical drawings.

46 Dollars \$ _____

47

1 I have also attached the following required submissions: Bid Security

2

3 Use this form if bidder is Sole Proprietor:

4

5 IN TESTIMONY WHEREOF, the Bidder has hereunto set his hand this _____

6 Day of _____, 2022.

7

8

9

10

11

Use this form if Bidder is a Partnership:

12

13 IN TESTIMONY WHEREOF, the Bidder, (a firm) has hereunto set its hand this _____

14 Day of _____, 2022.

15

16

17

FIRM NAME _____

18

19

20

21

22

Use this form if Bidder is a Corporation:

23

24

IN TESTIMONY WHEREOF, the Bidder, (a corporation) has caused this proposal to be signed by its President and Secretary and affixed its corporate seal this _____ day of

25 _____, 2022.

26

27

28

29

CORPORATION NAME _____

30

31

32

President _____

33

34

35

36

37

38

39

(SEAL)

40

41

THIS BID SHALL BE FURNISHED IN DUPLICATE, WITH BOTH COPIES ENCLOSED IN THE SEALED BID ENVELOPE.

42

43

NON-COLLUSIVE BIDDING CERTIFICATION

No bid will be accepted that does not have this form completely executed.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party hereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

- (a) The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or any competition;
- (b) Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor;
- (c) No attempt has been made or will be made by the bidder to insure any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition;
- (d) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidder as well as to the person signing in its behalf;
- (e) That attached hereto (if corporate bidder) is a certified copy of resolution authorizing the execution of this certificate by the signature of this bid or proposal in behalf of the corporate bidder.

(Individual)

(Corporation)

Date: _____ By: _____

This Non-Collusive Bidding Certificate must be submitted with the Bid.

END OF SUPPLEMENTARY BID FORM

1 **SUBCONTRACTOR AND MANUFACTURER LIST**

2

3 **Subcontractor List**

4

TRADE	Cast-In-Place Concrete				
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE	Masonry				
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE	Steel Fabricator				
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE	Steel Erection				
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE	Carpentry				
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE	Roofing				
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE	Interior Finish Contractor				
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	

5

1

TRADE		Grading and Excavation			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE		Site Utility			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE		Electrical Contractor			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE		Fire Alarm Contractor			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE		Telecommunications Contractor			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE		Fire Protection / Sprinkler			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE		Mechanical Contractor			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE		Sheet Metal Contractor			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	

2

1

TRADE		Plumbing Contractor			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE		Piping & Sheet Metal Insulation Contractor			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE		Controls Installation Contractor (CIC)			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE		Test and Balance Contractor			
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE					
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE					
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	
TRADE					
Company:		Contact Name:			
Address:		Email:			
City/State/Zip		Phone:		Fax:	

2

1 **Manufacturer List**

2

TRADE			
Company:		Contact Name:	
Phone:		Email:	
TRADE			
Company:		Contact Name:	
Phone:		Email:	
TRADE			
Company:		Contact Name:	
Phone:		Email:	
TRADE			
Company:		Contact Name:	
Phone:		Email:	
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Phone:		Email:	

1

CONTRACTOR’S STATEMENT OF EQUAL EMPLOYMENT OPPORTUNITY POLICY

The undersigned contractor declares to Centerville – Abington Community Schools that the following is its policy with respect to equal employment opportunity:

1. That in the hiring of employees for the performance of work under any contract or any subcontract with Centerville – Abington Community Schools, neither it nor any of its subcontractors, nor any of its subcontractors, nor any person acting on behalf of it or any of its subcontractors, shall, by reason of race, religion, color, sex, national origin or ancestry, discriminate against any citizen of the State of Indiana who is qualified and available to perform the work to which the employment related.
2. That neither it nor any of its subcontractors, nor any person or behalf of it or any of its subcontractors, shall in any manner, discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, religion, color, sex, national origin or ancestry.

Executed at _____, _____, this _____ day of _____, 2022.
(City) (State)

CONTRACTOR

1
2
3
4

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AIA[®] Document A305[™] – 2020

Contractor's Qualification Statement

THE PARTIES SHOULD EXECUTE A SEPARATE CONFIDENTIALITY AGREEMENT IF THEY INTEND FOR ANY OF THE INFORMATION IN THIS A305-2020 TO BE HELD CONFIDENTIAL.

SUBMITTED BY:

(Organization name and address.)

SUBMITTED TO:

(Organization name and address.)

TYPE OF WORK TYPICALLY PERFORMED

(Indicate the type of work your organization typically performs, such as general contracting, construction manager as constructor services, HVAC contracting, electrical contracting, plumbing contracting, or other.)

THIS CONTRACTOR'S QUALIFICATION STATEMENT INCLUDES THE FOLLOWING:

(Check all that apply.)

- Exhibit A – General Information
- Exhibit B – Financial and Performance Information
- Exhibit C – Project-Specific Information
- Exhibit D – Past Project Experience
- Exhibit E – Past Project Experience (Continued)

CONTRACTOR CERTIFICATION

The undersigned certifies under oath that the information provided in this Contractor's Qualification Statement is true and sufficiently complete so as not to be misleading.

Organization's Authorized Representative
Signature

Date

Printed Name and Title

NOTARY

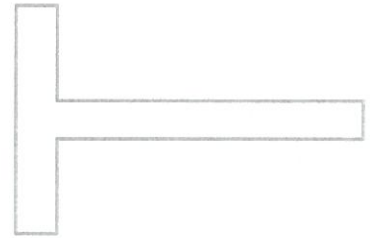
State of:

County of:

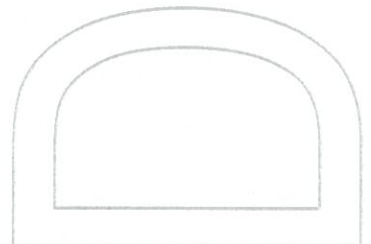
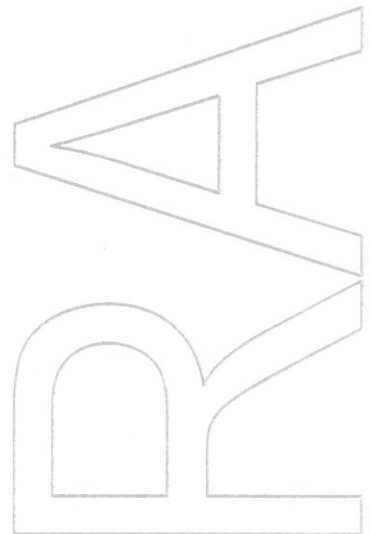
Signed and sworn to before me this day of

Notary Signature

My commission expires:



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General Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by and dated the day of in the year
(In words, indicate day, month and year.)

§ A.1 ORGANIZATION

§ A.1.1 Name and Location

§ A.1.1.1 Identify the full legal name of your organization.

§ A.1.1.2 List all other names under which your organization currently does business and, for each name, identify jurisdictions in which it is registered to do business under that trade name.

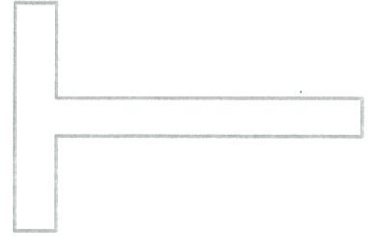
§ A.1.1.3 List all prior names under which your organization has operated and, for each name, indicate the date range and jurisdiction in which it was used.

§ A.1.1.4 Identify the address of your organization's principal place of business and list all office locations out of which your organization conducts business. If your organization has multiple offices, you may attach an exhibit or refer to a website.

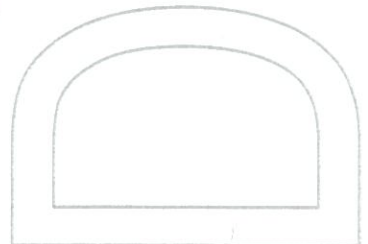
§ A.1.2 Legal Status

§ A.1.2.1 Identify the legal status under which your organization does business, such as sole proprietorship, partnership, corporation, limited liability corporation, joint venture, or other.

- .1 If your organization is a corporation, identify the state in which it is incorporated, the date of incorporation, and its four highest-ranking corporate officers and their titles, as applicable.
- .2 If your organization is a partnership, identify its partners and its date of organization.
- .3 If your organization is individually owned, identify its owner and date of organization.



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.4 If the form of your organization is other than those listed above, describe it and identify its individual leaders:

§ A.1.2.2 Does your organization own, in whole or in part, any other construction-related businesses? If so, identify and describe those businesses and specify percentage of ownership.

§ A.1.3 Other Information

§ A.1.3.1 How many years has your organization been in business?

§ A.1.3.2 How many full-time employees work for your organization?

§ A.1.3.3 List your North American Industry Classification System (NAICS) codes and titles. Specify which is your primary NAICS code.

§ A.1.3.4 Indicate whether your organization is certified as a governmentally recognized special business class, such as a minority business enterprise, woman business enterprise, service disabled veteran owned small business, woman owned small business, small business in a HUBZone, or a small disadvantaged business in the 8(a) Business Development Program. For each, identify the certifying authority and indicate jurisdictions to which such certification applies.

§ A.2 EXPERIENCE

§ A.2.1 Complete Exhibit D to describe up to four projects, either completed or in progress, that are representative of your organization's experience and capabilities.

§ A.2.2 State your organization's total dollar value of work currently under contract.

§ A.2.3 Of the amount stated in Section A.2.2, state the dollar value of work that remains to be completed:

§ A.2.4 State your organization's average annual dollar value of construction work performed during the last five years.

§ A.3 CAPABILITIES

§ A.3.1 List the categories of work that your organization typically self-performs.

§ A.3.2 Identify qualities, accreditations, services, skills, or personnel that you believe differentiate your organization from others.

§ A.3.3 Does your organization provide design collaboration or pre-construction services? If so, describe those services.



§ A.3.4 Does your organization use building information modeling (BIM)? If so, describe how your organization uses BIM and identify BIM software that your organization regularly uses.



§ A.3.5 Does your organization use a project management information system? If so, identify that system.



§ A.4 REFERENCES

§ A.4.1 Identify three client references:

(Insert name, organization, and contact information)



§ A.4.2 Identify three architect references:

(Insert name, organization, and contact information)



§ A.4.3 Identify one bank reference:

(Insert name, organization, and contact information)



§ A.4.4 Identify three subcontractor or other trade references:

(Insert name, organization, and contact information)



Financial and Performance Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by and dated the day of in the year
(In words, indicate day, month and year.)

§ B.1 FINANCIAL

§ B.1.1 Federal tax identification number:

§ B.1.2 Attach financial statements for the last three years prepared in accordance with Generally Accepted Accounting Principles, including your organization's latest balance sheet and income statement. Also, indicate the name and contact information of the firm that prepared each financial statement.

§ B.1.3 Has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, been the subject of any bankruptcy proceeding within the last ten years?

§ B.1.4 Identify your organization's preferred credit rating agency and identification information.

(Identify rating agency, such as Dun and Bradstreet or Equifax, and insert your organization's identification number or other method of searching your organization's credit rating with such agency.)

§ B.2 DISPUTES AND DISCIPLINARY ACTIONS

§ B.2.1 Are there any pending or outstanding judgments, arbitration proceedings, bond claims, or lawsuits against your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A, Section 1.2, in which the amount in dispute is more than \$75,000?

(If the answer is yes, provide an explanation.)

§ B.2.2 In the last five years has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management:

(If the answer to any of the questions below is yes, provide an explanation.)

- .1 failed to complete work awarded to it?
- .2 been terminated for any reason except for an owners' convenience?

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.3 had any judgments, settlements, or awards pertaining to a construction project in which your organization was responsible for more than \$75,000?

.4 filed any lawsuits or requested arbitration regarding a construction project?

§ B.2.3 In the last five years, has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management; or any of the individuals listed in Exhibit A Section 1.2:
(If the answer to any of the questions below is yes, provide an explanation.)

.1 been convicted of, or indicted for, a business-related crime?

.2 had any business or professional license subjected to disciplinary action?

.3 been penalized or fined by a state or federal environmental agency?

The form consists of several large, empty rectangular boxes with thin black outlines, arranged vertically on the right side of the page. These boxes are intended for the user to provide answers to the questions listed on the left. The boxes are of varying heights and widths, corresponding to the questions they are meant to answer.

Project Specific Information

This Exhibit is part of the Contractor’s Qualification Statement, submitted by █ and dated the █ day of █ in the year █
(In words, indicate day, month and year.)

PROJECT:

(Name and location or address.)

Centerville-Abington Transportation Building
200 West South Street
Centerville, IN 47330

CONTRACTOR’S PROJECT OFFICE:

(Identify the office out of which the contractor proposes to perform the work for the Project.)

TYPE OF WORK SOUGHT

(Indicate the type of work you are seeking for this Project, such as general contracting, construction manager as constructor, design-build, HVAC subcontracting, electrical subcontracting, plumbing subcontracting, etc.)

CONFLICT OF INTEREST

Describe any conflict of interest your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A Section 1.2, may have regarding this Project.

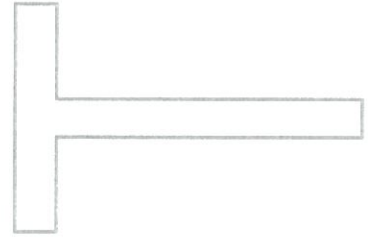
§ C.1 PERFORMANCE OF THE WORK

§ C.1.1 When was the Contractor’s Project Office established?

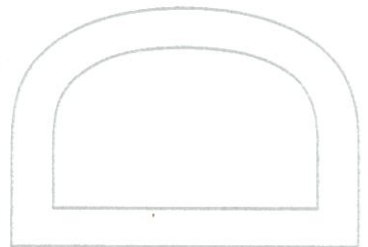
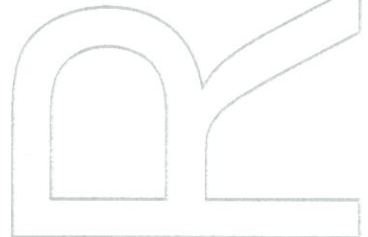
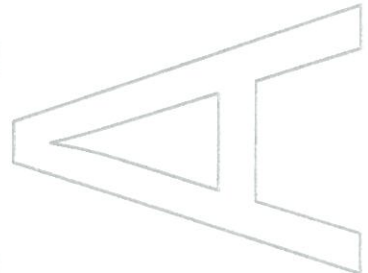
§ C.1.2 How many full-time field and office staff are respectively employed at the Contractor’s Project Office?

§ C.1.3 List the business license and contractor license or registration numbers for the Contractor’s Project Office that pertain to the Project.

§ C.1.4 Identify key personnel from your organization who will be meaningfully involved with work on this Project and indicate (1) their position on the Project team, (2) their office location, (3) their expertise and experience, and (4) projects similar to the Project on which they have worked.



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§ C.1.5 Identify portions of work that you intend to self-perform on this Project.

§ C.1.6 To the extent known, list the subcontractors you intend to use for major portions of work on the Project.

§ C.2 EXPERIENCE RELATED TO THE PROJECT

§ C.2.1 Complete Exhibit D to describe up to four projects performed by the Contractor's Project Office, either completed or in progress, that are relevant to this Project, such as projects in a similar geographic area or of similar project type. If you have already completed Exhibit D, but want to provide further examples of projects that are relevant to this Project, you may complete Exhibit E.

§ C.2.2 State the total dollar value of work currently under contract at the Contractor's Project Office:

§ C.2.3 Of the amount stated in Section C.2.2, state the dollar value of work that remains to be completed:

§ C.2.4 State the average annual dollar value of construction work performed by the Contractor's Project Office during the last five years.

§ C.2.5 List the total number of projects the Contractor's Project Office has completed in the last five years and state the dollar value of the largest contract the Contractor's Project Office has completed during that time.

§ C.3 SAFETY PROGRAM AND RECORD

§ C.3.1 Does the Contractor's Project Office have a written safety program?

§ C.3.2 List all safety-related citations and penalties the Contractor's Project Office has received in the last three years.

§ C.3.3 Attach the Contractor's Project Office's OSHA 300a Summary of Work-Related Injuries and Illnesses form for the last three years.

§ C.3.4 Attach a copy of your insurance agent's verification letter for your organization's current workers' compensation experience modification rate and rates for the last three years.

§ C.4 INSURANCE

§ C.4.1 Attach current certificates of insurance for your commercial general liability policy, umbrella insurance policy, and professional liability insurance policy, if any. Identify deductibles or self-insured retentions for your commercial general liability policy.

§ C.4.2 If requested, will your organization be able to provide property insurance for the Project written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis?

§ C.4.3 Does your commercial general liability policy contain any exclusions or restrictions of coverage that are prohibited in AIA Document A101-2017, Exhibit A, Insurance A.3.2.2.2? If so, identify.

§ C.5 SURETY

§ C.5.1 If requested, will your organization be able to provide a performance and payment bond for this Project?

§ C.5.2 Surety company name:

§ C.5.3 Surety agent name and contact information:

§ C.5.4 Total bonding capacity:

§ C.5.5 Available bonding capacity as of the date of this qualification statement:

DRAFT AIA® Document A305™ - 2020

Exhibit D

Contractor's Past Project Experience

	1	2	3	4
PROJECT NAME				
PROJECT LOCATION				
PROJECT TYPE				
OWNER				
ARCHITECT				
CONTRACTOR'S PROJECT EXECUTIVE				
KEY PERSONNEL (include titles)				
PROJECT DETAILS	Contract Amount Completion Date % Self-Performed Work	Contract Amount Completion Date % Self-Performed Work	Contract Amount Completion Date % Self-Performed Work	Contract Amount Completion Date % Self-Performed Work
PROJECT DELIVERY METHOD	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input checked="" type="checkbox"/> CM advisor <input type="checkbox"/> Other:
SUSTAINABILITY CERTIFICATIONS				

DRAFT AIA® Document A305™ – 2020

Exhibit E

Contractor's Past Project Experience, Continued

	1	2	3	4
PROJECT NAME				
PROJECT LOCATION				
PROJECT TYPE				
OWNER				
ARCHITECT				
CONTRACTOR'S PROJECT EXECUTIVE				
KEY PERSONNEL (include titles)				
PROJECT DETAILS	Contract Amount	Contract Amount	Contract Amount	Contract Amount
	Completion Date	Completion Date	Completion Date	Completion Date
	% Self-Performed Work	% Self-Performed Work	% Self-Performed Work	% Self-Performed Work
PROJECT DELIVERY METHOD	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input type="checkbox"/> CM advisor <input type="checkbox"/> Other:	<input type="checkbox"/> Design-bid-build <input type="checkbox"/> Design-build <input type="checkbox"/> CM constructor <input checked="" type="checkbox"/> CM advisor <input type="checkbox"/> Other:
SUSTAINABILITY CERTIFICATIONS				

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DRAFT AIA® Document G709™ - 2018

Proposal Request

PROJECT: *(name and address)*

Centerville-Abington
Transportation Building
200 West South Street
Centerville, IN 47330

CONTRACT INFORMATION:

Contract For: General Construction
Date:

Architect's Project Number: 473003.00

Proposal Request Number: PR-000

Proposal Request Date:

OWNER: *(name and address)*

Centerville-Abington Community
Schools
115 West South Street
Centerville, IN 47330

ARCHITECT: *(name and address)*

The Moake Park Group, Inc.
7223 Engle Road, Suite 200
Fort Wayne, IN 46804

CONTRACTOR: *(name and address)*

The Owner requests an itemized proposal for changes to the Contract Sum and Contract Time for proposed modifications to the Contract Documents described herein. The Contractor shall submit this proposal within Seven (7) days or notify the Architect in writing of the anticipated date of submission.

(Insert a detailed description of the proposed modifications to the Contract Documents and, if applicable, attach or reference specific exhibits.)

ATTACHMENT(S):

In response to this request, the Contractor represents that he has re-examined ALL aspects of this project including Drawings, Specifications, Project and Field Conditions. Contractor further represents that he has included ALL applicable Labor, Materials, etc., necessary to complete this proposed work, including that which may be required of other contractors, sub-contractors, etc., in the completion of this work.

THIS IS NOT A CHANGE ORDER, A CONSTRUCTION CHANGE DIRECTIVE, OR A DIRECTION TO PROCEED WITH THE WORK DESCRIBED IN THE PROPOSED MODIFICATIONS.

REQUESTED BY THE ARCHITECT:

PRINTED NAME AND TITLE

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DRAFT AIA® Document G714™ - 2017

Construction Change Directive

PROJECT: *(name and address)*

Centerville-Abington
Transportation Building
200 West South Street
Centerville, IN 47330

CONTRACT INFORMATION:

Contract For: General Construction
Date:

CCD INFORMATION:

Directive Number: 001
Date:

OWNER: *(name and address)*

Centerville-Abington Community
Schools
115 West South Street
Centerville, IN 47330

ARCHITECT: *(name and address)*

The Moake Park Group, Inc.

7223 Engle Road, Suite 200
Fort Wayne, IN 46804

CONTRACTOR: *(name and address)*

The Contractor is hereby directed to make the following change(s) in this Contract:

(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits.)

PROPOSED ADJUSTMENTS

1. The proposed basis of adjustment to the Contract Sum or Guaranteed Maximum Price is:

- Lump Sum decrease of \$0.00
- Unit Price of \$ per
- Cost, as defined below, plus the following fee:
(Insert a definition of, or method for determining, cost)
- As follows:

2. The Contract Time is proposed to remain unchanged. The proposed adjustment, if any, is (0 days).

NOTE: The Owner, Architect and Contractor should execute a Change Order to supersede this Construction Change Directive to the extent they agree upon adjustments to the Contract Sum, Contract Time, or Guaranteed Maximum price for the change(s) described herein.

When signed by the Owner and Architect and received by the Contractor, this document becomes effective IMMEDIATELY as a Construction Change Directive (CCD), and the Contractor shall proceed with the change(s) described above.

Contractor signature indicates agreement with the proposed adjustments in Contract Sum and Contract Time set forth in this CCD.

The Moake Park Group, Inc.

Centerville-Abington Community
Schools

ARCHITECT *(Firm name)*

OWNER *(Firm name)*

CONTRACTOR *(Firm name)*

SIGNATURE

SIGNATURE

SIGNATURE

PRINTED NAME AND TITLE

PRINTED NAME AND TITLE

PRINTED NAME AND TITLE

DATE

DATE

DATE

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DRAFT AIA® Document G701™ - 2017

Change Order

PROJECT: *(Name and address)*
 Centerville-Abington
 Transportation Building
 200 West South Street
 Centerville, IN 47330

CONTRACT INFORMATION:
 Contract For: General Construction
 Date:

CHANGE ORDER INFORMATION:
 Change Order Number: CO-000
 Date:

OWNER: *(Name and address)*
 Centerville-Abington Community
 Schools
 115 West South Street
 Centerville, IN 47330

ARCHITECT: *(Name and address)*
 The Moake Park Group, Inc.
 7223 Engle Road, Suite 200
 Fort Wayne, IN 46804

CONTRACTOR: *(Name and address)*

THE CONTRACT IS CHANGED AS FOLLOWS:

(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits. Also include agreed upon adjustments attributable to executed Construction Change Directives.)

The original Contract Sum was
 The net change by previously authorized Change Orders
 The Contract Sum prior to this Change Order was
 The Contract Sum will be increased by this Change Order in the amount of
 The new Contract Sum including this Change Order will be
 The Contract Time will be increased by Zero (0) days.
 The new date of Substantial Completion will be

\$	0.00
\$	0.00
\$	0.00
\$	0.00
\$	0.00

NOTE: This Change Order does not include adjustments to the Contract Sum or Guaranteed Maximum Price, or the Contract Time, that have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.

The Moake Park Group, Inc.
 ARCHITECT *(Firm name)*

CONTRACTOR *(Firm name)*

Centerville-Abington Community Schools
 OWNER *(Firm name)*

SIGNATURE

SIGNATURE

SIGNATURE

PRINTED NAME AND TITLE

PRINTED NAME AND TITLE

PRINTED NAME AND TITLE

DATE

DATE

DATE

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DRAFT AIA® Document G710™ – 2017

Architect's Supplemental Instructions

PROJECT: *(name and address)*

Centerville-Abington
Transportation Building
200 West South Street
Centerville, IN 47330

CONTRACT INFORMATION:

Contract For: General Construction
Date:

ASI INFORMATION:

ASI Number: ASI-000
Date:

OWNER: *(name and address)*

Centerville-Abington Community
Schools
115 West South Street
Centerville, IN 47330

ARCHITECT: *(name and address)*

The Moake Park Group, Inc.

7223 Engle Road, Suite 200
Fort Wayne, IN 46804

CONTRACTOR: *(name and address)*

The Contractor shall carry out the Work in accordance with the following supplemental instructions without change in Contract Sum or Contract Time. Proceeding with the Work in accordance with these instructions indicates your acknowledgment that there will be no change in the Contract Sum or Contract Time.

(Insert a detailed description of the Architect's supplemental instructions and, if applicable, attach or reference specific exhibits.)

ATTACHMENT(S):

In response to this request, the Contractor represents that he has re-examined ALL aspects of this project including Drawings, Specifications, Project and Field Conditions. Contractor further represents that he has included ALL applicable Labor, Materials, etc., necessary to complete this proposed work, including that which may be required of other contractors, sub-contractors, etc., in the completion of this work.

ISSUED BY THE ARCHITECT:

The Moake Park Group, Inc.

ARCHITECT *(Firm name)*

SIGNATURE

PRINTED NAME AND TITLE

DATE

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DRAFT AIA® Document G704® - 2017

Certificate of Substantial Completion

PROJECT: *(name and address)*

Centerville-Abington
Transportation Building
200 West South Street
Centerville, IN 47330

CONTRACT INFORMATION:

Contract For: General Construction
Date:

CERTIFICATE INFORMATION:

Certificate Number:
Date:

OWNER: *(name and address)*

Centerville-Abington Community
Schools
115 West South Street
Centerville, IN 47330

ARCHITECT: *(name and address)*

The Moake Park Group, Inc.
7223 Engle Road, Suite 200
Fort Wayne, IN 46804

CONTRACTOR: *(name and address)*

The Work identified below has been reviewed and found, to the Architect's best knowledge, information, and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion designated below is the date established by this Certificate.

(Identify the Work, or portion thereof, that is substantially complete.)

The Moake Park Group,
Inc.

ARCHITECT *(Firm Name)*

SIGNATURE

PRINTED NAME AND TITLE

DATE OF SUBSTANTIAL COMPLETION

WARRANTIES

The date of Substantial Completion of the Project or portion designated above is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:

(Identify warranties that do not commence on the date of Substantial Completion, if any, and indicate their date of commencement.)

WORK TO BE COMPLETED OR CORRECTED

A list of items to be completed or corrected is attached hereto, or transmitted as agreed upon by the parties, and identified as follows:

(Identify the list of Work to be completed or corrected.)

The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Unless otherwise agreed to in writing, the date of commencement of warranties for items on the attached list will be the date of issuance of the final Certificate of Payment or the date of final payment, whichever occurs first. The Contractor will complete or correct the Work on the list of items attached hereto within () days from the above date of Substantial Completion.

Cost estimate of Work to be completed or corrected: \$

The responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work, insurance, and other items identified below shall be as follows:

(Note: Owner's and Contractor's legal and insurance counsel should review insurance requirements and coverage.)

The Owner and Contractor hereby accept the responsibilities assigned to them in this Certificate of Substantial Completion:

CONTRACTOR (<i>Firm Name</i>) Centerville-Abington Community Schools	SIGNATURE	PRINTED NAME AND TITLE	DATE
OWNER (<i>Firm Name</i>)	SIGNATURE	PRINTED NAME AND TITLE	DATE

W
A
R
D

Application and Certificate for Payment

TO OWNER: Centerville-Abington Community Schools 115 West South Street Centerville, IN 47330	PROJECT: Centerville-Abington Transportation Building 200 West South Street Centerville, IN 47330 The Moake Park Group, Inc. 7223 Engle Road, Suite 200 Fort Wayne, IN 46804	APPLICATION NO: _____ PERIOD TO: _____ CONTRACT FOR: General Construction CONTRACT DATE: _____ PROJECT NOS: 473003.00 / _____
FROM CONTRACTOR: _____	VIA ARCHITECT: _____	Distribution to: OWNER: <input type="checkbox"/> _____ ARCHITECT: <input type="checkbox"/> _____ CONTRACTOR: <input type="checkbox"/> _____ FIELD: <input type="checkbox"/> _____ OTHER: <input type="checkbox"/> _____

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. AIA Document G703®, Continuation Sheet, is attached.

1. ORIGINAL CONTRACT SUM \$0.00
2. NET CHANGE BY CHANGE ORDERS \$0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2) \$0.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) \$0.00
5. RETAINAGE:
 - a. 0 % of Completed Work (Column D + E on G703) \$0.00
 - b. 0 % of Stored Material (Column F on G703) \$0.00
6. TOTAL EARNED LESS RETAINAGE \$0.00
(Line 4 Less Line 5 Total)
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT \$0.00
(Line 6 from prior Certificate)
8. CURRENT PAYMENT DUE \$0.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6) \$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: _____ Date: _____

By: _____ State of: _____

County of: _____

Subscribed and sworn to before me this _____ day of _____

Notary Public: _____ My Commission expires: _____

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$0.00
(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$0.00	\$0.00
Total approved this Month	\$0.00	\$0.00
TOTALS	\$0.00	\$0.00
NET CHANGES by Change Order		\$0.00

ARCHITECT: _____ Date: _____

By: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

1 **A101-2017 AGREEMENT BETWEEN OWNER AND CONTRACTOR + EXHIBIT A**

2

3 The Agreement shall be A101-2017 Agreement Between Owner and Contractor Agreement along with
4 A101-2017 Exhibit A. A “DRAFT” copy of which is bound within these documents, and which when
5 executed, will become a part of the Contract Documents of the successful bidder.

6

7

8 **END OF SECTION**

9

1

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AIA[®] Document A101[®] – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Centerville-Abington Community Schools
115 West South Street
Centerville, IN 47330

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

Centerville-Abington Transportation Building
200 West South Street
Centerville, IN 47330

The Architect:
(Name, legal status, address and other information)

The Moake Park Group, Inc.
7223 Engle Road, Suite 200
Fort Wayne, IN 46804

The Owner and Contractor agree as follows.

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

The parties should complete A101[®]-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201[®]-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

ELECTRONIC COPYING of any portion of this AIA[®] Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS**
- 2 THE WORK OF THIS CONTRACT**
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION**
- 4 CONTRACT SUM**
- 5 PAYMENTS**
- 6 DISPUTE RESOLUTION**
- 7 TERMINATION OR SUSPENSION**
- 8 MISCELLANEOUS PROVISIONS**
- 9 ENUMERATION OF CONTRACT DOCUMENTS**
- EXHIBIT A INSURANCE AND BONDS**

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

- The date of this Agreement.
- A date set forth in a notice to proceed issued by the Owner.
- Established as follows:

(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

[] Not later than () calendar days from the date of commencement of the Work.

[] By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be (\$), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement. (Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum: (Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any: (Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)

§ 4.5 Liquidated damages, if any: (Insert terms and conditions for liquidated damages, if any.)

§ 4.6 Other: (Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the [] day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the [] day of the [] month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than [([])] days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 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.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

%

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

- Arbitration pursuant to Section 15.4 of AIA Document A201–2017
- Litigation in a court of competent jurisdiction
- Other (Specify)

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner’s convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner’s convenience.)

[Redacted]

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner’s representative:
(Name, address, email address, and other information)

[Redacted]

§ 8.3 The Contractor’s representative:
(Name, address, email address, and other information)

[Redacted]

§ 8.4 Neither the Owner’s nor the Contractor’s representative shall be changed without ten days’ prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:

(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

[] The Sustainability Plan:

Title	Date	Pages

[] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER (Signature)

(Printed name and title)

CONTRACTOR (Signature)

(Printed name and title)

AIA® Document A101® – 2017 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the day of in the year
(In words, indicate day, month and year.)

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

Centerville-Abington Transportation Building
200 West South Street
Centerville, IN 47330

THE OWNER:
(Name, legal status and address)

Centerville-Abington Community Schools
115 West South Street
Centerville, IN 47330

THE CONTRACTOR:
(Name, legal status and address)

TABLE OF ARTICLES

A.1 GENERAL

A.2 OWNER'S INSURANCE

A.3 CONTRACTOR'S INSURANCE AND BONDS

A.4 SPECIAL TERMS AND CONDITIONS

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201™–2017, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

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

This document is intended to be used in conjunction with AIA Document A201®–2017, General Conditions of the Contract for Construction. Article 11 of A201®–2017 contains additional insurance provisions.

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§ A.2.3 Required Property Insurance

§ A.2.3.1 Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ A.2.3.1.1 Causes of Loss. The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:

(Indicate below the cause of loss and any applicable sub-limit.)

Causes of Loss	Sub-Limit

§ A.2.3.1.2 Specific Required Coverages. The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:

(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)

Coverage	Sub-Limit

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

§ A.2.3.3 Insurance for Existing Structures

If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

§ A.2.4 Optional Extended Property Insurance.

The Owner shall purchase and maintain the insurance selected and described below.

(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to

the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)

- § **A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance**, to reimburse the Owner for loss of use of the Owner's property, or the inability to conduct normal operations due to a covered cause of loss.

- § **A.2.4.2 Ordinance or Law Insurance**, for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.

- § **A.2.4.3 Expediting Cost Insurance**, for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.

- § **A.2.4.4 Extra Expense Insurance**, to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.

- § **A.2.4.5 Civil Authority Insurance**, for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.

- § **A.2.4.6 Ingress/Egress Insurance**, for loss due to the necessary interruption of the insured's business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.

- § **A.2.4.7 Soft Costs Insurance**, to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional interest on loans, realty taxes, and insurance premiums over and above normal expenses.

§ A.2.5 Other Optional Insurance.

The Owner shall purchase and maintain the insurance selected below.

(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)

- § **A.2.5.1 Cyber Security Insurance** for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information.
(Indicate applicable limits of coverage or other conditions in the fill point below.)

[] § A.2.5.2 Other Insurance

(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage

Limits

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 **Certificates of Insurance.** The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

§ A.3.1.2 **Deductibles and Self-Insured Retentions.** The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 **Additional Insured Obligations.** To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than [] (\$ []) each occurrence, [] (\$ []) general aggregate, and [] (\$ []) aggregate for products-completed operations hazard, providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal injury and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

- .1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.

- .2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
- .3 Claims for bodily injury other than to employees of the insured.
- .4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
- .5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
- .6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
- .7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
- .8 Claims related to roofing, if the Work involves roofing.
- .9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
- .10 Claims related to earth subsidence or movement, where the Work involves such hazards.
- .11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than \$ () per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than \$ () each accident, \$ () each employee, and \$ () policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than \$ () per claim and \$ () in the aggregate.

§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than \$ () per claim and \$ () in the aggregate.

§ A.3.2.10 Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than \$ () per claim and \$ () in the aggregate.

§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than \$ () per claim and \$ () in the aggregate.

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than \$ () per claim and \$ () in the aggregate.

§ A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The

Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.
(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

§ A.3.3.2.1 Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:
(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

§ A.3.3.2.2 Railroad Protective Liability Insurance, with policy limits of not less than (\$) per claim and (\$) in the aggregate, for Work within fifty (50) feet of railroad property.

§ A.3.3.2.3 Asbestos Abatement Liability Insurance, with policy limits of not less than (\$) per claim and (\$) in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.

§ A.3.3.2.4 Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.

§ A.3.3.2.5 Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

§ A.3.3.2.6 Other Insurance
(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage

Limits

§ A.3.4 Performance Bond and Payment Bond

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:
(Specify type and penal sum of bonds.)

Type

Penal Sum (\$0.00)

Payment Bond



Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:





GENERAL CONDITIONS

AIA[®] Document A201[®] – 2017

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

Centerville-Abington Transportation Building
200 West South Street
Centerville, IN 47330

THE OWNER:

(Name, legal status and address)

Centerville-Abington Community Schools
115 West South Street
Centerville, IN 47330

THE ARCHITECT:

(Name, legal status and address)

The Moake Park Group, Inc.
7223 Engle Road, Suite 200
Fort Wayne, IN 46804

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

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

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. 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. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

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

§ 1.1.3 The Work

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

§ 1.1.4 The Project

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

§ 1.1.5 The Drawings

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

§ 1.1.6 The Specifications

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

§ 1.1.6.1 See Supplementary Conditions.

§ 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 person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.1.9 See Supplementary Conditions.

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§ 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. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 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.

§ 1.2.2 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.

§ 1.2.4 See Supplementary Conditions.

§ 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 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and 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 Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and 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 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.

§ 1.5.3 See Supplementary Conditions

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to

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whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 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.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.1.2 See Supplementary Conditions

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, 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 in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 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.

§ 2.3 Information and Services Required of the Owner

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

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

§ 2.3.3 If the employment of the Architect terminates, the Owner shall 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 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

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

§ 2.5 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 a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner’s expenses and compensation for the Architect’s additional services made necessary by such default, neglect, or failure. If current and future payments 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 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.

§ 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 Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations 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, 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, 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. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect 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 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect 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 submit 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, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor’s best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be 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 notice to the Owner and Architect, and 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.

§ 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.

§ 3.4 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, 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 not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.4.4 – 3.4.7 See Supplementary Conditions

§ 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, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 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.

§ 3.5.3 – 3.5.8 See Supplementary Conditions

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use 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.

§ 3.6.1 – 3.6.2.1 See Supplementary Conditions

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§ 3.7 Permits, Fees, Notices and Compliance with Laws

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

§ 3.7.1.1 See Supplementary Conditions

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

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders 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

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, 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.

§ 3.7.6 See Supplementary Conditions

§ 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 but not in the allowances; and

- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

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

§ 3.9 Superintendent

§ 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 notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) 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 change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.1.1 See Supplementary Conditions

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule 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 general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

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

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

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

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate 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.

§ 3.12.5.1 See Supplementary Conditions

§ 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, or will do so, 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 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.

§ 3.12.8.1 – 3.12.8.3 See Supplementary Conditions

§ 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 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

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the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 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 be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, 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 and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. 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.

§ 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.

§ 3.13 Use of Site

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

§ 3.13.1 – 3.13.3 See Supplementary Conditions

§ 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 See Supplementary Conditions

§ 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.

§ 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.

§ 3.16 Access to Work

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

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for 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 an infringement of a copyright or patent is discovered by, or made known to, the Contractor, 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 and hold harmless the Owner, Architect, Architect’s consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys’ fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 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 As-Built Requirements

§ 3.19.1 See Supplementary Conditions.

§ 3.20 Retainage Escrow Agreement

§ 3.20.1 See Supplementary Conditions.

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.

§ 4.1.1.1 See Supplementary Conditions

§ 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, Contractor, and Architect. Consent shall not be unreasonably withheld.

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§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

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

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 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 the 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, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

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

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order 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.

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

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

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

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

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

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

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 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and 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 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 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and 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 reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable 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 makes reasonable objection to such substitution.

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

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 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 cost 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. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

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 with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 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 provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with

any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 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 have the same obligations and rights that the Contractor has 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 notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work 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. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 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 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.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

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

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

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. 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 – 7.1.4.2 See Supplementary Conditions

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§ 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 See Supplementary Conditions

§ 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 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 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine 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, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

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

§ 7.3.5 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.

§ 7.3.6 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.

§ 7.3.7 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.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. 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, if any, with respect to that change.

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

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

§ 7.4 Minor Changes in the Work

The Architect 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. 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.

§ 8.1.4 See Supplementary Conditions

§ 8.1.5 See Supplementary Conditions

§ 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, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

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§ 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 (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.1 See Supplementary Conditions

§ 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 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, 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. This schedule, unless objected to 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.

§ 9.2 – 9.2.3 See Supplementary Conditions

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

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

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

§ 9.3.2 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, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.3.3.1 – 9.3.3.2 See Supplementary Conditions

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole 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 in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, 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. 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 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;

- .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; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.1.8 See Supplementary Conditions

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the 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 supplier 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 Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after 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.

§ 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 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 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, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or 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.

§ 9.6.9 See Supplementary Conditions

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, 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 or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.1.1 See Supplementary Conditions

§ 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. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, 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 or designated portion thereof for its intended use, 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.

§ 9.8.4 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; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and 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 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the 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.

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§ 9.8.5 See Supplementary Conditions

§ 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, provided such occupancy or use is consented to by the insurer 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. 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.

§ 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 notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, 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.

§ 9.10.2 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, (3) a written statement that the Contractor knows of no 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.

§ 9.10.2 See Supplementary Conditions

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§ 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

- .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; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a 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.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety 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;
- .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
- .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.

§ 10.2.1.4 See Supplementary Conditions

§ 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.

§ 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.

§ 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. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is 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

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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.

§ 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 either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 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 notify the Owner and Architect of the condition.

§ 10.3.1.1 See Supplementary Conditions

§ 10.3.2 Upon receipt of the Contractor's 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, 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 the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. 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.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. 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.

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§ 10.3.5 The Contractor shall 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 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, 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.

§ 10.4.1 See Supplementary Conditions

§ 10.5 OSHA

§ 10.5.2 See Supplementary Conditions

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.1.1 – 11.1.1.4 See Supplementary Conditions

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.2.1 – 11.1.2.7 See Supplementary Conditions

§ 11.1.3 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.

§ 11.1.3.1 – 11.1.3.2 See Supplementary Conditions

§ 11.1.4 **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.

§ **11.1.5** See Supplementary Conditions

§ **11.2** **Owner's Insurance**

§ **11.2.1 – 11.2.1.4** See Supplementary Conditions

§ **11.2.1** The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ **11.2.2 Failure to Purchase Required Property Insurance.** If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ **11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance.** Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ **11.3** **Waivers of Subrogation**

§ **11.3.1** 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 those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

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§ 11.3.2 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, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.1.1 – 11.5.1.2 See Supplementary Conditions

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

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 Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before 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.

§ 12.2.1.1 See Supplementary Conditions

§ 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 correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period 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 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.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 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

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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 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 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 tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 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.

§ 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 to 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.

§ 13.4.7 – 13.4.8 See Supplementary Conditions

§ 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 the legal rate prevailing from time to time at the place where the Project is located.

§ 13.6 – 13.7.2 See Supplementary Conditions

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

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

§ 14.1.1.5 See Supplementary Conditions

§ 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, 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' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not 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 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' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, 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' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .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

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- .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.

§ 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 damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such 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 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 Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

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 responsibility to substantiate Claims shall rest with the party making the Claim. 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.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to 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 and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, 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.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker’s decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. 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, notice as provided in Section 15.1.3 shall be given. The Contractor’s Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred 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 mutual waiver is applicable, without limitation, to all consequential damages due to either party’s termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 See Supplementary Conditions

§ 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, and 11.5, shall

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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 mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution 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 ten 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.

§ 15.2.3 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.

§ 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 and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.5 – 15.2.5.1 See Supplementary Conditions

§ 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 See Supplementary Conditions

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.6.1 See Supplementary Conditions

§ 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.

§ 15.2.8 See Supplementary Conditions

§ 15.3 Mediation

§ 15.3 – 15.3.4 See Supplementary Conditions

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

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

§ 15.4 Arbitration

§ 15.4 – 15.4.4.3 See Supplementary Conditions

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a

written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

§ 16.1 – 16.1.1 See Supplementary Conditions

§ 17.1.1 See Supplementary Conditions

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, Jeff E. Schroeder, RA & President, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with this certification 10:57:36 ET on 03/01/2022 under Order No. 2114247216 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ - 2017, General Conditions of the Contract for Construction, as published by the AIA in its software, other than changes shown in the attached final document by underscoring added text and striking over deleted text.



(Signed)

Jeff E. Schroeder, RA President and Architect of Record

(Title)

March 1, 2022

(Dated)

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SUPPLEMENTARY CONDITIONS

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SUPPLEMENTARY CONDITIONS

General Conditions of the Contract for Construction, AIA Document A201, 2017 Edition, is a part of the Contract Documents. The following Supplementary Conditions are to modify or add conditions to the standard AIA document. In case of conflict, the Supplementary Conditions shall govern. Where any part of the AIA General Conditions remain unaltered or not referred to herein, the unaltered provisions shall remain in effect.

1. ARTICLE 1 - GENERAL PROVISIONS

a. Article 1.1 - Basic Definitions: Add the following paragraph:

1.1.6.1 Each section of the contract specifications shall be governed by the requirements and provisions of the rest of the contract documents including the Drawings, General, Supplemental and other Conditions, all addenda and modifications issued after execution of the contract.

b. Add the following Subparagraphs 1.1.9 to Paragraph 1.1:

1.1.9 The listed terms used in the Contract Documents shall have the meanings as follows:

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 required for reuse.

Furnish or Supply: To supply and deliver, unload, inspect for damage.

Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, and ready for use.

Provide: To furnish or supply, plus install.

“Comparable” means equal to or exceeds all specifications.

c. Add the following Subparagraph 1.2.4 to Paragraph 1.2:

1.2.4 In general, mechanical and electrical drawings are diagrammatic and schematic, and cannot indicate every offset, fitting, and accessory required to avoid all conflict with other trades. Contractor shall check

1 drawings of all trades to verify spaces available and make reasonable
2 modification, as directed, without extra cost to Owner; maintain
3 headroom and other requirements in all areas; and where such
4 requirements appear inadequate, notify Architect before proceeding.

- 5
6 d. Article 1.5 - Ownership and Use of Drawings, Specifications, and Other
7 Instruments of Service: Add the following Paragraph:

8
9 1.5.3 All Drawings, Specifications, and related documents prepared by the
10 Contractor specifically for the Project shall become the property of the
11 Owner.

12
13 2. ARTICLE 2 - OWNER

- 14
15 a. Article 2.1 - General: Add the following subparagraph:

16
17 2.1.2 Delete paragraph in its entirety. ADD the following: The Work is to
18 proceed as a no-lien Project in accordance with the laws of the State of
19 Indiana regarding public projects and Indiana case law. Contractor shall
20 provide to the Owner both a Payment Bond and a Performance Bond as
21 required by Indiana Code 36-1-12. The Contractor, for itself and for all
22 who claim through the Contractor, acknowledges and agrees that this is a
23 public project and, therefore, no lien shall attach to the real estate on
24 which the Project is located or to any improvements now existing or to
25 be constructed thereon in favor of the Contractor or any Subcontractor,
26 mechanic, journeyman, laborer, material vendor, lessor of tools or
27 equipment or any other party who may furnish work, materials,
28 equipment, services, tools or machinery for the design or construction of
29 improvements on the land. The Contractor shall also provide written
30 notice of the no-lien status of this Project to all of its Subcontractors,
31 material suppliers, equipment lessors and other that provide labor,
32 material, equipment and/or services for the Project. The Owner shall
33 notify the Contractor of any known attempts by a Subcontractor, sub-
34 subcontractor, material supplier, equipment lessor or any other person
35 or entity which has provided labor, material, equipment and/or services
36 with respect to the Work to file a lien against the Project and the
37 Contractor shall take prompt action to have any asserted lien released,
38 bonded-off or otherwise removed from the Project.

1 **3. ARTICLE 3 - CONTRACTOR**

2
3 a. Article 3.4 - Labor and Materials: Add paragraphs 3.4.4, 3.4.5, 3.4.6, and 3.4.7 as
4 follows:

5
6 3.4.4 Materials shall conform to manufacturer's standards in effect at the date
7 of issuance of the proposed Contract Documents and shall be installed in
8 strict accordance with manufacturer's directions.

9
10 3.4.5 Where the Contract Documents require the Work, or any part of same, to
11 be above the standards required by applicable laws, ordinances, rules,
12 and regulations and other statutory provisions pertaining to the Work, or
13 above the quality of normal construction or trade standards, such Work
14 shall be performed and completed by the Contractor in accordance with
15 the Contract Documents.

16
17 3.4.6 Immediately after the issuance of a Letter of Intent or the award of the
18 Contract for the Work to the Contractor, and prior to the first Request for
19 Payment, the contractor shall submit to the Owner and the Architect a
20 schedule indicating the name of manufacturers of all material and
21 equipment which he and his Subcontractors propose for use in the Work.
22 No material or equipment shall be ordered until acceptance of the
23 manufacturer is received from the Owner and the Architect.

24
25 3.4.7 Identifying Markings: Where the manufacturer's name, patent numbers,
26 Underwriter's labels, model numbers, or similar identifying marks are
27 required, locate such markings as inconspicuously as possible. In no case
28 will such marks be acceptable as part of basic design.

29
30 b. Article 3.5 - Warranty: Add the following new paragraphs:

31
32 3.5.3 The Contractor shall Warrant that all materials and workmanship of all of
33 the Work of the Contract will be serviceable, satisfactory, and will
34 perform dependably, without excessive or unusual maintenance or care,
35 the functions for which it was designed for a period of at least one year
36 from the date of Substantial Completion, and for such longer periods and
37 special requirements as may be specified for individual types of
38 materials, equipment, or Work, under individual Sections of the
39 Specifications. Such warranty is in addition to and independent of any
40 warranty or guarantee of any Subcontractor, Supplier, or Manufacturer.
41

1 3.5.4 If, within any guarantee period, repairs or changes are required in
2 connection with guaranteed work which, in the opinion of the Architect,
3 is rendered necessary as the result of materials, equipment, or
4 workmanship which are inferior, defective, or not in accordance with the
5 terms of this contract, the Contractor shall promptly upon receipt of
6 notice from the Owner place in satisfactory condition in every particular
7 all of such guaranteed work correct all defects therein; and make good all
8 damage to the building or site, or equipment, or contents thereof which,
9 in the opinion of the Architect, is the result of the use of materials,
10 equipment, or workmanship which are inferior, defective, or not in
11 accordance with the terms of the contract; and make good any work or
12 material, or the equipment and contents of said building or site disturbed
13 in fulfilling any such guarantee.
14

15 3.5.5 In any case where in fulfilling the requirements of the contract or any
16 guarantee, embraced in or required thereby, the Contractor disturbs any
17 work guaranteed under another contract, he shall restore such disturbed
18 work to a condition satisfactory to the Architect and guarantee such
19 restored work to the same extent as it was guaranteed under such other
20 contract.
21

22 3.5.6 In the event any of the equipment specified, supplied and installed under
23 this contract should fail to produce capacities or meet design
24 specifications as published or warranted by the manufacturer of the
25 equipment involved, the Contractor shall remove and replace such
26 equipment with equipment that will meet requirements without cost to
27 the Owner.
28

29 3.5.7 Commence any work required hereunder within seven (7) working days
30 after receipt of written notice to do so by the Owner. If the Contractor
31 fails or neglects to do so or to complete the fulfillment of the required
32 obligations hereunder within thirty (30) days of receipt of said notice or
33 such longer period as may be authorized by the Owner, the Owner shall
34 have the right to perform all or any part of the Work or employ another
35 person to do all or part of such Work and charge the expense thereof to
36 the Contractor.
37

38 3.5.8 Refer to Division 1 "Product Data"

39
40 c. Article 3.6 Taxes: Add the following paragraph:
41

- 1 3.6.1 The Contractor shall pay all unemployment, social security, and other
- 2 such taxes imposed by local, state, or federal government.
- 3 3.6.2 The Owner is not subject to Indiana Retail Sales Tax or Federal Excise Tax,
- 4 and therefore these taxes should not be included in Contactor’s Bid or
- 5 costs.
- 6
- 7 .1 Exemption Certificates for these taxes will be furnished by the
- 8 Owner.
- 9
- 10 d. Add the following paragraph 3.7.1.1 to Subparagraph 3.7.1:
- 11
- 12 .1 A copy of the building permit shall be submitted to the Owner prior to
- 13 the start of on-site work.
- 14
- 15 Add the following Subparagraphs 3.7.6 to 3.7:
- 16
- 17 3.7.6 The Work, shall comply with all Rules and Regulations of the Fire
- 18 Prevention and Building Safety Commission, local ordinances, and such
- 19 other statutory provisions pertaining to this class of work, such rules and
- 20 regulations and local ordinances shall be considered as part of these
- 21 Specifications. The Contractor entering into Contract with the owner
- 22 shall be knowledgeable of known ordinances and regulations, and shall
- 23 notify the Architect of any deviation in the Contract Documents from
- 24 such rules and regulations.
- 25
- 26 e. Article 3.10 – Contractor’s Construction Schedule: Add the following paragraph:
- 27
- 28 3.10.1.1 No claim can be made against the Owner or Architect for any delay or
- 29 acceleration of the project for any reason(s) whatsoever (other than for
- 30 extension of the permitted time to complete the project). By submitting
- 31 this bid, the Contractor hereby accepts this condition and shall assume
- 32 all risk associated with the scheduling of the project, including but not
- 33 limited to any and all financial costs associated with project delay or
- 34 work acceleration. This provision shall be included in all subcontracts
- 35 issued by the Contractor for the project and be binding on said
- 36 subcontractors.
- 37
- 38 f. Article 3.12 - Shop Drawings, Product Data, and Samples: Add the following
- 39 subparagraph:
- 40
- 41 3.12.5.1 Contractor review and stamp Drawing indicating that all Drawings
- 42 meet or exceed standards indicated within the specifications.

1 3.19.2 As-Built Drawings – Each Contractor shall provide As-Built Drawings
2 reflective of the work as part of the Operation and Maintenance manual.
3 The As-Built shall be submitted as part of the closeout package.

4
5 j. Article 3.20 – Retainage Escrow Agreement

6
7 Add the following paragraph:

8
9 3.20 Each Prime Contractor shall be responsible for the establishment and
10 cost of escrow with “**NAME OF FINANCIAL INSTITUTION**”.

11
12 3.20.1 Prime Contractor shall provide documentation of execution to the
13 Owner.

14
15 4. ARTICLE 4 – ARCHITECT

16
17 a. Article 4.1 – Architect: Add the following subparagraph:

18
19 4.1.1.1 Architect – As used herein and elsewhere in the Contract Documents, the
20 term “Architect” shall mean The Moake Park Group, Inc., acting
21 individually or through any agents, consultants, or representatives duly
22 authorized to act in its behalf.

23
24 5. ARTICLE 7 – CHANGES IN THE WORK

25
26 a. 7.1.4 Changes In Work Calculation: ADD the following paragraphs

27
28 7.1.4.1 The changes in work calculations for each Contractor and Sub-Contractor
29 shall include a detailed breakdown for the cost or credit of work directly
30 attributed to the change. For each labor level the hours and rate
31 including fringe benefits. For materials a breakdown for each item with
32 quantity and cost. Machinery list hours and cost or rental fee.

33
34 7.1.4.2 In subparagraph 7.1.4.1 the allowance for a combined overhead and
35 profit which shall be itemized as separate Contractor and Sub-Contractor
36 items included in the total cost to the Owner, shall **not exceed** the
37 following schedule:

38
39 .1 For the Contractor, for Work performed by the Contractor’s own
40 forces, five percent (5%) of the cost for labor, materials and
41 Miscellaneous items directly attributed to the change.

1 “Excusable Delay”), then the Contract Time shall be extended by Change
2 Order for such reasonable time as the Architect may determine but only
3 if the Contractor provides to the Owner written notice of such claimed
4 delay or disruption within twenty-one (21) days of the beginning of the
5 event causing the claimed Excusable Delay. Notwithstanding the
6 foregoing, the Contractor agrees that the construction schedule and the
7 Contract Time takes into account the information, forecasts, and
8 projections, available to the public from the Centers for Disease Control
9 and Prevention and current applicable governmental imposed
10 restrictions and limitations as of the date of this Agreement (“Current
11 COVID-19 Conditions and Projections”); and notwithstanding that the
12 current COVID-19 pandemic falls within the definition of an Excusable
13 Delay, to the extent that such pandemic “acts” in a manner, or results in
14 effects, materially consistent with (or more favorable than) the
15 applicable Current COVID-19 Conditions and Projections, Contractor shall
16 not be entitled to make a claim for an Excusable Delay based upon the
17 COVID-19 pandemic. For purposes of clarity, to the extent that the
18 COVID-19 pandemic “acts” in a manner, or results in effects, that are
19 both materially and adversely inconsistent with the applicable Current
20 COVID-19 Conditions and Projections, Contractor shall be entitled to
21 make claim for an Excusable Delay, all in accordance with the Contract
22 Documents.

23
24 **7. ARTICLE 9 - PAYMENTS AND COMPLETION**

- 25
26 a. Delete Paragraph 9.2 in its entirety and substitute the following:

27
28 **9.2 Schedule of Values**

29
30 Within 7 days after receipt of the Award and Notice to Proceed letter or
31 at the preconstruction meeting, whichever occurs first, the Contractor
32 shall submit to the Architect a Schedule of Values allocating the entire
33 Contract Sum to the various portions of the Work and prepared in such
34 form and supported by such data to substantiate its accuracy as the
35 Architect may require. This schedule, unless objected to by the Architect,
36 shall be used as a basis for reviewing the Contractor’s Applications for
37 Payment.
38
39

1 Add the following Subparagraphs 9.2.1 and 9.2.2 to Paragraph 9.2:

2
3 9.2.1 The Schedule of Values shall be prepared in such a manner that each
4 major item of work and each subcontracted item of work is shown as a
5 single line item on AIA Document G703, Continuation Sheet for G702.

6
7 9.2.2 The Contractor shall submit a schedule of the estimated amount of each
8 monthly Application for Payment based on the Contractor's Construction
9 Schedule and Schedule of Values.

10
11 9.2.3 Schedule of Values shall have a line item "Project Closeout" to include
12 but not limited to Punch List, Owner's Manual, Waiver of Lien, As-Built
13 requirements, etc. Said line shall be .5% (1/2%) of contract value and will
14 not be paid out until all Closeout items have been received.

15
16 b. Add the following Clause 9.3.3.1, 9.3.3.2 to Subparagraph 9.3.3:

17
18 9.3.3.1 Contractor shall include a Partial Waiver of Lien form which covers all of
19 its Work from the prior Application and Certificate for Payment
20 Documents.

21
22 9.3.3.2 Contractor shall include Partial Waiver of Lien form from its
23 Subcontractors and major suppliers when requesting reduction in
24 retainage, which covers all of its Work from prior Application and
25 Certificate for Payment Documents.

26
27 c. Add the following Clause 9.5.1.8 to Subparagraph 9.5.1:

28
29 9.5.1.8 Failure to submit partial waivers of lien shall justify the withholding of
30 future payments until said delinquent waivers are received.

31
32 d. Add the following paragraph 9.6.9 to 9.6:

33
34 9.6.9 All contracts between a Contractor and an Indiana State agency concerning
35 any public building, work or improvement entered into which contracts are
36 in excess of \$100,000 are to be governed by the provisions of IC 36-1-12-
37 14; as are the rights and duties among the parties to the contract and any
38 subcontractors who do any work under the contract. All procedures will be
39 in strict accordance with Public Law 44 Law Acts of 1972.

40
41 e. Add 9.8.1.1 to be considered for Substantial Completion as previously defined.

1 9.8.1.1 The following shall be required:

- 2
- 3 a. Owner must have full and complete use of facility.
- 4 b. Owner must have Certificate of Occupancy by awarding agency.
- 5 c. Contractor complete list of work remaining and defective.
- 6

7 f. Delete Subparagraph 9.8.5 in its entirety and substitute the following:

8

9 9.8.5 The Certificate of Substantial Completion shall be submitted to the owner
10 and Contractor for their written acceptance of responsibilities assigned to
11 them in such Certificate. Contingent upon restriction listed in A101
12 Section 5.1.7.2 & 5.1.7.3 and upon such acceptance and consent of
13 surety, if any, the Owner shall make payment of retainage applying to
14 such Work or designated portion thereof. Such payment shall be
15 adjusted to withhold retainage applying to such Work or designated
16 portion thereof to withhold 200% of the value (reference IC 5-16-5.5-6)
17 for Work that is incomplete or not in accordance with the requirement of
18 the Contract Documents.

19

20 g. Delete Subparagraph 9.10.2 in its entirety and substitute the following:

21

22 9.10.2 Neither Final Payment nor any remaining retained percentage shall
23 become due until the Contractor submits to the Architect the following:
24 (1) Contractor's Affidavit of Payment of Debts and Claims (AIA Document
25 G706); (2) Contractor's Affidavit of Release of Liens (AIA Document
26 G706A); (3) Final waiver of lien forms for the Contractor, all
27 Subcontractors and major Suppliers; and (4) Consent of Surety to Final
28 Payment (AIA Document 707).

29

30 **8. ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY**

31

32 a. Article 10.2 - Safety of Persons and Property: Add the following paragraph:

33

34 10.2.1.4 The Contractor shall confine his work, storage of materials, to an area
35 adjacent to the construction site to be designated by the Owner.

36

37 b. Add the following Clause 10.3.1.1 to Paragraph 10.3.1:

38

39 10.3.1.1 Asbestos-containing material (ACM): shall be as defined by the
40 Occupational Safety & Health Administration (OSHA) Regulation
41 (Standards – 29 CFR) Section 1926.1101(b).

42

1 c. Article 10.4 - Emergencies: Add the following paragraph:
 2
 3 10.4.1 The Contractor, subcontractor or other party present at the site shall
 4 immediately inform the Owner of all emergencies.

5
 6 d. Add the following Paragraph 10.5, Subparagraph 10.5.1 and Clause 10.5.1.1 to
 7 Article 10:

8
 9 10.5 Occupational Safety and Health Acts

10
 11 10.5.1 These construction documents and the joint and several phases of
 12 construction hereby contemplated are to be governed at all times by the
 13 applicable provisions of the state and federal laws including, but not
 14 limited to, the latest amendments of the following:

- 15
 16 .1 Indiana Occupational Safety and Health Act of 1971 (I.C. 1971, 22-
 17 8-1-1, et. seq., as amended)
 18 .2 Occupational Safety and Health Act of 1970, 29 U.S.C. 651 et. Seq.
 19 as amended, and all relevant standards and regulations, including
 20 but not limited to, Code of Federal Regulations Title 29 Parts 1910
 21 (Occupational Safety and Health Standards) and 1926 (Safety and
 22 Health Regulations of Construction)”

23
 24 10.5.2 Contractor shall assume full responsibility for health and safety at the
 25 construction site, including, but not limited to, the above mentioned laws
 26 and regulations

27
 28 9. ARTICLE 11 - INSURANCE AND BONDS

29
 30 a. Add the following paragraphs to 11.1.1:

31
 32 11.1.1.1 The Contractor shall not commence work under this contract until he
 33 has obtained all insurance required as hereinafter specified and until
 34 such insurance has been approved by the Owner, nor shall the
 35 Contractor allow any subcontractor to commence work on his
 36 subcontract until all similar insurance required of the subcontractor has
 37 been so obtained and approved. Policies expiring on a fixed date before
 38 final acceptance of the project must be renewed and evidence of such
 39 renewal submitted to the Owner before such date.

40
 41 11.1.1.2 The Contractor shall insure separately all materials destined to become
 42 a part of the Work when such materials are stored away from the site

1 of the Work. Such insurance shall include the interest of the Owner
2 and shall be subject to review and inspection by the Owner.

3
4 Proof of Carriage

5
6 11.1.1.3 The Contractor shall furnish the Owner certificates of insurance
7 required. Such certificates shall provide for not less than thirty (30)
8 days' notice of cancellation or material change.

9
10 11.1.1.4 The Contractor shall insure separately or be responsible for all of its
11 equipment, tools, scaffolding, staging, towers, forms, and temporary
12 buildings, owned, borrowed or rented by the Contractor and
13 Subcontractors, and all materials and systems that are not intended to
14 become a part of the Project.

15
16 b. Add the following Subparagraph to Paragraph 11.1.2:

17
18 11.1.2.1 The Owner shall require the Contractor to furnish bonds covering
19 faithful performance of the Contract and payment of obligations
20 arising thereunder as stipulated in bidding requirements or
21 specifically required in the Contract Documents prior to the start of
22 Work on site or on the date of execution of the Contract, whichever
23 occurs first. If the Owner at any time, or justifiable cause shall be or
24 become dissatisfied with any surety or sureties related to the
25 currently held Performance and/or Payment Bonds, the Contractor
26 shall within five (5) days after written notice from the Owner,
27 substitute an acceptable bond (or bonds) in such form and sum and
28 signed by such other surety or sureties that may be satisfactory to
29 the Owner. The Premiums on such bond(s) shall be paid by the
30 Contractor. No further payments shall be deemed due or shall be
31 made until the new surety or sureties shall have furnished such
32 unacceptable bond to the Owner.

33
34 Add the following Clause 11.1.2.1.1 to Subparagraph 11.1.2.1:

35
36 11.1.2.1.1 The Contractor shall furnish a Performance and Payment Bond (AIA
37 Document A312), in an amount of at least equal to one hundred
38 percent (100%) of this Contract price as security for the faithful
39 performance of this Contract. The Contractor will be responsible
40 for payment of such bonds as a part of the Contract.

1 11.1.2 Compensation and Occupational Disease Insurance

2
3 11.1.2.2 The Contractor shall take out and maintain during the life of this
4 contract, Workmen's Compensation and Occupational Disease
5 Insurance, Employers Liability, for all of his employees employed at
6 the site of the project, in full compliance with the statutes of the
7 project, in full compliance with the statutes of Indiana applicable
8 thereto, and, in case any work is sublet, the Contractor shall require
9 the subcontractor similarly to provide Workmen's Compensation
10 and Occupation Disease Insurance for all of the latter's employees
11 unless such employees are covered by the protection afforded by
12 the Contractor. In case any class of employees engaged in
13 hazardous work under this contract at the site of the project are not
14 protected under Workmen's Compensation statute, the Contractor
15 shall provide and shall cause each subcontractor to provide
16 insurance coverage equal to that provided under the Workmen's
17 Compensation statute for the protection of his employees not
18 otherwise protected.

19
20 11.1.2.2.1 Workmen's Compensation and Employer's Liability Insurance in
21 amounts sufficient, in the opinion of the Contractor, the Owner,
22 and the Architect, to protect the Owner, the Architect, the
23 Contractor and the Subcontractors from all liability for bodily injury,
24 sickness, or disease (including death resulting at any time
25 therefrom) of any of their employees, including all liability or
26 damage which may arise by virtue of any statute or law in force or
27 which may hereafter be enacted.

28 Public Liability Insurance

29
30 11.1.2.3 The Contractor shall take out and maintain during the life of this
31 contract Commercial General Liability, including Personal Injury and
32 Property Damage Liability Insurance (construed as including
33 Contractor's Contingent or Protective Insurance if necessary to
34 protect the Contractor from damage claims arising from any
35 operation under this contract), including Completed Operations
36 Insurance, and Comprehensive Automobile Insurance, as shall
37 protect him for work covered by this contract from claims for
38 damages for personal injury or property damage which may arise
39 from operations under this contract, whether such operations be by
40 himself or by a subcontractor or by anyone directly employed by
41 either of them and the amounts of such insurance shall be:

1 Commercial General Liability in any amounts required by the Owner
 2 and by the Architect, but not less than \$1,000,000 each occurrence,
 3 and \$2,000,000 aggregate, as protection against all risks of damage
 4 to or destruction of property; or bodily injury, sickness, or disease
 5 (including death resulting at any time therefrom) of persons,
 6 wherever located, resulting from any act, omission, or operation
 7 under this Contract or in connection with the work thereunder.

8
 9 General Contractor agrees to continue Completed Operations
 10 coverage for one year after the work is accepted by the Owner.
 11 Commercial General Liability shall include coverage on: Premises,
 12 Operations, Independent Contractors (Protective Liability), Products
 13 and Completed Operations, Contractual Liability as may be assumed
 14 and insurable under this contract. There shall be no exclusions for
 15 special hazards under Property Damage for "c," collapse caused by
 16 grading or excavation; "u," underground property; "x," explosion or
 17 blasting.

18
 19 11.1.2.4 Contractor shall provide Comprehensive Automobile Liability
 20 Insurance, including property damage, covering all owned or rented
 21 equipment used in connection with the work to be performed
 22 under this Contract, in the minimum amounts of \$500,000 per
 23 person, \$500,000 per occurrence for bodily injury (including death
 24 resulting at any time therefrom), and \$500,000 per occurrence for
 25 property damage.

26
 27 11.1.2.5 In addition to the above, each Prime Contractor will be required to
 28 verify that he carries an Umbrella or Blanket Excess Liability
 29 insurance coverage in an amount not less than \$2,000,000.

30
 31 Subcontractors' Insurance

32
 33 11.1.2.6 Contractor shall require all his subcontractors to effect and
 34 maintain, during the entire period of performance and until
 35 completion of the subcontract, Insurance in same kind and limits as
 36 Contractor's insurance.

37
 38 All risks of Physical Loss (Including Fire and Extended Coverage)

39
 40 11.1.2.7 The General Contractor at his own expense shall provide fire and
 41 extended coverage insurance protection for materials and
 42 equipment belonging to the Contractor which is not to be worked

1 into the building, and the Owner assumes no responsibility for fire
2 and extended coverage or loss on such scaffolding, equipment or
3 materials which are not to be worked into the building. During the
4 entire construction period, the General Contractor shall provide
5 extinguishers of the type for the intended protection as approved
6 by NFPA and OSHA and shall provide such extinguisher in each
7 construction shed and temporary office, as well as in other
8 locations as reasonably required, and all other fire protection
9 reasonably required, to properly protect the project, and to comply
10 fully with the requirements of insurance underwriters for the
11 project and municipal county and state authorities.

12
13 c. Add the following Clauses 11.1.3.1 and 11.1.3.2 to Subparagraph 11.1.3:

14
15 11.1.3.1 The form of Certificates of Insurance shall be submitted in
16 duplicate. The Contractor shall furnish to the Owner copies of
17 endorsements that are subsequently issued amending coverage or
18 limits.

19
20 11.1.3.2 Certificates of such insurance shall be submitted to the Owner and
21 Architect prior to start of Work.

22
23 d. Add the following Subparagraph 11.1.5 to Paragraph 11.1:

24
25 11.1.5 The Owner shall not be liable to any person for the failure of the
26 Contractor or of any Subcontractor to carry any specified insurance
27 or to furnish proof of the carriage thereof to the Owner.

28
29 e. Delete Subparagraph 11.2.1 in its entirety and substitute the following:

30
31 11.2.1 At the Owner's discretion, property insurance shall be purchased and
32 maintained by the Owner, in a company or companies lawfully
33 authorized to do business in the jurisdiction in which the Project is
34 located, whether in the form of Builder's Risk coverage or an Installation
35 Floater. The amount of coverage shall be equal to at least 100 percent of
36 the insurable portion of the project. Such property insurance shall be
37 maintained until final payment has been made as provided in Paragraph
38 9.10 or until no person or entity other than the Owner has an insurable
39 interest in the property, whichever is later. This insurance shall include
40 the interest of the Owner, the Contractor, Subcontractors and Sub-
41 contractors in the project. The Owner shall provide Contractor with a
42 copy of insurance coverage as requested.

1 f. Add Subparagraph 11.5.1.1:

2
 3 11.5.1.1 If required in writing by any party in interest, the Owner as fiduciary
 4 shall, upon the occurrence of an insured loss, give bond for the
 5 proper performance of the Owner’s duties. The Owner shall
 6 deposit in a separate account proceeds so received, which the
 7 Owner shall distribute in accordance with such agreement as the
 8 parties in interest may reach. If after such loss or no other special
 9 agreement is made and unless the Owner terminates the Contract
 10 for convenience, replacement of damaged property shall be
 11 performed by the Contractor after notification of a Change in the
 12 Work in accordance with Article 7.

13
 14 11.5.1.2 The Owner as fiduciary shall have power to adjust and settle a loss
 15 with insurers.

16
 17 10. ARTICLE 12 – UNCOVERING AND CORRECTION OF WORK

18
 19 a. Article 12.2 – Correction of Work: Add the following paragraph to Paragraph
 20 12.2.1 as follows:

21
 22 12.2.1.1 The Architect will provide one re-inspection per punch list item. Any
 23 additional inspections required to verify conformance with the initial
 24 punch list item (2) will be at the Contractor’s expense.

25
 26
 27 11. ARTICLE 13 - MISCELLANEOUS PROVISIONS

28
 29 a. Article 13.4 - Tests and Inspections: Add the following paragraphs:

30
 31 13.4.7 At any time, the Owner or Architect may request satisfactory evidence
 32 that materials, supplies, or equipment conform to all requirements of all
 33 Contract Documents.

34
 35 13.4.8 When so directed by the Owner, the Contractor shall deliver test samples
 36 of any materials or Work under the Contract to a designated independent
 37 testing agency

38
 39 b. Add the following paragraphs:

40
 41 13.6 Code Compliance

1 13.6.1 All building construction work, and mechanical installations and
2 appliances connected therewith shall comply with all State
3 building Rules and Regulations, local ordinances, and such other
4 statutory provision pertaining to this class of work, such rules and
5 regulations and local ordinances to be considered as part of these
6 specifications. All contractors entering into contract agreements
7 with the Owner shall be held entirely responsible for knowledge
8 of all such ordinances and regulations, for compliance with them,
9 and for properly notifying the Architect of any deviation in the
10 drawings and specification s form such rules and regulations.

11
12 13.7 Owner Audit

13
14 13.7.1 The Contractor shall maintain all pertinent accounting records of
15 his costs and those of his Subcontractors on a generally
16 recognized accounting basis, including all supporting vouchers,
17 cancelled checks, purchase orders, time records, and similar data
18 as required to substantiate an expenditure, on the following:

- 19
20 (a) Changes in the Work performed on a “Cost Plus” basis.
21 (b) Suspension of Operations.
22 (c) Termination of the Contract.
23 (d) Wherever Contractor’s costs and expenses are subject to audit
24 by the Contract Documents.
25 (e) Employer records relating to common wage payments.

26
27 13.7.2 Said accounting records shall be subject to audit by the Owner,
28 and said records shall be available to Owner or his authorized
29 representative at mutually convenient times.
30

31
32 12. ARTICLE 14 – TERMINATION OR SUSPENSION OF THE CONTRACT

- 33
34 a. Delete Subparagraph 14.1.1 in its entirety and substitute the following:

35
36 14.1.1 Notwithstanding, the Owner and Contractor acknowledge and
37 agree that this Contract is being executed during a National
38 Emergency with respect to the COVID-19 virus, as declared by
39 President of the United States on March 13, 2020, and a resulting
40 public health emergency throughout the State of Indiana as
41 declared in Executive Order by Indiana Governor Eric J. Holcomb
42 on July 30, 2020; and accordingly the Owner and the Contractor

1 agree that these facts shall not be grounds to invoke any claim for
2 relief under this Article 14, and that any extension or renewal of
3 such declarations regarding COVID-19 shall be reasonably
4 foreseeable by the parties.
5

6
7 **13. ARTICLE 15 – CLAIMS AND DISPUTES**
8

- 9 a. Delete Subparagraph 15.2.1 in its entirety and substitute the following:
10

11 15.2.1 Claims, excluding those arising under Paragraphs 10.3, 10.4, 11.5, shall be
12 referred to the Initial Decision Maker for initial decision. The Architect
13 will serve as the initial Decision Maker, unless otherwise indicated in the
14 Agreement. Except for those Claims excluded by this Section 15.2.1 an
15 initial decision, shall be required as a condition precedent to litigation of
16 any arising prior to the date final payment is due, unless 30 days have
17 passed after the Claim has been referred to the Initial Decision Maker
18 with no decision having been rendered. Unless the Initial Decision Maker
19 and all affected parties agree, the Initial Decision Maker will not decide
20 disputes between the Contractor and persons or entities other than the
21 Owner.
22

- 23 b. Delete Subparagraph 15.2.5 in its entirety and substitute the following
24 subparagraph 15.2.5 and Clause 15.2.5.1:
25

26 15.2.5 The initial Decision Maker will render an initial decision approving or
27 rejecting the Claim or indicating that the Initial Decision Maker is unable
28 to resolve the Claim. This initial decision shall (1) be in writing; (2) state
29 the reasons therefor; and (3) notify the parties and the Architect, if the
30 Architect is not serving as the Initial Decision Maker, of any change in the
31 Contract Sum or Contract Time or both. The initial decision shall be final
32 and binding on the parties but subject to litigation.
33

34 .1 These General Conditions shall be governed by, construed and
35 interpreted in accordance with the laws of the State of Indiana.
36 Any action or judicial proceeding for the enforcement of these
37 General Conditions shall be instituted only in the Courts of Wayne
38 County, State of Indiana or the U.S. District Court in the Southern
39 District of Indiana.
40

- 41 c. Delete Subparagraph 15.2.6.
42

- 1 d. Delete Clause 15.2.6.1
- 2
- 3 e. Delete Subparagraph 15.2.8 in its entirety – Contract will be NO Lien
- 4
- 5 f. Delete Paragraph 15.3 including Subparagraphs 15.3.1, 15.3.2, 15.3.3 and 15.3.4.
- 6
- 7 g. Delete Paragraph 15.4 including all Subparagraphs.
- 8
- 9

10 **13. ARTICLE 16 - AFFIRMATIVE ACTION (NEW ARTICLE)**

- 11
- 12 a. Add the following new paragraphs:
- 13

14 16.1 - Equal Employment Opportunity:

15

16 16.1.1 During the performance of this contract, the Contractor agrees as follows:

17 "The Contractor agrees not to discriminate against any employee

18 or applicant for employment because of race, religion, color, sex,

19 or national origin. The Contractor also agrees that applicants are

20 and will be treated in all matters, including (but not limited to)

21 rates of pay, promotion, and transfer, without regard to their

22 race, religion, color, sex, or national origin."

23

24

25

26 **14. ARTICLE 17 – DOMESTIC STEEL (NEW ARTICLE)**

- 27
- 28 a. Add the following new paragraph:
- 29

30 17.1.1 American manufactured steel products are required except where cost is

31 unreasonable, per IC 5-16-8-1 thru 6-16-8-5.

32

33

34 **END OF SUPPLEMENTARY CONDITIONS**

35

1

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Performance Bond

CONTRACTOR:

(Name, legal status and address)

« »
« »

SURETY:

(Name, legal status and principal place of business)

« »
« »

OWNER:

(Name, legal status and address)

«Centerville-Abington Community Schools»
«115 West South Street
Centerville, IN 47330»

CONSTRUCTION CONTRACT

Date: « »

Amount: \$ «0.00»

Description:

(Name and location)

«Centerville-Abington Transportation Building»
«200 West South Street
Centerville, IN 47330»

BOND

Date:

(Not earlier than Construction Contract Date)

« »

Amount: \$ « »

Modifications to this

Bond:

« »

None

« »

See Section 16

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

Signature:

Name and « »

Title:

SURETY

Company: (Corporate Seal)

Signature:

Name and « »

Title:

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

« »
« »
« »

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

« »
« »
« »
« »
« »
« »

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.

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.



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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 **Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 **Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 **Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

« »

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

Signature:
Name and Title: « »
Address: « »

SURETY

Company: (Corporate Seal)

Signature:
Name and Title: « »
Address: « »



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Payment Bond

CONTRACTOR:

(Name, legal status and address)

« »« »
« »

SURETY:

(Name, legal status and principal place of business)

« »« »
« »

OWNER:

(Name, legal status and address)

«Centerville-Abington Community Schools»«»
«115 West South Street
Centerville, IN 47330»

CONSTRUCTION CONTRACT

Date: « »

Amount: \$ «0.00»

Description:

(Name and location)

«Centerville-Abington Transportation Building»
«200 West South Street
Centerville, IN 47330»

BOND

Date:

(Not earlier than Construction Contract Date)

« »

Amount: \$ « »

Modifications to this Bond: « » None « » See Section 18

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

SURETY

Company: (Corporate Seal)

Signature: _____

Name and Title: « »« »

Title:

Signature: _____

Name and Title: « »« »

Title:

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

« »
« »
« »

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

«»
«»
«»
«»
«»
«»

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.

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

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

« »

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: (Corporate Seal)

Signature:

Name and Title: « »« »

Address: « »

SURETY

Company: (Corporate Seal)

Signature:

Name and Title: « »« »

Address: « »



DIVISION 01

SECTION 011000 – SUMMARY OF WORK**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to Work of this Section.

1.2 SUMMARY**A. Section Includes:**

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work by Owner.
5. Work under separate contracts.
6. Future work.
7. Owner-furnished products.
8. Contractor-furnished, Owner-installed products.
9. Access to site.
10. Coordination with occupants.
11. Work restrictions.
12. Specification and drawings conventions.
13. Miscellaneous provisions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT SUMMARY

A. Project Identification: **Centerville – Abington Transportation Building**

1. Project Location: **Centerville – Abington Transportation Building**
200 West South Street, Centerville, IN 47330

B. Owner: Centerville – Abington School Corporation

1. Owner's Representative: Dr. Mike McCoy, Superintendent

C. Lead Design Consultant:

Architect: Jeremy M. Ogle, RA – Project Manager Moake Park Group, Inc
Evan Bosecker, RA – Project Architect Moake Park Group, Inc.

- 1 D. Consultants: Moake Park Group, Inc. has retained the following design professionals who
- 2 have prepared designated portions of the contract documents:
- 3
- 4 1. Mechanical: Steve Baker, PE SCO Engineering
- 5 2. Electrical: Tom Offerle, PE SCO Engineering
- 6 3. Structural: Ethan Hess, PE Structural Engineering Services
- 7
- 8 E. The Owner maintains tax exempt status and all work shall be tax free. Owner shall provide
- 9 tax exempt documentation to Contractor.
- 10
- 11 F. All permits and fees associated with the construction are the responsibility of the Contractor
- 12 to pay.
- 13
- 14 G. All work performed by the Contractor shall comply with local and state codes/regulations.
- 15
- 16 H. Web-Based Project Software: Project software administered by Contractor will be used for
- 17 purposes of managing communication and documents during the construction phase.
- 18
- 19 1. See Section 011000 “Project Management and Coordination” for requirements for using
- 20 web-based Project software.

- 21
- 22 **1.4 WORK COVERED BY CONTRACT DOCUMENTS**
- 23 A. The work of the Project is defined by the Contract Documents and consists of the following:
- 24
- 25 1. Base Bid: The Project Base Bid consists work contained in the Project Manual.
- 26 2. Alternates: The project alternates are defined within the Construction documents and
- 27 numerated within the Alternates section of the Specifications Manual.
- 28
- 29 B. Type of Contract:
- 30
- 31 1. Project will be constructed under a single prime contract.
- 32
- 33 a. Temperature controls work shall be a separate contract direct to Owner.

- 34
- 35 **1.5 WORK BY OWNER**
- 36 A. General: Cooperate fully with Owner so work may be carried out smoothly, without
- 37 interfering with or delaying work under this Contract or by Owner. Coordinate the Work of
- 38 this Contract with work performed by Owner.
- 39

- 40 **1.6 WORK UNDER SEPARATE CONTRACTS**
- 41 A. General: Cooperate fully with separate contractors so work on those contracts may be
- 42 carried out smoothly, without interfering with or delaying Work under this Contract or other
- 43 contracts. Coordinate the Work of this Contract with work performed under separate
- 44 contracts.

1. Asbestos abatement shall be provided under separate contract. All contractors must coordinate schedules and it is the responsibility of the General Contractor to incorporate the work schedule of the abatement contractors into the master project schedule with allocated time for removal and air testing.
2. Temperature controls work shall be provided under separate contract with Automated Logic Controls. All contractors must coordinate schedules and it is the responsibility of the General Contractor to incorporate the work schedule of the controls contractor into the master project schedule with allocated time for installation of controls following mechanical/electrical equipment with adequate time at the completion of each phase for check-out and verification.

1.7 ACCESS TO SITE

- A. General: Each Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicate by requirements of this section.
- B. Use of Site: Limit use of Project site to Work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 1. Driveways, Walkways and Entrances: Keep driveways, loading areas and entrances serving premises clear and available to Owner, Owner’s employees and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrance by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of material and equipment on site.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.
 1. Protect staff and students from dangerous conditions that might result from construction activities.
- D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.
- E. Each Contractor shall limit the use of the premises for work and storage to allow work by other Contractors and Owner occupancy. Storage of materials for construction activities in existing buildings is permissible only upon approval by the assigned Owner Project Coordinator.
 1. Each Contractor shall assume complete responsibility for the protection and safekeeping of products under his contract, stored at the site.

- 1 2. Each Contractor shall move his stored products that interfere with the operation of the
2 Owner or other Contractors.
3

4 **1.8 COORDINATION WITH OCCUPANTS**

- 5 A. Full Owner Occupancy: Owner will occupy site and existing building(s) during entire
6 construction period. Cooperate with Owner during construction operations to minimize
7 conflicts and facilitate Owner usage. Perform the work so as not to interfere with Owner's
8 day-to-day operations. Maintain existing exits unless otherwise indicated.
9

- 10 1. Maintain access to existing walkways, corridors and other adjacent occupied or used
11 facilities. Do not close or obstruct walkways, corridors or other occupied or used
12 facilities without written permission from Owner and approval of authorities having
13 jurisdiction.
14 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's
15 operations.
16 3. Note that the primary functions of this school facility must continue and can not be
17 interrupted by the construction activities. Special considerations for noise/dust/odor
18 control must be provided to prevent disruption of the academic environment.
19 4. Contractors shall maintain an atmosphere of professionalism while on school grounds.
20
21 a. Use of profane or lewd language by workers will not be tolerated.
22 b. Any worker wearing clothing containing vulgar or inappropriate content will be
23 asked to leave the premises immediately.
24 c. Use of radios/cell phones to play loud music will not be permitted.
25

26 **1.9 WORK RESTRICTIONS**

- 27 A. Work Restrictions, General: Comply with restrictions on construction operations.
28
29 1. Comply with limitations on use of public streets and with other requirements of
30 authorities having jurisdiction.
31
32 B. On-Site Work Hours: Limit work in the existing building to normal business working hours of
33 6:00 a.m. to 10:00 p.m., Monday through Friday, unless otherwise indicated.
34
35 1. School Year Hours: NONE of the phased work occurring during the school year will take
36 place while school is in session. Typical shift work during the school year will be 3:30
37 p.m. to 12:00 a.m. Shiftwork after 12:00 a.m. will be on an as needed basis and
38 coordinated with the Owner.
39 2. Weekend Hours: With Owner's prior approval, weekend hours may be permitted.
40 Notification of need for weekend hours must be submitted no later than the Monday
41 preceding weekend needed for work.
42 3. Hours for Utility Shutdowns: Power shutdowns must occur when the building is not
43 occupied and must be scheduled with the Owner in advance. Extended shutdowns
44 lasting more than 4 hours must occur on a weekend and utilize overnight periods to be
45 scheduled with the Owner.

- 1 C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner
2 or others unless permitted under the following conditions and then only after providing
3 temporary utility services according to the requirements indicated:
4
- 5 1. Notify Owner not less than seven (7) days in advance of proposed utility interruptions.
 - 6 2. Obtain Owner’s written permission before proceeding with utility interruptions.
7
- 8 D. Noise, Vibration and Odors: Coordinate operations that may result in high levels of noise
9 and vibration, odors or other disruption to Owner occupancy with Owner.
10
- 11 1. Notify Owner not less than seven (7) days in advance of proposed disruptive operations.
 - 12 2. Obtain Owner’s written permission before proceeding with disruptive operations.
 - 13 3. Each Contractor and Sub-contractor shall take reasonable measures to limit activities
14 which cause undue noise during 2nd shift work which may affect neighboring residents.
15
- 16 a. Refrain from using telescoping forklifts to dump trash after 9:00 pm.
 - 17 b. Take special care in closing storage containers at the end of the work shift (do not
18 slam container doors).
 - 19 c. Schedule material and equipment deliveries during late afternoon hours only.
20
- 21 E. Restricted Substances: Use of tobacco products, e-cigarettes (vaping) and other controlled
22 substances on Project site is not permitted on Fort Wayne Community Schools property.
23
- 24 F. Employee Identification: Provide identification in the form of clothing or hard hats with
25 company logos for all Contractor and Sub-contractor personnel working on Project site.
26 Require personnel to wear identification at all times.
27

28 **1.10 SPECIFICATION AND DRAWING CONVENTIONS**

- 29 A. Specification Content: The Specifications use certain conventions for the style of language
30 and the intended meaning of certain terms, words and phrases when used in particular
31 situations. These conventions are as follows:
32
- 33 1. Imperative mood and streamlined language are generally used in the Specifications. The
34 words “shall”, “shall be” or “shall comply with”, depending on the context, are implied
35 where a colon (;) is used within a sentence or phrase.
 - 36 2. Specification requirements are to be performed by Contractor unless specifically stated
37 otherwise.
38
- 39 B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the
40 Work of all Sections in the Specifications.
41
- 42 C. Drawing Coordination: Requirements for materials and products identified on Drawings are
43 described in detail in the Specifications. One or more of the following are used on Drawings
44 to identify materials and products:
45

- 1 1. Terminology: materials and products are identified by the typical generic terms used in
- 2 the individual Specifications Sections.
- 3 2. Abbreviations: Materials and products are identified by the typical generic terms as part
- 4 of the U.S. National CAD Standard and scheduled on Drawings.
- 5 3. Keynoting: Materials and products are identified by reference keynotes referencing
- 6 Specification Section numbers found in this Project Manual.
- 7

8 **1.11 MISCELLANEOUS PROVISIONS**

9 A. Asbestos Containing Materials (ACM)

- 10
- 11 1. Any ACM shall be removed by the Owner prior to the start of work schedule by the
- 12 Contractor.
- 13 2. If any other suspect ACM is discovered during the course of work, Contractor shall
- 14 promptly notify the Owner. Owner shall perform testing and, if determined to be
- 15 regulated asbestos containing building materials, Category I or Category II non-friable
- 16 asbestos containing materials, the Owner will be responsible to remove materials in
- 17 compliance with regulatory standards.
- 18 3. Contact FWCS designated Project Manager at (260) 467-2075.
- 19

20 B. Existing Conditions

- 21
- 22 1. Each Contractor is responsible to field verify existing conditions and dimensions. The
- 23 Contractor requiring said verification for the construction or fabrication of his material
- 24 shall be the Contractor responsible for procurement of the field information.
- 25 2. Notify the design architect/engineer promptly if existing field conditions differ from
- 26 those indicated on the bid documents. Do not remove or alter structural components
- 27 without prior written approval.
- 28

29 C. Each Contractor shall be responsible for securing his work and equipment at the close of

30 each work day.

31

32 D. Fire alarms: If the work requires repair, modifications or replacement of fire alarm systems

33 or components, the Contractors shall provide notification to the Owner a minimum of 72

34 hours before a fire alarm is rendered inactive.

- 35
- 36 1. If a fire alarm device is fouled with construction debris/duct/dirt and activates the alarm
- 37 system, the Contractor shall be solely responsible for all costs associated with false fire
- 38 truck dispatch and shall replace the soiled device with a new device matching the device
- 39 that initiated the alarm. Cleaning a triggering device is not acceptable.
- 40

41 **PART 2 - PRODUCTS (Not Applicable)**

42 **PART 3 - EXECUTION (Not Applicable)**

43 **END OF SECTION 011000**

44

45

SECTION 012100 – ALLOWANCES**PART 1 - GENERAL**

- A. Allowances are established to defer selection of actual materials and equipment until additional information is available. Additional requirements will be issued by Proposal Request.
- B. Types of allowances required include the following:
- C. Contingency allowances.
- D. See schedule of allowances at the end of this section.
- E. Division 1 Section 012600 "Contract Modification Procedures" specifies procedures for submitting and handling Proposal Requests and the final Change Order.
- F. Selection and Purchase: At the earliest practical date after award of the Contract, advise the Architect of the date when selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- G. Allowances: Prime Contractor's overhead and profit, including bond markups, shall be included in the Base Bid and not as part of the allowance.
1. The Contractor's combined profit and overhead on all Proposal Requests shall be limited to a maximum of 15%.
 2. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by the final Change Order.
- I. Contingency Allowances: Use contingency allowance only as directed for the Owner's purposes and only by approved Proposal Requests that indicate amounts to be charged to the allowance.

PART 2 - PRODUCT (Not Applicable)**PART 3 - EXECUTION**

- A. Examine products covered by an allowance promptly upon delivery for damage or defects.
- B. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.
- C. Schedule of Allowances:

1 A. Allowance No.1 – Signage: General Contractor shall provide an allowance of \$10,000.00.

2

3

4 **END OF SECTION 012100**

1 **SECTION 012300 - ALTERNATES**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

- 4 A. Drawings and general provisions of the Contract, including General and Supplementary
5 Conditions and other Division 1 Specification Sections, apply to this Section.

6 **1.2 SUMMARY**

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

8 **1.3 DEFINITIONS**

- 9 A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work
10 defined in the Bidding Requirements that may be added to or deducted from the Base Bid
11 amount if Owner decides to accept a corresponding change either in the amount of
12 construction to be completed or in the products, materials, equipment, systems, or installation
13 methods described in the Contract Documents.

- 14 1. The cost or credit for each alternate is the net addition to or deduction from the
15 Contract Sum to incorporate alternate into the Work. No other adjustments are made
16 to the Contract Sum.

17 **1.4 PROCEDURES**

- 18 A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate
19 work of the alternate into Project.

- 20 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar
21 items incidental to or required for a complete installation whether or not indicated as
22 part of alternate.
23

- 24 B. Notification: Immediately following award of the Contract, notify each party involved, in
25 writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or
26 deferred for later consideration. Include a complete description of negotiated modifications
27 to alternates.
28

- 29 C. Execute accepted alternates under the same conditions as other work of the Contract.
30

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

1 **PART 2 - PRODUCTS (Not Used)**

2
3 **PART 3 - EXECUTION**

4 **3.1 SCHEDULE OF ALTERNATES**

5 A. Alternate No. 1: Mezzanine

6 State the cost to provide and install additional mezzanine floor as indicated.

7
8 B. Alternate No. 2: Bus Lift

9 State the cost to provide and install bus lift pit and utilities as shown within documents. Bus
10 lift itself is under separate contract.

11 C. Alternate No. 3: Crane Lift

12 State the cost to provide and install crane lift as shown within documents.

13 D. Alternate No. 4: CMU in maintenance bays

14 State the cost to provide and install CMU in Maintenance bays to a height of 48" a.f.f. in lieu of
15 base bid metal liner panel.

16 E. Alternate No. 5: PEMB Entrance Canopy

17 State the cost to provide and install PEMB entrance canopy as shown in drawings.

18 F. Alternate No. 6: Site Fencing.

19 State the cost to provide and install site fencing and entrance gate as shown within Civil
20 Drawings.

21 G. Alternate No. 7: North Site Entrance.

22 State the cost to provide and install North site entrance as shown and detailed on Civil
23 Drawings.

24
25 H. Alternate No. 8: Main Entrance Gate Operator and Access Control.

26 State the cost to provide and install automatic gate operator and key gob access to main
27 entrance gate and shown in Civil and Electrical drawings.

28
29 I. Alternate No. 9: North Entrance Gate Operator and Access Control.

30 State the cost to provide and install automatic gate operator and key gob access to north
31 entrance gate and shown in Civil and Electrical drawings.

32
33
34
35 **END OF SECTION 012300**

SECTION 012500 - SUBSTITUTION PROCEDURES**PART 1 - GENERAL****1.1 SUMMARY**

- A. This Section specifies administrative and procedural requirements for handling requests for substitutions made before award of the Contract.

1.2 DEFINITIONS

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor before award of the Contract are considered requests for "substitutions." The following are not considered substitutions:
1. Revisions to Contract Documents requested by the Owner or Architect.
 2. Specified options of products and construction methods included in Contract Documents.
 3. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.3 SUBMITTALS

- A. Substitution Request Submittal: Requests for substitution will be considered if received at least 10 days prior to the date for receipt of bids. Requests received after this time will not be considered.

PART 2 - PRODUCTS**2.1 SUBSTITUTIONS**

- A. Contractor's Substitution Request Form: Bidders shall submit substitution requests to the Owner on the "Contractor Substitution Request Form" attached at the end of this Section.
- B. Conditions: The Contractor's substitution request will be received and considered by the Owner's Representative when one or more of the following conditions are satisfied, as determined by the Owner's Representative; otherwise requests will be returned without action except to record noncompliance with these requirements.
1. Extensive revisions to Contract Documents are not required.
 2. Proposed changes are in keeping with the general intent of Contract Documents.
 3. The request is timely, fully documented and properly submitted.

- 1 4. The request is directly related to an "or equal" clause or similar language in the Contract
- 2 Documents.
- 3 5. The specified product or method of construction cannot be provided within the Contract
- 4 Time. The request will not be considered if the product or method cannot be provided as
- 5 a result of failure to pursue the Work promptly or coordinate activities properly.
- 6 6. The specified product or method of construction cannot receive necessary approval by a
- 7 governing authority.
- 8 7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation
- 9 or other considerations of merit, after deducting offsetting responsibilities the Owner may
- 10 be required to bear. Additional responsibilities for the Owner may include additional
- 11 compensation to the Architect for redesign and evaluation services, increased cost of
- 12 other construction by the Owner or separate Contractors, and similar considerations.
- 13 8. The specified product or method of construction cannot be provided in a manner that is
- 14 compatible with other materials, and where the Contractor certifies that the substitution
- 15 will overcome the incompatibility.
- 16 9. The specified product or method of construction cannot be coordinated with other
- 17 materials, and where the Contractor certifies that the proposed substitution can be
- 18 coordinated.
- 19 10. The specified product or method of construction cannot provide a warranty required by
- 20 the Contract Documents and where the Contractor certifies that the proposed
- 21 substitution provides the required warranty.
- 22 11. Where a proposed substitution involves more than one prime Contractor, each Contractor
- 23 shall cooperate with the other Contractors involved to coordinate the Work, provide
- 24 uniformity and consistency, and to assure compatibility of products.
- 25
- 26 C. The Contractor's submittal and the Architect's acceptance of Shop Drawings, Product Data or
- 27 Samples that relate to construction activities not complying with the Contract Documents
- 28 does not constitute an acceptable or valid request for substitution, nor does it constitute
- 29 approval.

30

31 **PART 3 - EXECUTION (Not Applicable)**

32

33 **END OF SECTION 012500**

34

CONTRACTOR'S REQUEST FOR SUBSTITUTION

PROJECT: _____ DATE: _____

SPECIFICATION SECTION: _____ ITEM(S): _____

SPECIFIED MANUFACTURER: _____

SPECIFIED MODEL NO: _____

PROPOSED MANUFACTURER: _____

PROPOSED MODEL NO: _____

REASON/S FOR _____

REQUEST FOR _____

SUBSTITUTION _____

Attach complete technical data, including laboratory tests, if applicable, in duplicate.

A. Will approval affect dimensions shown on Drawings in any way?

No _____ Yes _____

Explain: _____

B. Will the Contractor pay for any changes to the building design, including engineering and detailing costs caused by the approval?

No _____ Yes _____

Explain: _____

C. Will approval affect the work of other trades?

No _____ Yes _____

Explain: _____

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D. Manufacturer's guarantees of the proposed and specified items are:

Same _____ Different _____

Explain: _____

E. Does the proposed item meet all applicable Codes, Ordinances and regulations for this specific application?

No _____ Yes _____

Explain: _____

F. Has proposed item been used locally in similar applications?

No _____ Yes _____

Explain: _____

G. If approved, will the Owner receive a credit for the proposed alternate material?

No _____ Yes _____

Explain: _____

H. Does the proposed alternate material meet the same applicable standards (ASTM, ANSI, UL, FS, etc.) as the specified item?

No _____ Yes _____

Explain: _____

1 **It is the Contractor's responsibility to provide all information necessary to determine the proposed**
2 **alternate material is equal or better than the specified item. This includes any test reports, product**
3 **data, manufacturer's specifications, color samples, product samples or the like as may be required for an**
4 **evaluation.**

5
6 The Architect and Owner will not be required to prove any product is not equal or suitable to the Project.

7
8 SUBMITTED BY: _____

9
10
11
12 Firm: _____

13
14 Address: _____

15
16 _____

17 Phone: _____

18
19 Fax: _____

20
21 Signature: _____ Date: _____

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1 FOR ARCHITECT'S USE:

2

3 Not Acceptable _____

4

5 No Exceptions Taken _____

6

7 Acceptable Substitution _____

8

9

10

11 By: _____ Date: _____

SECTION 012600 – CONTRACT MODIFICATION PROCEDURES**PART 1 GENERAL****1.1 GENERAL**

- A. Minor Changes in the Work: The Owner will issue instructions authorizing minor changes in the Work using the Procure Proposal Request (PR) Tool.
1. Owner-Initiated Proposal Requests: The Owner will issue a description of proposed changes in the Work that require adjustment to the Contract Sum or Time. The description may include supplemental or revised Drawings and Specifications.
 2. Proposal Requests are for information only. Do not consider them an instruction to stop work or to execute the proposed changes.
 3. Within 5 days of receipt, submit an estimate of cost necessary to execute the change for the Owner's review.
 - a. Include an itemized list of products required and unit costs, with the total amount of purchases.
 - b. Indicate the effect the change will have on the Contract Time.
 - c. The cost of the Contractor's overhead and profit combined, to be included on any Proposal Request, shall be based on the following schedule:
 - i. For extra Work performed by the Contractor's own forces, ten percent (10%) of the cost.
 - ii. For extra Work performed by a Subcontractor of Contractor, five percent (5%) of the amount due to the Subcontractor.
 - iii. For each Subcontractor or Sub-subcontractor involved, for extra Work performed by its own forces, ten percent (10%) of the cost.
 - iv. For each Subcontractor, for extra Work performed by its Sub-subcontractors, five percent (5%) of the amount due to the Sub-Subcontractor.
 - v. For Work deleted which would have been completed by Subcontractors of Contractor, five percent (5%) shall be credited to the Owner as the allowance for overhead and profit.
- B. Contractor-Initiated Change Events: When unforeseen conditions require modifications, the Contractor may submit a request for a change to the Owner. This should be done through a formal REQUEST FOR INFORMATION (RFI). If the Owner deems necessary, a Proposal Request will be issued.
1. Describe the proposed change. Indicate reasons for the change and the effect of the change on the Contract Sum and Time.
 2. Include an itemized list of products required and unit costs, with the total amount of purchases. Use Pricing Summary Form along with supplemental backup information as required for the Architect and Owner to conduct a full review of the proposed costs. Pricing Summary must be in detail.

- 1 C. Proposal Request Form: Use Proposal Request (PR).
- 2
- 3 D. Allowance Adjustment: Approved Proposal Requests will be deducted from the Allowances
- 4 provided from the final change order.
- 5
- 6 E. Construction Change Directive: When Owner and Contractors disagree on the terms of a
- 7 Proposal Request, the Owner may issue a Construction Change Directive on AIA Form G714
- 8 instructing the Contractor to proceed with a change.
- 9
- 10 1. The Construction Change Directive contains a description of the change and designates
- 11 the method to be followed to determine changes in the Contract Sum or Time.
- 12
- 13 F. Documentation: Maintain detailed records on a time and material basis of work required by
- 14 the Construction Change Directive.
- 15
- 16 1. After completing the change, submit an itemized account and supporting data to
- 17 substantiate Contract adjustments.
- 18
- 19 G. Change Order Procedures: Upon the Owner's approval of a Proposal Request, the Owner
- 20 will include approved items in a Change Order on AIA Form G701.
- 21

22 **PART 2 - PRODUCTS (Not Applicable)**

23

24 **PART 3 - EXECUTION (Not Applicable)**

25

26

27 **END OF SECTION 012600**

SECTION 012900 - PAYMENT PROCEDURES**PART 1 GENERAL****1.1 GENERAL**

- A. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, Submittal Schedule, and List of Subcontracts.
- B. Schedule of Values: Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.
 1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - a. Contractor's Construction Schedule.
 - b. Application for Payment forms, including Continuation Sheets.
 - c. List of subcontractors
 - d. Schedule of Alternates.
 - e. List of products.
 - f. List of principal suppliers and fabricators.
 - g. Schedule of submittals.
 2. Submit the Schedule of Values within 10 calendar days from execution of a contract with the Owner.
- C. Format and Content: Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Submit a Master Schedule of Values with a listing total value for each individual school Project including accepted Alternates. This Master Schedule of Values shall be submitted with each Application for Payment. Provide a separate Project Schedule of Values for each School Project and accepted Alternates with complete breakdown of the Contractor's contract sum showing the various items of the Work required for each individual Project at the initial submittal requirement. Subsequent submittals with the Application for Payment shall include the Master Schedule of Values supplemented with the Project Schedule of Values for each Project that has started construction until completion for that Project.
 1. Include the following Project identification:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Project number.
 - d. Contractor's name and address.
 - e. Date of submittal.

- 1 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the
2 following for each item listed:
3
4 a. Related Specification Section or Division.
5 b. Description of Work.
6 c. Name of subcontractor.
7 d. Name of manufacturer or fabricator.
8 e. Name of supplier.
9 f. Change Orders (numbers) that affect value.
10 g. Dollar value.
11 h. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total
12 100 percent.
13
14 3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate evaluation of
15 Applications for Payment. Break subcontract amounts down into several line items.
16 Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
17 4. Provide a separate line item for each part of the Work where Applications for Payment
18 may include materials or equipment, purchased or fabricated and stored, but not yet
19 installed.
20
21 a. When invoicing for stored materials, provide the following in addition to
22 Application for Payment:
23
24 i. Provide proof of current certificate of insurance for the warehouse where
25 equipment is being stored.
26 ii. Provide a recordable security interest for stored equipment that is
27 protected by Contractor's creditors.
28 iii. Provide photographic documentation and/or allow for Architect
29 inspection of stored equipment.
30
31 5. Provide separate line items for initial cost of the materials, for each subsequent stage of
32 completion, and for total installed value.
33 6. Show line items for indirect costs and margins on costs only when such items are listed
34 individually in Applications for Payment. Each item in the Schedule of Values and
35 Applications for Payment shall be complete. Include the total cost and proportionate
36 share of general overhead and profit margin for each item.
37
38 a. Temporary facilities and items that are not direct cost of work-in-place may be
39 shown as separate line items or distributed as general overhead expense.
40
41 7. Update and resubmit the Schedule of Values when Change Orders or Construction Change
42 Directives change the Contract Sum.
43 8. Each trade shall be broken down (material and labor separately) for each site.
44

- 1 9. Schedule of Values shall have a line item "Project Closeout" to include but not limited to
2 Punch List, Owner's Manual, Waiver of Lien, As-Built requirements, etc. Said line shall be
3 .5% (1/2%) of contract value and will not be paid out until all Closeout items have been
4 received.
5
- 6 D. Applications for Payment shall be consistent with previous applications and payments as
7 certified by the Architect and paid for by the Owner.
8
- 9 E. Payment-Application Times: Payment dates are indicated in the Agreement. The period
10 covered by each application is the period indicated in the Agreement.
11
- 12 1. Contractor Payment Applications must be approved by the Centerville – Abington School
13 Board for payment. In order to meet the School Board Meeting Agenda cut-off date,
14 Approved Contractor Payment Applications must be received at least 10 business days
15 before the scheduled Board meeting date. Reference Centerville – Abington website for
16 School Board meeting dates.
17
- 18 F. Payment-Application Forms: Use AIA Document G702 and Continuation Sheets G703 as the
19 form for Applications for Payment.
20
- 21 G. Application Preparation: Complete every entry, including notarization and execution by a
22 person authorized to sign on behalf of the Contractor. The Architect will return incomplete
23 applications without action.
24
- 25 1. Entries shall match data on the Schedule of Values and the Contractor's Construction
26 Schedule. Use updated schedules if revisions were made.
27 2. Include amounts of Change Orders and Construction Change Directives issued prior to the
28 last day of the construction period covered by the application.
29
- 30 H. Transmittal: Submit three (3) executed original copies of each Application for Payment with
31 Continuation Sheets to the Architect within 24 hours. One copy shall include waivers of lien
32 and similar attachments.
33
- 34 1. Transmit each copy with a transmittal listing attachments and recording appropriate
35 information related to the application.
36
- 37 I. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of lien from
38 every entity who may file a lien arising out of the Contract and related to the Work covered by
39 the payment.
40
- 41 1. Submit partial waivers on each item for the amount requested, prior to deduction for
42 retainage, on each item.
43 2. When an application shows completion of an item, submit final or full waivers.
44 3. Submit each Application for Payment with Contractor's waiver of lien for the period of
45 construction covered by the application.
46

- 1 a. Submit final Applications for Payment with final waivers from every entity
2 involved with performance of the Work covered by the application who may file a
3 lien.
4
- 5 4. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to
6 the Owner.
7
- 8 J. Initial Application for Payment: Administrative actions and submittals that must precede or
9 coincide with submittal of the first Application for Payment include the following:
10
- 11 1. List of subcontractors.
12 2. List of principal suppliers and fabricators.
13 3. Master Schedule of Values.
14 4. Project Schedule of Values for each school Project, including accepted Alternates.
15 5. Contractor's Construction Schedule (preliminary if not final).
16 6. Submittal Schedule (preliminary if not final).
17 7. List of Contractor's staff assignments.
18 8. Copies of building permits.
19 9. Copies of licenses from governing authorities.
20 10. Certificates of insurance and insurance policies.
21 11. Performance and payment bonds.
22
- 23 K. Application for Payment at Substantial Completion: Following issuance of the Certificate of
24 Substantial Completion, submit an Application for Payment. This application shall reflect
25 Certificates of Partial Substantial Completion issued previously for Owner occupancy of
26 designated portions of the Work.
27
- 28 1. Administrative actions and submittals that shall precede or coincide with this application
29 include the following:
30 a. Occupancy permits.
31 b. Warranties and maintenance agreements.
32 c. Test/adjust/balance records.
33 d. Maintenance instructions.
34 e. Meter readings.
35 f. Changeover information related to Owner's occupancy.
36 g. Final cleaning.
37 h. Application for reduction of retainage and consent of surety.
38
- 39 L. Final Payment Application: Administrative actions and submittals that must precede or
40 coincide with submittal of the final Application for Payment include the following:
41
- 42 1. Completion of Project closeout requirements.
43 2. Completion of items specified for completion after Substantial Completion.
44 3. Transmittal of Project construction records to the Owner.
45 4. Proof that taxes, fees, and similar obligations were paid.
46 5. Removal of temporary facilities and services.

1 6. Change of door locks to Owner's access.
2
3

4 **PART 2 – PRODUCTS (Not Applicable)**
5
6

7 **PART 3 – EXECUTION (Not Applicable)**
8
9

10 **END OF SECTION 012900**
11

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1 **SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section includes administrative provisions for coordinating construction operations on Project
8 including, but not limited to, the following:

- 9 1. General coordination procedures.
10 2. Coordination drawings.
11 3. Requests for Information (RFIs).
12 4. Project meetings.

- 13 B. Each contractor shall participate in coordination requirements. Certain areas of responsibility
14 are assigned to a specific contractor.

- 15 C. Related Requirements:

- 16 1. Section 017300 "Execution" for procedures for coordinating general installation and
17 field-engineering services, including establishment of benchmarks and control points.
18 2. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

19 **1.3 DEFINITIONS**

- 20 A. RFI: Request from Owner, Architect, or Contractor seeking information required by or
21 clarifications of the Contract Documents.

22 **1.4 INFORMATIONAL SUBMITTALS**

- 23 A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each
24 portion of the Work, including those who are to furnish products or equipment fabricated to a
25 special design. Include the following information in tabular form:

- 26 1. Name, address, and telephone number of entity performing subcontract or supplying
27 products.
28 2. Number and title of related Specification Section(s) covered by subcontract.
29 3. Drawing number and detail references, as appropriate, covered by subcontract.
30

1 B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key
2 personnel assignments, including superintendent and other personnel in attendance at Project
3 site. Identify individuals and their duties and responsibilities; list addresses and telephone
4 numbers, including home, office, and cellular telephone numbers and e-mail addresses.
5 Provide names, addresses, and telephone numbers of individuals assigned as alternates in the
6 absence of individuals assigned to Project.

7 1. Post copies of list in project meeting room, in temporary field office, on Project Web
8 site, and by each temporary telephone. Keep list current at all times.

9 1.5 GENERAL COORDINATION PROCEDURES

10 A. Coordination: Coordinate construction operations included in different Sections of the
11 Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate
12 construction operations, included in different Sections that depend on each other for proper
13 installation, connection, and operation.

14 1. Schedule construction operations in sequence required to obtain the best results where
15 installation of one part of the Work depends on installation of other components,
16 before or after its own installation.

17 2. Coordinate installation of different components to ensure maximum performance and
18 accessibility for required maintenance, service, and repair.

19 3. Make adequate provisions to accommodate items scheduled for later installation.

20 B. Prepare memoranda for distribution to each party involved, outlining special procedures
21 required for coordination. Include such items as required notices, reports, and list of
22 attendees at meetings.

23 1. Prepare similar memoranda for Owner and separate contractors if coordination of their
24 Work is required.

25 C. Administrative Procedures: Coordinate scheduling and timing of required administrative
26 procedures with other construction activities and activities of other contractors to avoid
27 conflicts and to ensure orderly progress of the Work. Such administrative activities include,
28 but are not limited to, the following:

29 1. Preparation of Contractor's construction schedule.

30 2. Preparation of the schedule of values.

31 3. Installation and removal of temporary facilities and controls.

32 4. Delivery and processing of submittals.

33 5. Progress meetings.

34 6. Preinstallation conferences.

35 7. Project closeout activities.

36 8. Startup and adjustment of systems.

1 D. Conservation: Coordinate construction activities to ensure that operations are carried out
2 with consideration given to conservation of energy, water, and materials. Coordinate use of
3 temporary utilities to minimize waste.

4 1. Salvage materials and equipment involved in performance of, but not actually
5 incorporated into, the Work. See other Sections for disposition of salvaged materials
6 that are designated as Owner's property.

7 **1.6 COORDINATION DRAWINGS**

8 A. Coordination Drawings, General: Prepare coordination drawings according to requirements in
9 individual Sections, and additionally where installation is not completely shown on Shop
10 Drawings, where limited space availability necessitates coordination, or if coordination is
11 required to facilitate integration of products and materials fabricated or installed by more than
12 one entity.

13 1. Content: Project-specific information, drawn accurately to a scale large enough to
14 indicate and resolve conflicts. Do not base coordination drawings on standard printed
15 data. Include the following information, as applicable:

- 16 a. Use applicable Drawings as a basis for preparation of coordination drawings.
17 Prepare sections, elevations, and details as needed to describe relationship of
18 various systems and components.
- 19 b. Coordinate the addition of trade-specific information to the coordination
20 drawings by multiple contractors in a sequence that best provides for
21 coordination of the information and resolution of conflicts between installed
22 components before submitting for review.
- 23 c. Indicate functional and spatial relationships of components of architectural,
24 structural, civil, mechanical, and electrical systems.
- 25 d. Indicate space requirements for routine maintenance and for anticipated
26 replacement of components during the life of the installation.
- 27 e. Show location and size of access doors required for access to concealed dampers,
28 valves, and other controls.
- 29 f. Indicate required installation sequences.
- 30 g. Indicate dimensions shown on the Drawings. Specifically note dimensions that
31 appear to be in conflict with submitted equipment and minimum clearance
32 requirements. Provide alternate sketches to Architect indicating proposed
33 resolution of such conflicts. Minor dimension changes and difficult installations
34 will not be considered changes to the Contract.

35 **1.7 REQUESTS FOR INFORMATION (RFIs)**

36 A. General: Immediately on discovery of the need for additional information or interpretation of
37 the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

38 1. Architect will return RFIs submitted to Architect by other entities controlled by
39 Contractor with no response.

- 1 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's
2 work or work of subcontractors.

- 3 B. Content of the RFI: Include a detailed, legible description of item needing information or
4 interpretation and the following:
 - 5 1. Project name.
 - 6 2. Project number.
 - 7 3. Date.
 - 8 4. Name of Contractor.
 - 9 5. Name of Architect.
 - 10 6. RFI number, numbered sequentially.
 - 11 7. RFI subject.
 - 12 8. Specification Section number and title and related paragraphs, as appropriate.
 - 13 9. Drawing number and detail references, as appropriate.
 - 14 10. Field dimensions and conditions, as appropriate.
 - 15 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the
16 Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 - 17 12. Contractor's signature.
 - 18 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data,
19 Shop Drawings, coordination drawings, and other information necessary to fully
20 describe items needing interpretation.

- 21 a. Include dimensions, thicknesses, structural grid references, and details of affected
22 materials, assemblies, and attachments on attached sketches.

- 23 C. RFI Forms: AIA Document G716.
 - 24 1. Attachments shall be electronic files in Adobe Acrobat PDF format.

- 25 D. Architect's Action: Architect will review each RFI, determine action required, and respond.
26 Allow seven working days for Architect's response for each RFI. RFIs received by Architect
27 after 1:00 p.m. will be considered as received the following working day.
 - 28 1. The following Contractor-generated RFIs will be returned without action:
 - 29 a. Requests for approval of submittals.
 - 30 b. Requests for approval of substitutions.
 - 31 c. Requests for approval of Contractor's means and methods.
 - 32 d. Requests for coordination information already indicated in the Contract
33 Documents.
 - 34 e. Requests for adjustments in the Contract Time or the Contract Sum.
 - 35 f. Requests for interpretation of Architect's actions on submittals.
 - 36 g. Incomplete RFIs or inaccurately prepared RFIs.

 - 37 2. Architect's action may include a request for additional information, in which case
38 Architect's time for response will date from time of receipt of additional information.

- 1 3. Architect's action on RFIs that may result in a change to the Contract Time or the
2 Contract Sum may be eligible for Contractor to submit Change Proposal according to
3 Section 012600 "Contract Modification Procedures."

- 4 a. If Contractor believes the RFI response warrants change in the Contract Time or
5 the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI
6 response.

- 7 E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number.
8 Submit log weekly. Software log with not less than the following:
 - 9 1. Project name.
 - 10 2. Name and address of Contractor.
 - 11 3. Name and address of Architect.
 - 12 4. RFI number including RFIs that were returned without action or withdrawn.
 - 13 5. RFI description.
 - 14 6. Date the RFI was submitted.
 - 15 7. Date Architect's response was received.

- 16 F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI
17 response to affected parties. Review response and notify Architect within seven days if
18 Contractor disagrees with response.
 - 19 1. Identification of related Minor Change in the Work, Construction Change Directive, and
20 Proposal Request, as appropriate.
 - 21 2. Identification of related Field Order, Work Change Directive, and Proposal Request, as
22 appropriate.

23 **1.8 PROJECT MEETINGS**

- 24 A. General: Schedule and conduct meetings and conferences at Project site unless otherwise
25 indicated.
 - 26 1. Attendees: Inform participants and others involved, and individuals whose presence is
27 required, of date and time of each meeting. Notify Owner and Architect of scheduled
28 meeting dates and times.
 - 29 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 30 3. Minutes: Entity responsible for conducting meeting will record significant discussions
31 and agreements achieved. Distribute the meeting minutes to everyone concerned,
32 including Owner and Architect, within three days of the meeting.

- 33 B. Preconstruction Conference: Architect will schedule and conduct a preconstruction
34 conference before starting construction, at a time convenient to Owner and Architect, but no
35 later than 15 days after execution of the Agreement.
 - 36 1. Conduct the conference to review responsibilities and personnel assignments.

- 1 2. Attendees: Authorized representatives of Owner, Architect, and their consultants;
2 Contractor and its superintendent; major subcontractors; suppliers; and other
3 concerned parties shall attend the conference. Participants at the conference shall be
4 familiar with Project and authorized to conclude matters relating to the Work.
5 3. Agenda: Discuss items of significance that could affect progress, including the following:
- 6 a. Tentative construction schedule.
7 b. Phasing.
8 c. Critical work sequencing and long-lead items.
9 d. Designation of key personnel and their duties.
10 e. Lines of communications.
11 f. Procedures for processing field decisions and Change Orders.
12 g. Procedures for RFIs.
13 h. Procedures for testing and inspecting.
14 i. Procedures for processing Applications for Payment.
15 j. Submittal procedures.
16 k. Preparation of record documents.
17 l. Use of the premises and existing building.
18 m. Work restrictions.
19 n. Working hours.
20 o. Owner's occupancy requirements.
21 p. Responsibility for temporary facilities and controls.
22 q. Procedures for moisture and mold control.
23 r. Procedures for disruptions and shutdowns.
24 s. Construction waste management and recycling.
25 t. Parking availability.
26 u. Office, work, and storage areas.
27 v. Equipment deliveries and priorities.
28 w. First aid.
29 x. Security.
30 y. Progress cleaning.
- 31 4. Minutes: Entity responsible for conducting meeting will record and distribute meeting
32 minutes.
- 33 C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each
34 construction activity that requires coordination with other construction.
- 35 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or
36 affected by the installation and its coordination or integration with other materials and
37 installations that have preceded or will follow, shall attend the meeting. Advise
38 Architect of scheduled meeting dates.
- 39 2. Agenda: Review progress of other construction activities and preparations for the
40 particular activity under consideration, including requirements for the following:
- 41 a. Contract Documents.

- 1 b. Options.
 - 2 c. Related RFIs.
 - 3 d. Related Change Orders.
 - 4 e. Purchases.
 - 5 f. Deliveries.
 - 6 g. Submittals.
 - 7 h. Possible conflicts.
 - 8 i. Time schedules.
 - 9 j. Manufacturer's written instructions.
 - 10 k. Warranty requirements.
 - 11 l. Acceptability of substrates.
 - 12 m. Temporary facilities and controls.
 - 13 n. Space and access limitations.
 - 14 o. Regulations of authorities having jurisdiction.
 - 15 p. Testing and inspecting requirements.
 - 16 q. Installation procedures.
 - 17 r. Coordination with other work.
 - 18 s. Required performance results.
 - 19 t. Protection of adjacent work.
 - 20 u. Protection of construction and personnel.
- 21 3. Record significant conference discussions, agreements, and disagreements, including
22 required corrective measures and actions.
 - 23 4. Reporting: Distribute minutes of the meeting to each party present and to other parties
24 requiring information.
 - 25 5. Do not proceed with installation if the conference cannot be successfully concluded.
26 Initiate whatever actions are necessary to resolve impediments to performance of the
27 Work and reconvene the conference at earliest feasible date.
- 28 D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time
29 convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of
30 Substantial Completion.
- 31 1. Conduct the conference to review requirements and responsibilities related to Project
32 closeout.
 - 33 2. Attendees: Authorized representatives of Owner, Architect, and their consultants;
34 Contractor and its superintendent; major subcontractors; suppliers; and other
35 concerned parties shall attend the meeting. Participants at the meeting shall be familiar
36 with Project and authorized to conclude matters relating to the Work.
 - 37 3. Agenda: Discuss items of significance that could affect or delay Project closeout,
38 including the following:
 - 39 a. Preparation of record documents.
 - 40 b. Procedures required prior to inspection for Substantial Completion and for final
41 inspection for acceptance.
 - 42 c. Submittal of written warranties.

- 1 d. Requirements for preparing operations and maintenance data.
- 2 e. Requirements for delivery of material samples, attic stock, and spare parts.
- 3 f. Requirements for demonstration and training.
- 4 g. Preparation of Contractor's punch list.
- 5 h. Procedures for processing Applications for Payment at Substantial Completion
- 6 and for final payment.
- 7 i. Submittal procedures.
- 8 j. Owner's partial occupancy requirements.
- 9 k. Installation of Owner's furniture, fixtures, and equipment.
- 10 l. Responsibility for removing temporary facilities and controls.

- 11 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

- 12 E. Progress Meetings: Conduct progress meetings at biweekly intervals.

- 13 1. Coordinate dates of meetings with preparation of payment requests.
- 14 2. Attendees: In addition to representatives of Owner and Architect, each contractor,
- 15 subcontractor, supplier, and other entity concerned with current progress or involved in
- 16 planning, coordination, or performance of future activities shall be represented at these
- 17 meetings. All participants at the meeting shall be familiar with Project and authorized
- 18 to conclude matters relating to the Work.
- 19 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review
- 20 other items of significance that could affect progress. Include topics for discussion as
- 21 appropriate to status of Project.

- 22 a. Contractor's Construction Schedule: Review progress since the last meeting.
- 23 Determine whether each activity is on time, ahead of schedule, or behind
- 24 schedule, in relation to Contractor's construction schedule. Determine how
- 25 construction behind schedule will be expedited; secure commitments from
- 26 parties involved to do so. Discuss whether schedule revisions are required to
- 27 ensure that current and subsequent activities will be completed within the
- 28 Contract Time.

- 29 1) Review schedule for next period.

- 30 b. Review present and future needs of each entity present, including the following:

- 31 1) Interface requirements.
- 32 2) Sequence of operations.
- 33 3) Status of submittals.
- 34 4) Deliveries.
- 35 5) Off-site fabrication.
- 36 6) Access.
- 37 7) Site utilization.
- 38 8) Temporary facilities and controls.
- 39 9) Progress cleaning.

- 10) Quality and work standards.
 - 11) Status of correction of deficient items.
 - 12) Field observations.
 - 13) Status of RFIs.
 - 14) Status of proposal requests.
 - 15) Pending changes.
 - 16) Status of Change Orders.
 - 17) Pending claims and disputes.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
- a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 ELECTRONIC DOCUMENT SUBMITTAL SERVICE

- A. All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.
1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
 2. Contractor and Architect are required to use this service.
 3. It is Contractor's responsibility to submit documents in allowable format.
 4. Subcontractors, suppliers, and Architect's consultants are to be permitted to use the service at no extra charge.

- 1 5. Users of the service need an email address, internet access, and PDF review software
- 2 that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat,
- 3 www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software
- 4 capability is provided by the service provider.
- 5 6. Paper document transmittals will not be reviewed; emailed electronic documents will
- 6 not be reviewed.
- 7 7. All other specified submittal and document transmission procedures apply, except that
- 8 electronic document requirements do not apply to samples or color selection charts.
- 9
- 10 B. Cost: The cost of the service is to be paid by Contractor; include the cost of the service in the
- 11 Contract Sum.
- 12 C. Submittal Service: The selected service is:
- 13
- 14 1. Contractor's preferred service vendor.
- 15

16 **END OF SECTION 013100**

1 **SECTION 013200 – CONSTRUCTION PROGRESS DOCUMENTATION**

2
3
4 **PART 1 GENERAL**

5
6 **1.1 RELATED DOCUMENTS**

- 7
8 A. Drawings and General Provisions of the Contract, including General and Supplementary
9 Conditions and other Division 1 Specification Sections, apply to this Section.

10
11 **1.2 SUMMARY**

- 12
13 A. This Section specifies administrative and procedural requirements for documenting the
14 progress of construction during performance of the Work, including the following:

- 15
16 1. Contractor's Construction Schedule.

17
18 **1.3 DEFINITIONS**

- 19
20 A. Activity: A discrete part of the project that can be identified for planning, scheduling,
21 monitoring and controlling the construction Project. Activities included in a construction
22 schedule consume time and resources.

- 23
24 1. Critical Activity: An activity on the critical path that must start and finish on the planned
25 early start and finish times.
26 2. Predecessor Activity: An activity that precedes another activity in the network.
27 3. Successor Activity: An activity that follows another activity in the network.

- 28
29 B. CPM: Critical path method, which is a method of planning and scheduling a construction
30 project where activities are arranged based on activity relationships. Network calculations
31 determine when activities can be performed and the critical path of the Project.

- 32
33 C. Critical Path: The longest connected chain of interdependent activities through the network
34 schedule that establishes the minimum overall Project duration and contains no float.

- 35
36 D. Event: The starting or ending point of an activity.

- 37
38 E. Float: The measure of leeway in starting and completing an activity.

- 39
40 1. Float time is not of the exclusive use or benefit of either Owner or Contractor, but is a
41 jointly owned, expiring Project resource available to both parties as needed to meet
42 schedule milestones and Contract completion date.
43 2. Free float is the amount of time an activity can be delayed without adversely affecting the
44 early start of the successor activity.
45 3. Total float is the measure of leeway in starting or completing an activity without adversely
46 affecting the planned Project completion date.

1 **1.4 INFORMATIONAL SUBMITTALS**

2
3 A. Format for Submittals: Submit required submittals in the following format:

4
5 1. PDF file.

6
7 B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule
8 of entire construction period.

9
10 **1.5 QUALITY ASSURANCE**

11
12 A. Prescheduling Conference: Conduct a conference (may occur as part of Pre-Construction
13 Meeting) to comply with requirements in Section 013100 "Project Management and
14 Coordination." Review methods and procedures related to the Contractor's Construction
15 Schedule, including, but not limited to, the following:

- 16
17 1. Review software limitations and content and format for reporting.
18 2. Verify availability of qualified personnel needed to develop and update schedule.
19 3. Discuss constraints, including phasing, work stages, area separations, interim milestones
20 and partial Owner occupancy.
21 4. Review delivery dates of Owner-furnished products.
22 5. Review schedule for work of Owner's separate contracts.
23 6. Review submittal requirements and procedures.
24 7. Review time required for review of submittals and resubmittals.
25 8. Review requirements for tests and inspections by independent testing and inspecting
26 agencies.
27 9. Review time required for Project closeout and Owner startup procedures.
28 10. Review and finalize list of construction activities to be included in schedule.
29 11. Review procedures for updating schedule.

30
31 **1.6 COORDINATION**

32
33 A. Coordinate Contractor's Construction Schedule with the schedule of values, list of
34 subcontracts, submittal schedule, progress reports, payment requests and other required
35 schedules and reports.

- 36
37 1. Secure time commitments for performing critical elements of the Work from entities
38 involved.
39 2. Coordinate each construction activity in the network with other activities and schedule
40 them in proper sequence.

41
42 **1.7 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL**

43
44 A. Computer Scheduling Software: Prepare schedules using current version of a program that has
45 been developed specifically to manage construction schedules.

- 1 B. Time Frame: Extend schedule from date established for the Notice to Proceed to the date of
2 Final Completion.
3
- 4 C. Activities: Treat each floor or separate area as a separate numbered activity for each main
5 element of the Work. Comply with the following:
6
- 7 1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically
8 allowed by Architect.
 - 9 2. Procurement Activities: Include procurement activities for long lead items and major
10 items, requiring a cycle of more than 60 days, as separate activities in schedule.
11 Procurement cycle activities include, but are not limited to, submittals, approvals,
12 purchasing, fabrication and delivery.
 - 13 3. Submittal Review Time: Include review and resubmittal times indicated in Section 013300
14 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's
15 Construction Schedule with submittal schedule.
 - 16 4. Startup and Testing Time: Include no fewer than 5 days for startup and testing.
 - 17 5. Substantial Completion: Indicate completion in advance of date established for Substantial
18 Completion, and allow time for Architect's administrative procedures necessary for
19 certification of Substantial Completion.
 - 20 6. Punch List and Final Completion: Include not more than 30 days for completion of punch
21 list items and final completion.
22
- 23 D. Constraints: Include constraints and work restrictions indicated in the Contract Documents
24 and as follows in schedule, and show how the sequence of Work is affected.
25
- 26 1. Phasing: Arrange list of activities on schedule by phase.
 - 27 2. Work by Owner: Include a separate activity for each portion of the Work performed by
28 Owner.
 - 29 3. Owner-Furnished Products: Include a separate activity for each product.
30
- 31 E. Milestones: Include milestones indicated in the Contract Documents in schedule, including,
32 but not limited to, the Notice to Proceed, Substantial Completion, and final completion.
33
- 34 F. Upcoming Work Summary: Prior to each progress meeting, prepare summary report indicating
35 activities schedule to occur or commence prior to submittal of next schedule update.
36 Summarize the following issues:
37
- 38 1. Unresolved issues.
 - 39 2. Unanswered Requests for Information.
 - 40 3. Rejected or unreturned submittals.
 - 41 4. Notations on returned submittals.
 - 42 5. Pending modifications affecting the Work and the Contract Time.
43
- 44 G. Contractor's Construction Schedule Updating: At bi-weekly intervals, update schedule to
45 reflect actual construction progress and activities. Issue schedule 2 days before each regularly
46 scheduled progress meeting.

- 1 1. Revise schedule immediately after each meeting or other activity where revisions have
2 been recognized or made. Issue updated schedule concurrently with the report of each
3 such meeting.
4

5

6 **PART 2 PRODUCTS (Not Applicable)**

7
8

9 **PART 3 EXECUTION (Not Applicable)**

10
11

12 **END OF SECTION 013200**

1 **SECTION 013300 – SUBMITTAL PROCEDURES**

2
3
4 **PART 1 GENERAL**

5
6 **1.1 SUMMARY**

7
8 A. This Section specifies administrative and procedural requirements for submittals required for
9 performance of the Work, including;

- 10
11 1. Schedule of Submittals.
12 2. Contractor's construction schedule.
13 3. Shop Drawings.
14 4. Product Data, including SDS Data Sheets.
15 5. Samples.

16
17 B. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents
18 for requirements for administrative submittals.

19
20 **1.2 SUBMITTAL PROCESSING**

21
22 A. Schedule of Submittals: All Contractors are required to submit a complete Schedule of
23 Submittals. The Schedule of Submittals shall be submitted to the Owner within fourteen (14)
24 calendar days from the date the Contract between the Owner and Contractor has been
25 executed.

26
27 B. Submittal Processing: All shop drawings, product data, and samples, other than those
28 mentioned elsewhere, are to be submitted to the Owner within thirty (30) calendar days from
29 the date of the Contract between the Owner and Contractor has been executed.

30
31 C. Submittal Requirements Prior to the Execution of the Contract: The Contractor has ten (10)
32 calendar days after the Owner's governing board's approval to execute the contract between
33 Owner and Contractor. This date shall be fixed in a Notice to Proceed. Contractor shall submit
34 the following items prior to the execution of a contract:

- 35 1. The Master Schedule of Values with a listing total value for each individual school Project
36 including accepted Alternates.
37 2. The Project Schedule of Values for each School Project and accepted Alternate with
38 complete breakdown of the Contractor's contract sum showing the various items of the
39 Work required for those Projects.
40 3. All required bonds.
41 4. All required insurance certificates.
42 5. Subcontractor's list with contact information.
43 6. Major manufacturers and suppliers representing 5 percent or more of the contract sum.

1.3 CONTRACTOR'S CONSTRUCTION SCHEDULE

- 1
- 2
- 3 A. Construction Schedule: Provide a CPM type flow chart showing all construction activity.
- 4 Provide a continuous vertical line to identify the first working day of each week. Use the same
- 5 breakdown of units of the Work as indicated in the "Schedule of Values".
- 6
- 7 1. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other
- 8 reproducible media, of sufficient width to show data for the entire construction period.
- 9 2. Coordinate the Contractor's construction schedule with the schedule of values, list of
- 10 subcontracts, submittal schedule, progress reports, payment requests and other
- 11 schedules.
- 12 3. Submit the initial Project Construction Schedule at the Preconstruction Meeting between
- 13 the Contractor, Subcontractors, Owner and the Architect. The Preconstruction Meeting is
- 14 to be held within 10 calendar days from the date of the Contract between the Owner and
- 15 Contractor has been executed.
- 16 4. The Contractor shall provide an updated Project Construction Schedule at every progress
- 17 meeting.
- 18
- 19 B. Schedule Revisions: If the Project Construction Schedule is not being met, it shall be the right
- 20 of the Owner to require updated revised copies of the Project Construction Schedule as a
- 21 prerequisite to submission and review of the monthly payment applications. If requested by
- 22 Owner or Architect, the contractor shall provide written explanation of why "behind schedule"
- 23 items are behind schedule.
- 24

1.4 SUBMITTAL PROCEDURES

- 25
- 26 A. Coordination: Coordinate each submittal with fabrication, purchasing, testing, delivery, other
- 27 submittals and related activities that requires sequential activity.
- 28 B. Processing: Allow sufficient review time so that installation will not be delayed as a result of
- 29 the time required to process submittals, including time for resubmittal.
- 30
- 31 1. Allow 10 calendar days from date of receipt of submittal by Owner for initial review.
- 32 2. No extension of Contract Time will be authorized because of failure to transmit submittals
- 33 to the Owner sufficiently in advance of the Work to permit processing.
- 34 3. No reproduction of Contract Documents will be allowed or acceptable as submittals.
- 35
- 36 C. Submittal Preparation: Place a permanent label or title block on each submittal for
- 37 identification. Indicate the name of the entity that prepared each submittal on the label or
- 38 title block.
- 39
- 40 D. Do not use Shop Drawings without an appropriate final stamp indicating action taken in
- 41 connection with construction.
- 42
- 43 E. Do not permit use of unmarked copies of submittals in connection with construction.
- 44

- 1 F. Performance of work prior to Owner's review of product data is done at the sole risk of the
2 Contractor. The Contractor shall be solely responsible for corrections, repairs, and/or
3 replacement of work that is incorrectly performed prior to Architect's approval.
4
- 5 G. Contractor responsible to distribute copies of reviewed submittals as appropriate and in a
6 timely manner. Instruct parties to promptly report any inability to comply with requirements.
7
- 8 H. All submittals shall be prepared as electronic files in the form of Adobe PDF, MS Word, or MS
9 Excel formats.
10
- 11 I. All submittals shall be transmitted to the Architect electronically utilizing a Web-Based Project
12 Management System.
13

14 **1.5 SHOP DRAWINGS**

15

- 16 A. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules,
17 patterns, templates and similar drawings. The Contractor shall review Shop Drawings prior to
18 submittal to the Owner. Include the following information:
19
- 20 1. Dimensions.
 - 21 2. Identification of products and materials included.
 - 22 3. Compliance with specified standards.
 - 23 4. Notation of coordination requirements.
 - 24 5. Notation of dimensions established by field measurement.
 - 25 6. Submittals: Submit one electronic file in the form of Adobe PDF, MS Word, or MS Excel
26 formats.
 - 27 7. All comments, corrections, or other information on submittals generated by Contractor's
28 review shall be marked in green so as to clearly identify the initiator of the marks.
 - 29 8. All shop drawings shall be transmitted to the Architect electronically utilizing Procure
30 Web-Based Project Management System.
31
- 32 B. Contractor's Review: Apply Contractor's stamp or notation; certifying that review, approval,
33 verification of Products required, field dimensions, adjacent construction work, and
34 coordination of information is accordance with the requirements of the Work and Contract
35 Documents. Submittals which are received from sources other than through the Contractor
36 will be returned without review or action taken.
37

38 **1.6 PRODUCT DATA**

39

- 40 A. Product Data: Collect Product Data into a single submittal for each element of construction or
41 system. Product Data includes printed information such as manufacturer's installation
42 instructions, MSDS Data Sheets, catalog cuts, standard color charts, roughing in diagrams and
43 templates, standard wiring diagrams and performance curves. Where Product Data must be
44 specially prepared because standard printed data is not suitable for use, submit as "Shop
45 Drawings." Include the following information:
46

- 1 1. Mark each copy to show applicable choices and options. Where printed Product Data
2 includes information on several products, some of which are not required, mark copies to
3 indicate the applicable information. Include the following information:
4
5 a. Manufacturer's printed recommendations.
6 b. Compliance with recognized trade association standards.
7 c. Compliance with recognized testing agency standards.
8 d. Application of testing agency labels and seals.
9 e. Notation of dimensions verified by field measurement.
10 f. Notation of coordination requirements.
11 g. Submittals: Submit one electronic copy of each required submittal; contractor
12 responsible for copies where required for maintenance and operations manuals.
13 Contractor is responsible to transmit/make printed copies as required for their
14 vendors and subcontractors.
15
16 i. Unless noncompliance with Contract Document provisions is observed,
17 the submittal may serve as the final submittal.
18
19 h. All comments, corrections, or other information on submittals generated by
20 Contractor's review shall be marked in green so as to clearly identify the initiator
21 of the marks.
22
23 B. Contractor's Review: Apply Contractor's stamp or notation; certifying that review, approval,
24 verification of Products required, field dimensions, adjacent construction work, and
25 coordination of information is accordance with the requirements of the Work and Contract
26 Documents. Submittals that are received from sources other than through the Contractor will
27 be returned without review or action taken.
28

29 **1.7 SAMPLES**

- 30
31 A. Samples: Submit fully fabricated Samples cured and finished as specified and physically
32 identical with the material or product proposed. Samples include partial sections of
33 manufactured or fabricated components, cuts or containers of materials, color range sets, and
34 swatches showing color, texture and pattern.
35
36 1. Mount, display, or package Samples in the manner to facilitate review of qualities
37 indicated. Include the following:
38
39 a. Generic description of the Sample.
40 b. Sample source.
41 c. Product name or name of manufacturer.
42 d. Compliance with recognized standards.
43 e. Availability and delivery time.
44
45

- 1 2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these
- 2 characteristics with other elements, and for a comparison of these characteristics
- 3 between the final submittal and the actual component as delivered and installed.
- 4
- 5 a. Where variations in color, pattern, texture or other characteristics are inherent in
- 6 the material or product represented, submit multiple units (not less than 3), that
- 7 show approximate limits of the variations.
- 8
- 9 3. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication
- 10 techniques, connections, operation and similar characteristics, submit 1 electronic marked
- 11 with the action taken.
- 12 4. Maintain sets of Samples, as returned, at the Project site, for quality comparisons
- 13 throughout the course of construction.

14 15 **1.8 ARCHITECT'S ACTION**

- 16 A. Except for submittals for record, information or similar purposes, where action and return is
- 17 required or requested, the Architect will review each submittal, notate to indicate action
- 18 taken, and return promptly.
- 19
- 20 1. The Architect will review shop drawings only for conformance with the design concept of
- 21 the Project and with the information given in the Contract Documents. The Architect's
- 22 review of a separate item shall not indicate review of an assembly in which the item
- 23 functions.
- 24 2. The Architect's review of shop drawings shall not relieve the Contractor of responsibility
- 25 for any deviation from the requirements or the Contracts documents unless the
- 26 Contractor has informed the Architect in writing of such deviation at the time of
- 27 submission and the Architect has given written approval to the specific deviation, nor shall
- 28 the Architect's action relieve the Contractor from responsibility for errors or omissions in
- 29 the shop drawings.
- 30 3. Notations and remarks added to shop drawings by the Architect are to insure compliance
- 31 to Drawings and Specifications and do not imply a requested or approved change to
- 32 contract cost. Should the Architect's notations and remarks result in a change in contract
- 33 cost it is the responsibility of the Contractor to advise the Architect accordingly prior to
- 34 performance of the work in question. If work that has been changed by the Architect's
- 35 review comments is performed without notifying the Architect and Owner of additional
- 36 costs, any additional cost for the work shall be the sole responsibility of the Contractor.
- 37 4. Should deviations, discrepancies, or conflicts between shop and the Contract Documents
- 38 be discovered, either prior to or after review, Contract Documents shall control and be
- 39 followed.
- 40
- 41 B. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action
- 42 stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
- 43
- 44

- 1 1. Final Unrestricted Release: Work may proceed, provided it complies with contract
2 documents, when submittal is returned with the following:
3
 - 4 a. Marking: "Reviewed"
 - 5
- 6 2. Final-But Restricted Release: Work may proceed, provided it complies with notations and
7 corrections on submittal and with contract documents, when submittal is returned with
8 the following:
9
 - 10 a. Marking: "Reviewed as Noted"
 - 11
- 12 3. Returned for Resubmittal: Do not proceed with work. Revise submittal in accordance
13 with notations thereon, and resubmit without delay to obtain a different action marking.
14 Do not allow submittals with the following marking (or unmarked submittals where a
15 marking is required) to be used in connection with performance of the work:
16
 - 17 a. Marking: "Revise and Resubmit"
 - 18 b. Marking: "Rejected"
 - 19
- 20 4. Other Action: Where a submittal is primarily for information or record purposes, special
21 processing or other activity, the submittal will be returned marked "For Record Only".
- 22 5. Corrected Copy: Work may proceed but resubmittal of corrected submittals is required.
23 Resubmit corrected copy incorporating all review comments throughout the entire
24 submittal.

25
26 **PART 2 PRODUCTS (Not Applicable).**

27
28
29 **PART 3 EXECUTION (Not Applicable).**

30
31
32 **END OF SECTION 013300**

SECTION 014500 – QUALITY CONTROL**PART 1 GENERAL****1.1 SUMMARY**

- A. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by the Architect.
- B. Contractor Responsibilities: Unless they are the responsibility of another entity, Contractor shall provide inspections and tests specified elsewhere and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.
1. Where inspections and tests are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform these services. Costs for these services are included in the Contract Sum.
 2. Where inspections and tests are the Owner's responsibility, the Owner will employ and pay a qualified independent testing agency to perform those services.
 - a. Where the Owner engages an agency to test or inspect part of the Work and the Contractor is required to engage an entity to test or inspect the same or related element, the Contractor shall not employ the entity engaged by the Owner, unless the Owner agrees in writing.
- C. Retesting: The Contractor is responsible for retesting where results of inspections and tests prove unsatisfactory and indicate noncompliance with requirements.
1. The cost of retesting is the Contractor's responsibility where tests performed indicated noncompliance with requirements.
- D. Auxiliary Services: Cooperate with agencies performing inspections and tests. Provide auxiliary services as requested. Notify the agency in advance of operations to permit assignment of personnel. Auxiliary services include the following:
1. Providing access to the Work.
 2. Furnishing incidental labor and facilities to assist inspections and tests.
 3. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
 4. Providing facilities for storage and curing of test samples.
 5. Delivering samples to testing laboratories.
 6. Providing preliminary design mix proposed for use for materials mixes that require control by the testing agency.
 7. Providing security and protection of samples and test equipment.

- 1 E. Duties of the Testing Agency: The testing agency shall cooperate with the Architect and the
2 Contractor in performing its duties. The agency shall provide qualified personnel to perform
3 inspections and tests.
4
- 5 1. The agency shall notify the Architect and the Contractor of irregularities or deficiencies
6 observed in the Work during performance of its services.
 - 7 2. The agency shall not release, revoke, alter, or enlarge requirements or approve or accept
8 any portion of the Work.
 - 9 3. The agency shall not perform duties of the Contractor.
- 10
- 11 F. Coordination: Coordinate activities to accommodate services with a minimum of delay. Avoid
12 removing and replacing construction to accommodate inspections and tests.
13
- 14 1. The Contractor is responsible for scheduling inspections, tests, taking samples, and similar
15 activities.
16
- 17 G. Submittals: The testing agency shall submit a certified written report of each inspection and
18 test to the Owner, Architect, and Contractor. If the Contractor is responsible for the service,
19 submit a certified written report of each inspection or test through the Contractor.
20
- 21 1. Submit additional copies of each report to the governing authority, when the authority so
22 directs.
 - 23 2. Report Data: Reports of each inspection, test, or similar service include, but are not
24 limited to, the following:
25
- 26 a. Date of issue.
 - 27 b. Project title and number.
 - 28 c. Name, address, and telephone number of testing agency.
 - 29 d. Dates and locations of samples and tests or inspections.
 - 30 e. Names of individuals making the inspection or test.
 - 31 f. Designation of the Work and test method.
 - 32 g. Identification of product and Specification Section.
 - 33 h. Complete inspection or test data.
 - 34 i. Test results and an interpretation of test results.
 - 35 j. Ambient conditions at the time of sample taking and testing.
 - 36 k. Comments or professional opinion on whether inspected or tested Work complies
37 with requirements.
 - 38 l. Name and signature of laboratory inspector.
 - 39 m. Recommendations on retesting.
40
- 41 H. Qualifications for Service Agencies: Engage inspection and testing service agencies that are
42 prequalified as complying with the American Council of Independent Laboratories'
43 "Recommended Requirements for Independent Laboratory Qualification" and that specialize
44 in the types of inspections and tests to be performed.
45
46

- 1 1. Each agency shall be authorized by authorities having jurisdiction to operate in the state
- 2 where the Project is located.

3
4

5 **PART 2 – PRODUCTS (Not Applicable)**

6
7

8 **PART 3 - EXECUTION**

9

- 10 A. Repair and Protection: Upon completion of inspection, testing, and sample taking, repair
- 11 damaged construction. Restore substrates and finishes.

12

- 13 B. Protect construction exposed by or for quality-control service activities, and protect repaired
- 14 construction.

15
16

17 **END OF SECTION 014500**

18

1

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1 **SECTION 015000 – TEMPORARY FACILITIES AND CONTROLS**

2
3
4 **PART 1 - GENERAL**

5
6 **1.1 SUMMARY**

- 7
8 A. This Section specifies requirements for temporary services and facilities, in addition to and not
9 a limitation of that required by General Conditions.
10
11 B. The Contractor shall confine their activities to the areas directly related to the scope of work
12 required at each specific school site.
13
14 C. The Contractor will arrange with coordinate with the Owner for access to each site for
15 construction storage, parking and staging areas. The Contractor is responsible to repair any
16 damage to the site caused by work on this Project.
17
18 D. All contractors are responsible for the proper receiving, handling, transporting, installing and
19 maintaining any construction material, product, equipment or system they have contracted or
20 subcontracted for.
21

22 **1.2 PROJECT CONDITIONS**

- 23
24 A. Temporary Utilities: Existing electrical and water services may be used for construction
25 purposes. The Owner will pay for these services.
26
27 B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance.
28 Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not
29 overload facilities, or permit them to interfere with progress. Do not allow hazardous
30 dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.
31
32

33 **PART 2 - PRODUCTS**

34
35 **2.1 MATERIALS AND EQUIPMENT**

- 36
37 A. General: Provide new equipment and materials; if acceptable to the Architect, undamaged,
38 previously used equipment and materials in serviceable condition may be used. Provide
39 equipment suitable for use intended.
40
41
42 B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of
43 construction personnel. Comply with requirements of authorities having jurisdiction for type,
44 number, location, operation, and maintenance of fixtures and facilities.
45
46

- 1 C. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long,
2 with pressure rating greater than the maximum pressure of the water distribution system;
3 provide adjustable shut-off nozzles at hose discharge.
4
- 5 D. Electrical Outlets: If existing outlets are not readily available or suitable for use, provide
6 properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into
7 higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit
8 interrupters, reset button and pilot light, for connection of power tools and equipment.
9
- 10 E. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where
11 exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths
12 of electric cords, if single lengths will not reach areas where construction activities are in
13 progress.
14
- 15 F. Internet Access: The Contractor shall be responsible to provide their own wired or wireless
16 internet access from their office and jobsite. The Owner will not supply internet access to the
17 Contractor on the jobsite.
18
- 19 G. Temporary Lamps and Light Fixtures: Provide general service incandescent lamps of wattage
20 required for adequate illumination. Provide guard cages or tempered glass enclosures, where
21 exposed to breakage. Provide exterior fixtures where exposed to moisture.
22
- 23 H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle
24 waste from construction operations. Comply with requirements of authorities having
25 jurisdiction.
26
- 27 I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
28
- 29 J. Existing Elevator Use: Use of the Owner's existing elevators will not be permitted.
30
- 31 K. Barriers: Provide barriers to prevent and protect unauthorized entry to construction areas
32 and to protect existing facilities from damage from construction operations and demolition.
33
- 34 L. Job Site Signage: General Contractors may post directional signage for routing of construction
35 deliveries and/or site safety requirements only. Signs shall not exceed 36" x 36" and shall be
36 located so as not to impair views for motorized or pedestrian traffic. Coordinate placement
37 with FWCS Project Coordinator. Identifying signage may also be mounted on Contractor
38 trailers. All other job site signage is prohibited.
39
- 40 M. Security: Each Contractor is responsible for their own security of materials and equipment
41 necessary for completion of the work.
42
- 43 N. First Aid Supplies: Comply with governing regulations.
44
45

2.2 COMMUNICATIONS AND RECORDS

A. Communications: The General Contractor shall maintain a cellular phone or other communication equipment for the Contractor's field superintendent at all times so that the superintendent is readily available for immediate communication with the Architect.

1. All contractors shall maintain a list of important telephone numbers at each job site.

B. Construction Documents: All contractors shall display a clean set of Construction Documents at the job site that are readily available to the Owner and Architect.

PART 3 - EXECUTION**3.1 INSTALLATION**

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

C. Building envelope shall be left in a secured fashion at the end of each work day. Under no circumstances will temporary openings that will allow access to building be left open overnight.

3.2 COLLECTION AND DISPOSAL OF WASTE

A. Collect waste from construction areas and elsewhere daily per the requirements set forth in 017400 Cleaning and Waste Management. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

END OF SECTION 015000

1

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SECTION 016000 – PRODUCT REQUIREMENTS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. The Work of this Section shall be included as a part of the Contract Documents of each Contractor on this Project.

1.2 SUMMARY

- A. It is the intent of the Specifications and Drawings to accomplish a complete installation in which there shall be installed new materials and products of the latest and best design and manufacturer. Workmanship shall be thoroughly first-class and complete, executed by competent and experienced workmen.
- B. Equipment, specialties, and similar items shall be checked for compliance and fully approved prior to installation. Contractors are cautioned that work or equipment installed without approval is subject to condemnation, removal, and subsequent replacement with an approved item without extra compensation.

1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structures," "finishes," "accessories," and similar terms. Such terms such are self-explanatory and have well recognized meanings in the construction industry.
1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - a. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current at of the date of the Contract Documents.
 - b. "Foreign Products", as distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside of the United States and its possessions; or produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens or not living within the United States and its possessions.
 2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
 3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

PART 2 - PRODUCTS**2.1 PRODUCT STANDARD AND QUALITY - SUBSTITUTIONS**

- A. The Contract is based on the materials, equipment, and methods described in the Contract Documents.
- B. Where, in the Drawings and Specifications, certain products, manufacturer's tradenames, or catalog numbers are given, it is done for the expressed purpose of establishing a basis of quality, durability, and efficiency of design in harmony with the work outlined and is not intended for the purpose of limiting competition.
- C. The Architect will consider proposals for substitutions of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Architect to evaluate the proposed substitution.
- D. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this Work by the Architect. See Specification Section 012500.
- E. "Or equal":
1. Where the phrase "or equal", "or equivalent" or "or equal as approved by the Architect" occurs in the Contract Documents, do not assume that material, equipment, or methods will be approved as equal by the Architect unless the item has been specifically approved for this Work by the Architect. See Section 01 25 00 - Product Substitutions for substitution requirements.
 2. The decision of the Architect shall be final.
- F. Availability of Specified Items:
1. Verify prior to bidding that specified items will be available in time for installation during orderly and timely progress of the Work.
 2. In the event specified item or items will not be so available, so notify the Architect within 14 days upon receipt of notification by Supplier.
 3. Costs of delays because of non-availability of specified items, when such delays could have been avoided by the Contractor, will be back charged as necessary and shall not be borne by the Owner.
- G. Where the questions of appearance, artistic effect, or harmony of design are concerned, the Architect reserves the right to refuse approval of substituted products proposed to be substituted for that specified, if in his opinion the item to be substituted is not harmonious to the finished effect and appearance desired, as portrayed in the Drawings and Specifications. The Architect's said refusal to approve, established by this paragraph, is final and not subject to arbitration.

2.2 MANUFACTURER'S DIRECTIONS

- 1
2
3 A. Manufactured products shall be applied, installed, connected, erected, used, cleaned and
4 conditioned in accordance with the manufacturer' printed directions, unless herein specified
5 to the contrary. Where manufacturer's printed directions are available and where reference is
6 made to manufacturer's directions in the Specification, the Contractor shall submit two (2)
7 copies of such directions to the Architect prior to the beginning of Work covered thereby.
8 B. Where specific installation instructions are not part of these Specifications and Drawings,
9 equipment shall be installed in strict accordance with instructions from the respective
10 manufacturers. Where installation instructions included in these Specifications or Drawings
11 are at a variance with instructions furnished by the equipment manufacturer, the Contractor
12 shall make written request for clarification from the Architect.
13
14 C. In accepting or assenting to the use of apparatus or material, or make, or arrangement
15 thereof, the Architect in no way waives the requirements of these specifications or the
16 warranty embodied therein.
17

2.3 WARRANTIES

- 18
19
20 A. Specific warranties or bonds called for in the Contract Documents, in addition to that falling
21 under the general warranty as set forth in General Conditions, shall be furnished in
22 accordance with the requirements of the Specifications.
23
24 B. Each Contractor shall and does hereby agree to warrant for a period of one year, or for longer
25 periods, where so provided in the Specifications, as evidenced by the date of Substantial
26 Completion issued by the Architect, products installed under the Contract to be of good
27 quality in every respect and to remain so for periods described herein.
28
29 C. Should defects develop in the aforesaid Work within the specified periods, due to faults in
30 products or their workmanship, the Contractor hereby agrees to make repairs and do
31 necessary Work to correct defective Work to the Architect's satisfaction, in accordance with
32 the Supplementary Conditions. Such repairs and corrective Work, including costs of making
33 good other Work damaged by or otherwise affected by making repairs or corrective Work,
34 shall be done without cost to the Owner and at the entire cost and expense of the Contractor
35 within 14 days after written notice to the Contractor by the Owner.
36
37 D. Nothing herein intends or implies that the warranty shall apply to Work which has been
38 abused or neglected or improperly maintained by the Owner or his successor in interest.
39
40 E. Where service on products is required under this Article, it shall be promptly provided when
41 notified by the Owner and no additional charge shall be made, unless it can be established
42 that the defect or malfunctioning was caused by abuse or accidental damage not to be
43 expected under conditions of ordinary wear and tear.
44
45

- 1 F. In the event movement in the adjoining structure or components causes malfunctioning, the
2 Contractor responsible for the original installation of the adjoining structure or components
3 shall provide such repair, replacement, or correction necessary to provide for proper
4 functioning to bring the equipment back into the same operating condition as approved at the
5 completion of the building.
6
- 7 G. The manufacturer and supplier expressly warrants that each item of equipment furnished by
8 him and installed in this Project is suitable for the application shown and specified in the
9 Contract documents and includes features, accessories, and performing characteristics listed
10 in the manufacturer's catalog in force on the date bids are requested for the Work. This
11 warranty is intended as an assurance by the manufacturer that his equipment is not being
12 misapplied and is fit and sufficient for the service intended. This warranty is in addition to and
13 not in limitation of other warranties or remedies required by law or by the Contract
14 Documents. It shall be the responsibility of the Contractor for the particular equipment to
15 obtain this warranty in writing.
16
- 17 H. In case the Contractor fails to do Work so ordered, the Owner may have work done and
18 charge the cost thereof against monies retained as provided for in the Agreement and, if said
19 retained monies is available, the Contractor and his Sureties shall agree to pay to the Owner
20 the cost of such Work.
21

22 **2.4 MATERIAL DELIVERY AND RESPONSIBILITIES**

- 23
- 24 A. Each Contractor shall be responsible for materials he orders for delivery to the jobsite.
25 Responsibility includes, but is not limited to, receiving, unloading, storing, protecting, and
26 setting in place; ready for final connections. Each subcontractor shall coordinate jobsite
27 storage with the General Prime Contractor.
28
- 29 1. The Owner will not be responsible for deliveries related to the construction or operation
30 of the Contractor. The Owner cannot sign delivery forms for the Contractor.
31
- 32 B. Contractors shall insure that products are delivered to the Project in accordance with the
33 Construction Schedule of the Project. In determining date of delivery, sufficient time shall be
34 allowed for shop drawings and sample approvals, including the possibility of having to
35 resubmit improperly prepared submittals or products other than those specified and the
36 necessary fabrication or procurement time along with the delivery method and distance
37 involved.
38

39 **2.5 PROTECTION**

- 40
- 41 A. Each Contractor shall protect building elements and products when subject to damage.
42 Should workmen or other persons employed or commissioned by one Contractor be
43 responsible for damage, the entire cost of repairing said damage shall be assumed by said
44 individual Contractor. Should damage be done by a person or persons not employed or
45 commissioned by a Contractor, the respective Contractors shall make repairs and charge the
46 cost to the guilty person or persons. The affected Contractors shall be responsible for

1 collecting such charges. If the person or persons responsible for damage cannot be
2 discovered, full and satisfactory repairs shall be made by the respective Contractor, and the
3 cost of Work shall be prorated against each Contractor.
4

- 5 B. The respective Contractors shall protect their products prior to installation and final
6 acceptance. Storage shall be dry, clean, and safe. Materials or equipment damaged,
7 deteriorated, rusted or defaced due to improper storage, shall be repaired, refinished, or
8 replaced, as required by the
9

10 Architect. Products lost through theft or mishandling shall be replaced by the Contractor
11 without cost to the Owner.
12

13 **2.6 ACCEPTANCE OF EQUIPMENT OR SYSTEMS**

- 14
15 A. The Owner will not accept the start of the warranty period on systems or equipment until
16 Substantial Completion is issued to the respective Contractor(s) for Owner's occupancy of the
17 building, in part or whole. Each Contractor shall make such provisions as required to extend
18 the commencement of the manufacturer's warranty from time of initial operation of systems
19 or equipment until Substantial Completion is given in writing.
20

21 **PART 3 - EXECUTION (Not Applicable)**

22
23
24
25 **END OF SECTION 016000**
26

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1 **SECTION 017300 - EXECUTION**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section includes general administrative and procedural requirements governing execution of
8 the Work including, but not limited to, the following:

- 9 1. Installation of the Work.
10 2. Cutting and patching.
11 3. Progress cleaning.
12 4. Protection of installed construction.
13 5. Correction of the Work.

- 14 B. Related Requirements:

- 15 1. Section 013300 "Submittal Procedures" for submitting surveys.
16 2. Section 017700 "Closeout Procedures" for submitting final property survey with Project
17 Record Documents, recording of Owner-accepted deviations from indicated lines and
18 levels, and final cleaning.

19 **1.3 DEFINITIONS**

- 20 A. Cutting: Removal of in-place construction necessary to permit installation or performance of
21 other work.

- 22 B. Patching: Fitting and repair work required to restore construction to original conditions after
23 installation of other work.

24 **1.4 QUALITY ASSURANCE**

- 25 A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of
26 construction elements.

- 27 1. Operational Elements: Do not cut and patch operating elements and related
28 components in a manner that results in reducing their capacity to perform as intended
29 or that results in increased maintenance or decreased operational life or
30 safety. Operational elements include the following:
31

- 1 a. Electrical wiring systems.
- 2 b. Operating systems of special construction.
- 3 2. Other Construction Elements: Do not cut and patch other construction elements or
- 4 components in a manner that could change their load-carrying capacity, that results in
- 5 reducing their capacity to perform as intended, or that results in increased maintenance
- 6 or decreased operational life or safety. Other construction elements include but are not
- 7 limited to the following:
- 8 a. Piping, ductwork, vessels, and equipment.
- 9 3. Visual Elements: Do not cut and patch construction in a manner that results in visual
- 10 evidence of cutting and patching. Do not cut and patch exposed construction in a
- 11 manner that would, in Architect's opinion, reduce the building's aesthetic qualities.
- 12 Remove and replace construction that has been cut and patched in a visually
- 13 unsatisfactory manner.
- 14 B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written
- 15 recommendations and instructions for installation of products and equipment.

16 **PART 2 - PRODUCTS**

17 **2.1 MATERIALS**

- 18 A. General: Comply with requirements specified in other Sections.
- 19 B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed
- 20 surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent
- 21 possible.
- 22 1. If identical materials are unavailable or cannot be used, use materials that, when
- 23 installed, will provide a match acceptable to Architect for the visual and functional
- 24 performance of in-place materials.

25 **PART 3 - EXECUTION**

26 **3.1 EXAMINATION**

- 27 A. Existing Conditions: The existence and location of underground and other utilities and
- 28 construction indicated as existing are not guaranteed. Before beginning sitework, investigate
- 29 and verify the existence and location of underground utilities, mechanical and electrical
- 30 systems, and other construction affecting the Work.

- 1 1. Before construction, verify the location and invert elevation at points of connection of
2 sanitary sewer, storm sewer, and water-service piping; underground electrical services,
3 and other utilities.
- 4 2. Furnish location data for work related to Project that must be performed by public
5 utilities serving Project site.

- 6 B. Examination and Acceptance of Conditions: Before proceeding with each component of the
7 Work, examine substrates, areas, and conditions, with Installer or Applicator present where
8 indicated, for compliance with requirements for installation tolerances and other conditions
9 affecting performance. Record observations.

- 10 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of
11 connections before equipment and fixture installation.

- 12 C. Written Report: Where a written report listing conditions detrimental to performance of the
13 Work is required by other Sections, include the following:
 - 14 1. Description of the Work.
 - 15 2. List of detrimental conditions, including substrates.
 - 16 3. List of unacceptable installation tolerances.
 - 17 4. Recommended corrections.

- 18 D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding
19 with the Work indicates acceptance of surfaces and conditions.

20 3.2 PREPARATION

- 21 A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck
22 measurements before installing each product. Where portions of the Work are indicated to fit
23 to other construction, verify dimensions of other construction by field measurements before
24 fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the
25 Work.

- 26 B. Space Requirements: Verify space requirements and dimensions of items shown
27 diagrammatically on Drawings.

- 28 C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for
29 clarification of the Contract Documents caused by differing field conditions outside the control
30 of Contractor, submit a request for information to Architect according to requirements in
31 Section 013100 "Project Management and Coordination."

- 32 D. Surface and Substrate Preparation: Comply with manufacturer's written recommendations for
33 preparation of substrates to receive subsequent work.
34

3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 4. Maintain minimum headroom clearance of 96 inches (2440 mm) in occupied spaces and 90 inches (2300 mm) in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1 I. Joints: Make joints of uniform width. Where joint locations in exposed work are not
2 indicated, arrange joints for the best visual effect. Fit exposed connections together to form
3 hairline joints.

4 J. Hazardous Materials: Use products, cleaners, and installation materials that are not
5 considered hazardous.

6 **3.4 CUTTING AND PATCHING**

7 A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching.
8 Proceed with cutting and patching at the earliest feasible time, and complete without delay.

9 1. Cut in-place construction to provide for installation of other components or
10 performance of other construction, and subsequently patch as required to restore
11 surfaces to their original condition.

12 B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or
13 damaged during installation or cutting and patching operations, by methods and with
14 materials so as not to void existing warranties.

15 C. Temporary Support: Provide temporary support of work to be cut.

16 D. Protection: Protect in-place construction during cutting and patching to prevent damage.
17 Provide protection from adverse weather conditions for portions of Project that might be
18 exposed during cutting and patching operations.

19 E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems
20 are required to be removed, relocated, or abandoned, bypass such services/systems before
21 cutting to minimize interruption to occupied areas.

22 F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar
23 operations, including excavation, using methods least likely to damage elements retained or
24 adjoining construction. If possible, review proposed procedures with original Installer; comply
25 with original Installer's written recommendations.

26 1. In general, use hand or small power tools designed for sawing and grinding, not
27 hammering and chopping. Cut holes and slots neatly to minimum size required, and
28 with minimum disturbance of adjacent surfaces. Temporarily cover openings when not
29 in use.

30 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.

31 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

32 4. Excavating and Backfilling: Comply with requirements in applicable Sections where
33 required by cutting and patching operations.

34 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be
35 removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent
36 entrance of moisture or other foreign matter after cutting.

37 6. Proceed with patching after construction operations requiring cutting are complete.

- 1 G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations
2 following performance of other work. Patch with durable seams that are as invisible as
3 practicable. Provide materials and comply with installation requirements specified in other
4 Sections, where applicable.
- 5 1. Inspection: Where feasible, test and inspect patched areas after completion to
6 demonstrate physical integrity of installation.
- 7 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish
8 restoration into retained adjoining construction in a manner that will minimize evidence
9 of patching and refinishing.
- 10 a. Clean piping, conduit, and similar features before applying paint or other finishing
11 materials.
- 12 b. Restore damaged pipe covering to its original condition.
- 13 H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint,
14 mortar, oils, putty, and similar materials from adjacent finished surfaces.
- 15 **3.5 PROGRESS CLEANING**
- 16 A. General: Clean Project site and work areas daily, including common areas. Enforce
17 requirements strictly. Dispose of materials lawfully.
- 18 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and
19 debris.
- 20 2. Do not hold waste materials more than seven days during normal weather or three days
21 if the temperature is expected to rise above 80 deg F (27 deg C).
- 22 3. Containerize hazardous and unsanitary waste materials separately from other waste.
23 Mark containers appropriately and dispose of legally, according to regulations.
- 24 a. Use containers intended for holding waste materials of type to be stored.
- 25 4. Coordinate progress cleaning for joint-use areas where Contractor and other
26 contractors are working concurrently.
- 27 B. Site: Maintain Project site free of waste materials and debris.
- 28 C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for
29 proper execution of the Work.
- 30 1. Remove liquid spills promptly.
- 31 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the
32 entire work area, as appropriate.
- 33 D. Installed Work: Keep installed work clean. Clean installed surfaces according to written
34 instructions of manufacturer or fabricator of product installed, using only cleaning materials
35 specifically recommended. If specific cleaning materials are not recommended, use cleaning

1 materials that are not hazardous to health or property and that will not damage exposed
2 surfaces.

3 E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to
4 ensure freedom from damage and deterioration at time of Substantial Completion.

5 F. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials
6 down sewers or into waterways. Comply with waste disposal requirements in Section 017419
7 "Construction Waste Management and Disposal."

8 G. During handling and installation, clean and protect construction in progress and adjoining
9 materials already in place. Apply protective covering where required to ensure protection
10 from damage or deterioration at Substantial Completion.

11 H. Clean and provide maintenance on completed construction as frequently as necessary through
12 the remainder of the construction period. Adjust and lubricate operable components to
13 ensure operability without damaging effects.

14 I. Limiting Exposures: Supervise construction operations to assure that no part of the
15 construction, completed or in progress, is subject to harmful, dangerous, damaging, or
16 otherwise deleterious exposure during the construction period.

17 **3.6 STARTING AND ADJUSTING**

18 A. Start equipment and operating components to confirm proper operation. Remove
19 malfunctioning units, replace with new units, and retest.

20 B. Adjust equipment for proper operation. Adjust operating components for proper operation
21 without binding.

22 C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties.
23 Replace damaged and malfunctioning controls and equipment.

24 D. Manufacturer's Field Service: Comply with qualification requirements in Section 014000
25 "Quality Requirements."

26 **3.7 PROTECTION OF INSTALLED CONSTRUCTION**

27 A. Provide final protection and maintain conditions that ensure installed Work is without damage
28 or deterioration at time of Substantial Completion.

29 B. Comply with manufacturer's written instructions for temperature and relative humidity.

30 **END OF SECTION 017300**

31

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SECTION 017329 – CUTTING AND PATCHING**PART 1 GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for cutting and patching.
- B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.3 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load carrying capacity or load deflection ratio.
1. Obtain Owner's approval prior to cutting and patching.
- B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.
- C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.

PART 2 – PRODUCTS**2.1 MATERIALS**

- A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 EXECUTION**3.1 INSPECTION**

- A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

1. Before proceeding, meet at the site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.3 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.
1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.

- 1 3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or
- 2 diamond core drill.
- 3 4. Comply with requirements of applicable Sections of Division 2 where cutting and patching
- 4 requires excavating and backfilling.
- 5 5. By pass utility services such as pipe or conduit, before cutting, where services are shown
- 6 or required to be removed, relocated or abandoned. Cut off pipe or conduit in walls or
- 7 partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or
- 8 conduit to prevent entrance of moisture or other foreign matter after by passing and
- 9 cutting.
- 10
- 11 C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified
- 12 tolerances.
- 13
- 14 1. Where feasible, inspect and test patched areas to demonstrate integrity of the
- 15 installation.
- 16 2. Restore exposed finishes of patched areas and extend finish restoration into retained
- 17 adjoining construction in a manner that will eliminate evidence of patching and
- 18 refinishing.
- 19 3. Where removal of walls or partitions extends one finished area into another, patch and
- 20 repair floor and wall surfaces in the new space to provide an even surface of uniform color
- 21 and appearance. Remove existing floor and wall coverings and replace with new
- 22 materials, if necessary to achieve uniform color and appearance.
- 23
- 24 a. Where patching occurs in a smooth painted surface, extend final paint coat over
- 25 entire unbroken surface containing the patch, after the patched area has received
- 26 primer and second coat.
- 27
- 28 4. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of
- 29 uniform appearance.
- 30

31 **3.4 CLEANING**

- 32
- 33 A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access.
- 34 Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean
- 35 piping, conduit and similar features before painting or other finishing is applied. Restore
- 36 damaged pipe covering to its original condition.
- 37
- 38

39 **END OF SECTION 017329**

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1 **SECTION 017400 – CLEANING AND WASTE MANAGEMENT**

2
3
4 **PART 1 - GENERAL**

5
6 **1.1 RELATED WORK**

- 7
8 A. The Work of this Section shall be included as a part of the Contract Documents of each
9 Contractor of this Project.

10
11 **1.2 DAILY CLEANING**

- 12
13 A. Define and emphasize the responsibility of each Contractor to remove his rubbish and debris
14 from the construction site to guard against fire and safety hazards as well as to provide a more
15 efficient construction operation for all Contractors. If this cleaning is not performed to the
16 satisfaction of the Owner and the Architect, it will be performed for the Contractor at his
17 expense.

18
19 **1.3 ROUTINE CLEANING**

- 20
21 A. Each Friday afternoon, and more often if necessary, each Contractor shall perform an overall
22 cleanup of the entire site, including a broom cleaning of appropriate surfaces. The trades shall
23 remove their rubbish and debris from the building site to the rubbish collection location
24 promptly upon its accumulation and in no event later than the regular Friday general cleanup.

25
26 **1.4 RUBBISH CONTAINER**

- 27
28 A. All Contractors shall be responsible to maintain an orderly construction site. All Contractors
29 shall cooperate in establishing a construction debris storage location or container as required.
30 Routinely remove the collected debris and haul away from site at the end of each working day.
31 The Contractor shall not use the Owner's disposal container and trash cans to dispose of
32 construction debris.
33
34 B. If a rubbish container is provided, dispose of container contents weekly or at more frequent
35 intervals if required by inadequate container capacity.

36
37 **1.5 SAFETY REQUIREMENTS**

- 38
39 A. Hazards Control (By each Contractor)
- 40
 - 41 1. Store volatile wastes in covered metal containers, and remove from the premises daily.
 - 42 2. Prevent accumulation of wastes, which create hazardous conditions.
 - 43 3. Provide adequate ventilation during use of volatile or noxious substances.
 - 44
- 45 B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution
46 laws.

- 1 1. Do not burn or bury rubbish and waste materials on project site.
- 2 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or
- 3 sanitary drains.
- 4 3. Do not dispose of wastes into streams or waterways.
- 5
- 6

7 **PART 2 - PRODUCTS**

8

9 **2.1 MATERIALS**

- 10
- 11 A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- 12
- 13 B. Use cleaning materials only on surface recommended by cleaning material manufacturer.
- 14
- 15

16 **PART 3 - EXECUTION**

17

18 **3.1 DAILY CLEANING**

- 19
- 20 A. Each Contractor shall execute daily cleaning to ensure that building, grounds, and public
- 21 properties are maintained free from accumulations of waste materials and rubbish.
- 22
- 23 B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- 24
- 25 C. Daily, during progress of work, clean site and public properties and dispose of waste materials,
- 26 debris, and rubbish in dumpster type rubbish container provided under this Section.
- 27
- 28 D. Handle materials in a controlled manner with as few handlings as possible; do not drop or
- 29 throw materials from heights.
- 30
- 31 E. Schedule cleaning operations so that dust and other contaminants resulting from cleaning
- 32 process will not fall on wet, newly painted surfaces.
- 33
- 34 F. Place no new work on dirty surfaces.
- 35

36 **3.2 ROUTINE CLEANING**

- 37
- 38 A. Employ experienced workmen for cleaning.
- 39
- 40 B. Remove dirt, mud, and other foreign materials from sight exposed interior and exterior
- 41 surfaces.
- 42
- 43 C. Each Friday, or at more frequent intervals, if work activities justify same, perform the following
- 44 cleaning. This includes all dirt, dust, and debris not identifiable as part of a Contract. Broom
- 45 clean floor and paved surfaces; rake clean other surfaces of ground.
- 46

- 1 D. Maintain adjacent roads free from the accumulation of mud, rocks, rubbish, litter and debris
2 resulting from construction activities.
3
4 E. Remove litter, rubbish and debris from chases, whether the chases will be accessible or not.
5
6 F. Maintain cleaning throughout the life of the Project.
7
8 G. Should the Contractor fail in the performance of this Work, the Owner may perform such
9 Work in accordance with Article 3 of the General Conditions.
10

11 **3.3 FINAL CLEANING (Each Contractor)**

- 12
13 A. Each Contractor shall perform his respective final clean-up and shall leave the Work of the
14 complete Project in clean, neat condition. The following are examples, but not by way of
15 limitation, of cleaning levels required.
16
17 1. Remove labels that are not required as permanent labels.
18
19 2. Clean transparent materials, including mirrors and window/door glass, to a polished
20 condition, removing substances that are noticeable as vision-obscuring materials. Replace
21 broken glass and damaged transparent materials.
22
23 3. Clean exposed exterior and interior hard surfaces to a dirt free condition, free of dust,
24 stains, films, and similar noticeable distracting substances. Except as otherwise indicated,
25 avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces
26 to original reflective condition.
27
28 4. Wipe surfaces of mechanical and electrical equipment clean; remove excess lubrication
29 and other substances.
30
31 5. Remove debris and surface dust from limited access spaces including roofs, plenums,
32 shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
33
34 6. Clean concrete floors in non-occupied spaces broom clean.
35
36 7. Vacuum clean carpeted surfaces and similar soft surfaces.
37
38 8. Clean plumbing fixtures to a sanitary condition, free of stains, including those resulting
39 from water exposure.
40
41 9. Clean light fixtures and lamps so as to function with full efficiency.
42
43 10. Clean project site (yard and grounds), including landscape development areas, of litter and
44 foreign substances. Sweep paved areas to a broom clean condition; remove stains, petro-
45 chemical spills, and other foreign deposits. Rake grounds that are neither planted nor
46 paved to a smooth, even textured surface.

39 **END OF SECTION 017400**

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SECTION 017700 – CLOSEOUT PROCEDURES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. The Work of this Section shall be included as a part of the Contract Documents to the Contractors on this Project.
- B. Refer to the General and Supplementary Conditions of the Contract, for Substantial Completion and final payment.

1.2 SUMMARY

- A. Closeout is hereby defined to include general requirements near the end of Contract Time in preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner, and similar actions evidencing completion of the work. Specific requirements for individual parts of the Work are specified in Sections of Division 2 through 49. Time of closeout is directly associated to Date of Substantial Completion.
- B. Project Completion Date: The buildings will be ready for occupancy by the Owner by the date listed in the Construction Documents.

1.3 PREREQUISITES TO SUBSTANTIAL COMPLETION

- A. Prior to requesting Architect review for Certificate of Substantial Completion, (for either entire Work or portions thereof), complete the following and list known exceptions in request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, agreements, final certifications, and other required closeout documents.
 - 3. Obtain and submit release enabling Owner's full and unrestricted use of the Work and access to services and utilities, including occupancy permits, operating certificates, and other similar required releases.
 - 4. Deliver tools, spare parts, extra stocks of materials, and similar physical items as specified to the Owner. Obtain receipts for deliveries. Do NOT leave extra materials at schools.
 - 5. Make final changeover of locks and transmit keys to Owner and advise Owner's personnel of changeover in security provisions.
 - 6. Complete start-up testing of systems and instruction of Owner's operating/maintenance personnel. Discontinue and remove from project site temporary facilities and service, construction tools and facilities, mock-ups, and other construction elements.
 - 7. Complete final cleaning up requirements as specified in Section 017400 and Section 017700.

1.4 PREREQUISITES TO FINAL PAYMENTS

- A. Prior to requesting Architect final review for certification of final payment, complete the following:
1. Refer to the Supplementary Conditions.
 2. Submit final payment request with required closeout attachments.
 3. Submit copy of Architect's final punch list of itemized Work to be completed or corrected, stating that each and every item has been completed or otherwise resolved for acceptance.
 4. Submit record drawings, maintenance manuals, and similar final record information as specified.
 5. Submit certification of code compliance.
 6. Submit certification stating that no materials containing asbestos were incorporated into the Work.
 7. Plumbing Contractor shall submit certification stating that no flux or solder used for drinking water piping containing more than 0.2 percent lead, and that no pipe or fittings used for drinking water piping contained no more than 0.8 percent lead.

PART 2 - PRODUCTS (Not Applicable)**PART 3 - EXECUTION****3.1 PUNCH LIST**

- A. Prior to the Architect's preparation of a Project Punch List, the General Prime Contractor shall prepare his own punch list and submit to the Architect, for use by the Architect and Owner to facilitate completion of the Work.
- B. The Contractor's inspection shall be as thorough as possible, in accordance with his aspiration to provide first-class workmanship and maintain good reputation and shall include Work under his Contract, including that of his subcontractors.
- C. The Architect shall then observe the Work, providing that the Work on the Contractor's punch list has been completed. The Architect will then verify through inspection observation and prepare an Architect's Project Punch List for use by the Contractor and their subcontractors to expedite proper completion of the Work.
- D. The Architect will repeat the inspection observation when requested and assured by the Contractor that the Work from the Architect's Project Punch List has been substantially completed. Results of the completed inspection will form the basis of requirements for final acceptance.
1. If the Architect's Project Punch List has not been completed, the Architect will repeat inspection observation under the Reinspection Procedure listed below.

1 E. Reinspection Procedure: The Architect will reinspect the Work upon receipt of notice that the
2 Work has been completed, except for items whose completion is delayed under circumstances
3 that have been accepted by the Architect and Owner.

- 4
- 5 1. Upon completion of Reinspection, the Architect will prepare a certificate of final
6 acceptance. If the Work is incomplete, the Architect will advise the Contractor of Work
7 that is incomplete or obligations that have not been fulfilled, but are required.
 - 8 2. The Architect's time, due to Reinspection, will be invoiced directly to the contractor. The
9 billing rates applied will be the current billing rate at time of Reinspection. A copy of the
10 billing rates can be attained through the offices of the Architect. Retainage will be held
11 until proof of payment to Architect has been received.
 - 12 3. If necessary, Reinspection will be repeated.
- 13

14 **3.2 WARRANTY - CORRECTION OF THE WORK**

15

- 16 A. Prior to the expiration of the one year warranty period, the Architect will check to see if
17 additional Work by the Contractor(s) is needed to make good the warranties. An itemized list
18 will be furnished to the Contractor for corrective or replacement work.
- 19
- 20 B. This Work shall be completed immediately by the Contractor(s) after receiving notification.
- 21

22 **3.3 PROJECT RECORD DRAWINGS**

23

- 24 A. Each Contractor shall keep current during the progress of the Work, and submit updated
25 Project Record Drawings at the completion of the project, especially for the purpose on this
26 project. Drawings shall incorporate changes made in the Work of the respective trades during
27 the construction period. Such changes shall be indicated at the time they occur for accuracy.
- 28
- 29 B. Maintain at the job site one copy of Drawings, Project Manual, Addenda, approved shop
30 drawings, change orders, field orders, other Contract modifications, and other approved
31 documents submitted by the Contractor(s), in compliance with various Sections of the Project
32 Manual.
- 33
- 34 C. Each of these Project Record Documents shall be clearly marked "Project Record Copy";
35 maintained in good condition; available for observation by the Architect; and shall not be used
36 for construction purposes. Mark up the documents to indicate the following:
- 37
- 38 1. Significant changes and selections made during the construction process;
 - 39 2. Significant detail not shown in the original Contract Documents including change orders;
 - 40 3. The location of underground utilities and appurtenances dimensionally referenced to
41 permanent surface improvements;
 - 42 4. The location of internal utilities and appurtenances concealed in building structures,
43 referenced to visible and accessible features of the structure;
 - 44 5. When elements are placed exactly as shown on the Drawings, so indicate; otherwise,
45 indicate changed location.
- 46

- 1 D. Keep Project Record Documents current. Do not permanently conceal Work until the required
2 information has been recorded.
3
- 4 E. Prior to final payment on the Project, submit to the Architect the Project Record Drawings for
5 changes recorded for the Work of Divisions 2 through 14.
6
- 7 F. Prior to final completion and payment, the Contractors for Mechanical Work and Electrical
8 Work, Division 22, 23, 26 and 27, shall update their working drawings with changes made in
9 his Work. Submit two (2) complete sets of prints of these changed working drawings to the
10 Architect.
11
- 12 1. Each drawing shall be labeled "Project Record Drawing", dated and signed by the
13 Contractor.
14
- 15 G. The General Contractor shall certify that the Project Record Drawings show complete and
16 accurate as-built conditions, including without limitation, sizes, kinds of materials, vital piping
17 and valves, conduit locations, and other similar and required items.
18
- 19 H. Contractor(s) shall include as part of the Project Record Drawings, a complete and current
20 Project Manual, indicating changes made relating to the specifications. All requirements for
21 the Project Record Drawings apply to the Project Record Project Manual.
22
- 23 I. The General Contractor shall maintain all approved Permit Drawings in a manner so as to
24 make them accessible to governmental inspectors and other authorized agencies. All
25 approved Drawings shall be wrapped, marked, and delivered to the Owner within 30 days of
26 the Date of Final Completion of the Work.
27

28 **3.4 CERTIFICATION OF CODE COMPLIANCE**

- 29
- 30 A. Prior to final payment, the Contractor indicated below shall submit to the Architect (in
31 duplicate), letters of certification of code compliance as follows:
32
- 33 1. The Contractor(s) for Division 22 and 23, shall submit a letter certifying that mechanical
34 installations comply with UMC current applicable editions.
35 2. The Contractor(s) for Division 26 and 27, shall submit letters certifying that electrical
36 wiring complies with NEC current applicable editions.
37 3. The Contractor for Division 26 and 27, shall submit letters certifying that alarm systems
38 and smoke and heat detection systems comply with State of Indiana Codes and
39 Regulations, current applicable editions.
40

41 **3.5 MAINTENANCE AND OPERATING MANUALS**

- 42
- 43 A. Prior to Date of Substantial Completion, and a requirement prior to receiving final payment,
44 each Contractor shall submit to the Architect two (2) copies of a comprehensive Maintenance
45 and Operating Manuals labeled and bound separately for each school presenting complete
46 directions and recommendations for the proper care and maintenance of visible surfaces as

1 well as maintenance and operating instructions for equipment items that were provided.
2 Operation and Maintenance Manuals shall include the following:

- 3
- 4 1. Schematic and piping and wiring diagrams.
 - 5 2. Valve charts and schedules.
 - 6 3. Lubrication charts and schedules.
 - 7 4. Guides for troubleshooting.
 - 8 5. Pertinent diagrams of equipment with main parts identification.
 - 9 6. Manufacturer's data on all equipment.
 - 10 7. Operating and maintenance instructions for all equipment.
 - 11 8. Manufacturer's parts list.
 - 12 9. Any testing procedures for operating tests.
- 13 B. Operating instructions shall include necessary printed directions for correct operations,
14 adjustments, servicing, and maintenance of movable parts. Also included shall be suitable
15 parts lists, approved shop drawings, and diagrams showing parts location and assembly.
16
- 17 C. Upon Architect's approval and prior to issuance of final payment(s), each Contractor shall
18 submit two (2) corrected and completed copies of Operating and Maintenance Manuals to the
19 Architect.
20
- 21 D. Contractor to provide a separate manual for each item for each site. For example: Three
22 schools all receive the same model of a Sloan flush valve; provide each school a separate
23 manual even though it is the same model. Use durable 3-ring binders or clear front report
24 covers with three double tang fasteners (to hold three hole punched sheets) depending on the
25 size of the manual. On the front cover clearly identify: year of installation, building/site name,
26 and project name.
27
- 28 E. For each titled item or portion of the Work, manual must provide the names, addresses, and
29 phone numbers of the following parties:
30
- 31 1. Contractor/installer.
 - 32 2. Manufacturer.
 - 33 3. Nearest dealer/supplier.
 - 34 4. Nearest agency capable of supplying parts and service.
35
- 36 F. For each manual label on front cover or spine, indicate the following information:
37
- 38 1. Project name and address.
 - 39 2. Owner's name.
 - 40 3. Name and address of Architect.
 - 41 4. Name and address of all contractors and their contacts.
 - 42 5. Date of submission.
43
44

1 G. The Contractor(s) shall instruct the Owner's operating personnel in the proper use, care and
2 emergency repair of all equipment installed before final payment. The Contractor(s) shall call
3 particular attention to any safety measures that should be followed. The instruction shall be
4 adequate to train the Owner's operating personnel in the proper use, care, and emergency
5 repair of such equipment.

6
7 H. Refer to Section 013300 – Submittal Procedures for additional requirements.

8
9 I. Provide to Owner and Architect one copy each of all Maintenance and Operating Manuals in
10 .pdf format. Provide Folders for each school with its pertinent manuals.

11
12 **3.6 CHARTS AND LOCATIONS OF CONCEALED WORK**

13
14 A. The Contractor(s) for Mechanical Work (Division 23), shall prepare suitable charts identifying
15 and locating each concealed control or other concealed item requiring repair, adjustment, and
16 maintenance. Charts shall be mounted in suitable frames with glass covers secured to wall
17 where directed.

18
19 B. Charts shall list each item, together with its function, item number and location.

20
21 C. Locations throughout the building shall be identified on the wall or ceiling by permanent, non-
22 obstructive plates, labels, or other approved means secured in a permanent manner.

23
24 D. Chart details, identification methods, locations, and methods of attachment shall be specified
25 or approved by the Architect at the jobsite upon full submission of proposed procedures and
26 proper execution of same.

27
28 **END OF SECTION 017700**

SECTION 017800 – CLOSEOUT SUBMITTALS**PART 1 GENERAL****1.1 SUMMARY**

- A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers' standard warranties on products and special warranties.
1. Refer to the General Conditions for terms of the Contractor's warranty of workmanship and materials.
 2. Specific requirements for warranties for the Work and products and installations that are specified to be warranted are included in the individual Sections of Divisions-2 thru -49.
 3. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products.

1.2 DEFINITIONS

- A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.3 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

- 1 D. Owner's Recourse: Written warranties made to the Owner are in addition to implied
2 warranties, and shall not limit the duties, obligations, rights and remedies otherwise available
3 under the law, nor shall warranty periods be interpreted as limitations on time in which the
4 Owner can enforce such other duties, obligations, rights, or remedies.
5
6 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit
7 selections to products with warranties not in conflict with requirements of the Contract
8 Documents.
9
10 E. The Owner reserves the right to refuse to accept Work for the Project where a special
11 warranty, certification, or similar commitment is required on such Work or part of the Work,
12 until evidence is presented that entities required to countersign such commitments are willing
13 to do so.
14

15 **1.4 SUBMITTALS**

- 16
17 A. Submit written warranties to the Architect prior to the date certified for Substantial
18 Completion. If the Architect's Certificate of Substantial Completion designates a
19 commencement date for warranties other than the date of Substantial Completion for the
20 Work, or a designated portion of the Work, submit written warranties upon request of the
21 Architect.
22
23 1. When a designated portion of the Work is completed and occupied or used by the Owner,
24 by separate agreement with the Contractor during the construction period, submit
25 properly executed warranties to the Architect within fifteen days of completion of that
26 designated portion of the Work.
27
28 B. Special Warranties: When a special warranty is required to be executed by the Contractor, or
29 the Contractor and a subcontractor, or supplier or manufacturer, prepare a written document
30 that contains appropriate terms and identification, ready for execution by the required
31 parties. Submit a draft to the Owner through the Architect for approval prior to final
32 execution.
33
34 1. Refer to individual Sections of Divisions-2 through -49 for specific content requirements,
35 and particular requirements for submittal of special warranties.
36
37 C. Form of Submittal: At Final Completion compile two copies of each required warranty and
38 bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or
39 manufacturer. Organize the warranty documents into an orderly sequence based on the table
40 of contents of the Project Manual.
41
42 D. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered
43 loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-
44 1/2" by 11" paper.
45
46

- 1 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty.
- 2 Mark the tab to identify the product or installation. Provide a typed description of the
- 3 product or installation, including the name of the product, and the name, address and
- 4 telephone number of the installer.
- 5 2. Identify each binder on the front and the spine with the typed or printed title
- 6 “WARRANTIES AND BONDS”, the Project title or name, and the name of the Contractor.
- 7 3. When operating and maintenance manuals are required for warranted construction,
- 8 provide additional copies of each required warranty, as necessary, for inclusion in each
- 9 required manual.

10

PART 2 - PRODUCTS (Not Applicable)

11

PART 3 - EXECUTION (Not Applicable)

12

13

END OF SECTION 017800

14

15

16

17

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DIVISION 3

1 **SECTION 033000 - CAST-IN-PLACE CONCRETE**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete
8 materials, mixture design, placement procedures, and finishes, for the following:

- 9 1. Footings.
10 2. Foundation walls.
11 3. Slabs-on-grade.

- 12 B. Related Sections:

- 13 1. Section 312000 "Earth Moving" for drainage fill under slabs-on-grade.

14 **1.3 DEFINITIONS**

- 15 A. Cementitious Materials: Portland cement alone or in combination with one or more of the
16 following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-
17 furnace slag, and silica fume; subject to compliance with requirements.

18 **1.4 ACTION SUBMITTALS**

- 19 A. Product Data: For each type of product indicated.

- 20 B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when
21 characteristics of materials, Project conditions, weather, test results, or other circumstances
22 warrant adjustments.

- 23 1. Indicate amounts of mixing water to be withheld for later addition at Project site.

- 24 C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and
25 placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar
26 diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop
27 spacing, and supports for concrete reinforcement.

- 28 D. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional
29 engineer detailing fabrication, assembly, and support of formwork.

1 1. Shoring and Reshoring: Indicate proposed schedule and sequence of stripping
2 formwork, shoring removal, and reshoring installation and removal.

3 E. Construction Joint Layout: Indicate proposed construction joints required to construct the
4 structure.

5 1. Location of construction joints is subject to approval of the Architect.

6 F. Samples: For vapor retarder.

7 **1.5 INFORMATIONAL SUBMITTALS**

8 A. Material Certificates: For each of the following, signed by manufacturers:

- 9 1. Cementitious materials.
10 2. Admixtures.
11 3. Form materials and form-release agents.
12 4. Steel reinforcement and accessories.
13 5. Fiber reinforcement.
14 6. Curing compounds.
15 7. Floor and slab treatments.
16 8. Bonding agents.
17 9. Adhesives.
18 10. Vapor retarders.
19 11. Semirigid joint filler.
20 12. Joint-filler strips.
21 13. Repair materials.

22 B. Material Test Reports: For the following, from a qualified testing agency, indicating compliance
23 with requirements:

24 1. Aggregates. Include service record data indicating absence of deleterious expansion of
25 concrete due to alkali aggregate reactivity.

26 C. Floor surface flatness and levelness measurements indicating compliance with specified
27 tolerances.

28 D. Field quality-control reports.

29 E. Minutes of preinstallation conference.

30 **1.6 QUALITY ASSURANCE**

31 A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as
32 ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified
33 Concrete Flatwork Technician.

- 1 B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete
2 products and that complies with ASTM C 94/C 94M requirements for production facilities and
3 equipment.
- 4 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete
5 Production Facilities."
- 6 C. Testing Agency Qualifications: An independent agency, acceptable to authorities having
7 jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- 8 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing
9 Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- 10 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing
11 Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency
12 laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician -
13 Grade II.
- 14 D. Source Limitations: Obtain each type or class of cementitious material of the same brand from
15 the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures
16 from single source from single manufacturer.
- 17 E. ACI Publications: Comply with the following unless modified by requirements in the Contract
18 Documents:
- 19 1. ACI 301, "Specifications for Structural Concrete,"
20 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- 21 F. Concrete Testing Service: Engage a qualified independent testing agency to perform material
22 evaluation tests and to design concrete mixtures.
- 23 G. Preinstallation Conference: Conduct conference at Project site.
- 24 1. Before submitting design mixtures, review concrete design mixture and examine
25 procedures for ensuring quality of concrete materials. Require representatives of each
26 entity directly concerned with cast-in-place concrete to attend, including the following:
- 27 a. Contractor's superintendent.
28 b. Independent testing agency responsible for concrete design mixtures.
29 c. Ready-mix concrete manufacturer.
30 d. Concrete subcontractor.
31 e. Special concrete finish subcontractor.
- 32 2. Review special inspection and testing and inspecting agency procedures for field quality
33 control, concrete finishes and finishing, cold- and hot-weather concreting procedures,
34 curing procedures, construction contraction and isolation joints, and joint-filler strips,
35 semirigid joint fillers, forms and form removal limitations, shoring and reshoring
36 procedures, vapor-retarder installation, anchor rod and anchorage device installation

1 tolerances, steel reinforcement installation, floor and slab flatness and levelness
2 measurement, concrete repair procedures, and concrete protection.

3 **1.7 DELIVERY, STORAGE, AND HANDLING**

4 A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and
5 damage.

6 **PART 2 - PRODUCTS**

7 **2.1 FORM-FACING MATERIALS**

8 A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and
9 smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

10 1. Plywood, metal, or other approved panel materials.

11 B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material.
12 Provide lumber dressed on at least two edges and one side for tight fit.

13 C. Chamfer Strips: Wood, metal, PVC, or rubber strips, **3/4 by 3/4 inch (19 by 19 mm)**, minimum.

14 D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.

15 E. Form-Release Agent: Commercially formulated form-release agent that will not bond with,
16 stain, or adversely affect concrete surfaces and will not impair subsequent treatments of
17 concrete surfaces.

18 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

19 F. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic
20 form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling
21 of concrete on removal.

22 1. Furnish units that will leave no corrodible metal closer than **1 inch (25 mm)** to the plane
23 of exposed concrete surface.

24 2. Furnish ties that, when removed, will leave holes no larger than **1 inch (25 mm)** in
25 diameter in concrete surface.

26 3. Furnish ties with integral water-barrier plates to walls indicated to receive
27 dampproofing or waterproofing.

28 **2.2 STEEL REINFORCEMENT**

29 A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of
30 preconsumer recycled content not less than 60 percent.

31 B. Reinforcing Bars: ASTM A 615/A 615M, **Grade 60 (Grade 420)**, deformed.

1 C. Plain-Steel Wire: ASTM A 82/A 82M, as drawn

2 D. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn
3 steel wire into flat sheets.

4 **2.3 REINFORCEMENT ACCESSORIES**

5 A. Joint Dowel Bars: ASTM A 615/A 615M, **Grade 60 (Grade 420)**, plain-steel bars, cut true to
6 length with ends square and free of burrs.

7 B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and
8 fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports
9 from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice,"
10 of greater compressive strength than concrete and as follows:

11 **2.4 CONCRETE MATERIALS**

12 A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and
13 source, throughout Project:

14 1. Portland Cement: ASTM C 150, Type I . Supplement with the following:

15 a. Fly Ash: ASTM C 618, Class F or C.

16 b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

17 B. Silica Fume: ASTM C 1240, amorphous silica.

18 C. Normal-Weight Aggregates: ASTM C 33, Class 3M coarse aggregate or better, graded. Provide
19 aggregates from a single source with documented service record data of at least 10 years'
20 satisfactory service in similar applications and service conditions using similar aggregates and
21 cementitious materials.

22 1. Maximum Coarse-Aggregate Size: **1 inches (25 mm)** nominal.

23 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

24 D. Water: ASTM C 94/C 94M and potable.

25 **2.5 ADMIXTURES**

26 A. Air-Entraining Admixture: ASTM C 260.

27 B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with
28 other admixtures and that will not contribute water-soluble chloride ions exceeding those
29 permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium
30 chloride.

31 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

- 1 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
- 2 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
- 3 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
- 4 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
- 5 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

6 2.6 FIBER REINFORCEMENT

- 7 A. Synthetic Micro-Fiber: fibrillated polypropylene micro-fibers engineered and designed for use
8 in concrete, complying with ASTM C 1116/C 1116M, Type III, **1/2 to 1-1/2 inches (13 to 38**
9 **mm)** long.

- 10 1. Products: Subject to compliance with requirements, available products that may be
11 incorporated into the Work include, but are not limited to, the following:

12 a. Monofilament Micro-Fibers:

- 13 1) Axim Italcementi Group, Inc.; Fibrasol II P.
- 14 2) Euclid Chemical Company (The), an RPM company; Fiberstrand [100] [150].
- 15 3) FORTA Corporation; FORTA Econo-Mono.
- 16 4) Grace Construction Products, W. R. Grace & Co.; Grace MicroFiber.
- 17 5) Metalcrete Industries; Polystrand 1000.
- 18 6) Nycon, Inc.; ProConM.
- 19 7) Propex Concrete Systems Corp.; Fibermesh 150.
- 20 8) Sika Corporation; Sika Fiber PPM.
- 21 9) <Insert manufacturer's name; product name or designation>.

22 2.7 VAPOR RETARDERS

- 23 A. Sheet Vapor Retarder: ASTM E 1745, Class A[, except with maximum perm rating of 0.1.
24 Include manufacturer's recommended adhesive or pressure-sensitive tape.

- 25 1. Products: Subject to compliance with requirements, provide one of the following:

- 26 a. Carlisle Coatings & Waterproofing, Inc.; Blackline 400.
- 27 b. Fortifiber Building Systems Group; Moistop Ultra 15.
- 28 c. Grace Construction Products, W. R. Grace & Co.; Florprufe 120.
- 29 d. Insulation Solutions, Inc.; Viper VaporCheck 16.
- 30 e. Meadows, W. R., Inc.; Perminator 15 mil.
- 31 f. Raven Industries Inc.; Vapor Block 15.
- 32 g. Reef Industries, Inc.; Griffolyn 15 mil Green.
- 33 h. Stego Industries, LLC; Stego Wrap 15 mil Class A.

- 34 B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448,
35 Size 57, with 100 percent passing a **1-1/2-inch (37.5-mm)** sieve and 0 to 5 percent passing a
36 **No. 8 (2.36-mm)** sieve.

2.8 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1. **Products:** Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

- a. [Axim Italcementi Group, Inc.](#); CATEXOL CimFilm.
- b. [BASF Construction Chemicals - Building Systems](#); Confilm.
- c. [ChemMasters](#); SprayFilm.
- d. [Conspec by Dayton Superior](#); Aquafilm.
- e. [Dayton Superior Corporation](#); Sure Film (J-74).
- f. [Edoco by Dayton Superior](#); BurkeFilm.
- g. [Euclid Chemical Company \(The\), an RPM company](#); Eucobar.
- h. [Kaufman Products, Inc.](#); Vapor-Aid.
- i. [Lambert Corporation](#); LAMBCO Skin.
- j. [L&M Construction Chemicals, Inc.](#); E-CON.
- k. [Meadows, W. R., Inc.](#); EVAPRE.
- l. [Metalcrete Industries](#); Waterhold.
- m. [Nox-Crete Products Group](#); MONOFILM.
- n. [Sika Corporation](#); SikaFilm.
- o. [SpecChem, LLC](#); Spec Film.
- p. [Symons by Dayton Superior](#); Finishing Aid.
- q. [TK Products, Division of Sierra Corporation](#); TK-2120 TRI-FILM.
- r. [Unitex](#); PRO-FILM.
- s. [Vexcon Chemicals, Inc.](#); Certi-Vex Envio Set.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately **9 oz./sq. yd. (305 g/sq. m)** when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.

1. **Products:** Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

- a. [Anti-Hydro International, Inc.](#); AH Clear Cure WB.
- b. [BASF Construction Chemicals - Building Systems](#); Kure-N-Seal WB.
- c. [ChemMasters](#); Safe-Cure & Seal 20.
- d. [Conspec by Dayton Superior](#); Cure and Seal WB.
- e. [Cresset Chemical Company](#); Crete-Trete 309-VOC Cure & Seal.

- 1 f. [Dayton Superior Corporation](#); Safe Cure and Seal (J-18).
2 g. [Edoco by Dayton Superior](#); Spartan Cote WB II.
3 h. [Euclid Chemical Company \(The\), an RPM company](#); Aqua Cure VOX;
4 Clearseal WB 150.
5 i. [Kaufman Products, Inc.](#); Cure & Seal 309 Emulsion.
6 j. [Lambert Corporation](#); Glazecote Sealer-20.
7 k. [L&M Construction Chemicals, Inc.](#); Dress & Seal WB.
8 l. [Meadows, W. R., Inc.](#); Vocomp-20.
9 m. [Metalcrete Industries](#); Metcure.
10 n. [Nox-Crete Products Group](#); Cure & Seal 150E.
11 o. [Symons by Dayton Superior](#); Cure & Seal 18 Percent E.
12 p. [TK Products, Division of Sierra Corporation](#); TK-2519 WB.
13 q. [Vexcon Chemicals, Inc.](#); Starseal 309.
- 14 F. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1,
15 Class A.
- 16 1. **Products:** Subject to compliance with requirements, [provide the following] [provide
17 one of the following] [available products that may be incorporated into the Work
18 include, but are not limited to, the following]:
- 19 a. [BASF Construction Chemicals - Building Systems](#); Kure 1315.
20 b. [ChemMasters](#); Polyseal WB.
21 c. [Conspec by Dayton Superior](#); Sealcure 1315 WB.
22 d. [Edoco by Dayton Superior](#); Cureseal 1315 WB.
23 e. [Euclid Chemical Company \(The\), an RPM company](#); Super Diamond Clear VOX;
24 LusterSeal WB 300.
25 f. [Kaufman Products, Inc.](#); Sure Cure 25 Emulsion.
26 g. [Lambert Corporation](#); UV Safe Seal.
27 h. [L&M Construction Chemicals, Inc.](#); Lumiseal WB Plus.
28 i. [Meadows, W. R., Inc.](#); Vocomp-30.
29 j. [Metalcrete Industries](#); Metcure 30.
30 k. [Right Pointe](#); Right Sheen WB30.
31 l. [Symons by Dayton Superior](#); Cure & Seal 31 Percent E.
32 m. [Vexcon Chemicals, Inc.](#); Vexcon Starseal 1315.
- 33 2. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less
34 when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

35 2.9 RELATED MATERIALS

- 36 A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or
37 ASTM D 1752, cork or self-expanding cork.
- 38 B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A
39 shore durometer hardness of 80 per ASTM D 2240.

1 C. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene
2 butadiene.

3 D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing
4 and bonding to damp surfaces, of class suitable for application temperature and of grade to
5 suit requirements, and as follows:

6 1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to
7 hardened concrete.

8 E. Reglets: Fabricate reglets of not less than 0.022-inch- (0.55-mm-) thick, galvanized-steel sheet.
9 Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

10 F. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch (0.85 mm) thick,
11 with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of
12 concrete or debris.

13 2.10 REPAIR MATERIALS

14 A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be
15 applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match
16 adjacent floor elevations.

17 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement
18 as defined in ASTM C 219.

19 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions,
20 and application.

21 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as
22 recommended by underlayment manufacturer.

23 4. Compressive Strength: Not less than [4100 psi (29 MPa)] at 28 days when tested
24 according to ASTM C 109/C 109M.

25 B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be
26 applied in thicknesses from 1/4 inch (6.4 mm) and that can be filled in over a scarified surface
27 to match adjacent floor elevations.

28 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement
29 as defined in ASTM C 219.

30 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and
31 application.

32 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as
33 recommended by topping manufacturer.

34 4. Compressive Strength: Not less than [5000 psi (34.5 MPa)] at 28 days when tested
35 according to ASTM C 109/C 109M.

2.11 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
1. Fly Ash: 25 percent.
 2. Combined Fly Ash and Pozzolan: 25 percent.
 3. Ground Granulated Blast-Furnace Slag: 50 percent.
 4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
 5. Silica Fume: 10 percent.
 6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
 7. Combined Fly Ash or Pozzolans, Ground Granulated Blast-Furnace Slag, and Silica Fume: 50 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use water-reducing admixture in concrete, as required, for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
 4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings: Proportion normal-weight concrete mixture as follows:
1. Minimum Compressive Strength: **3000 psi (20.7 MPa)** at 28 days.
 2. Maximum Water-Cementitious Materials Ratio: 0.50.
 3. Slump Limit: **4 inches (100 mm)**, plus or minus **1 inch (25 mm)**.
 4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for **1-inch (25-mm)** nominal maximum aggregate size.
- B. Foundation Walls: Proportion normal-weight concrete mixture as follows:
1. Minimum Compressive Strength: **3000 psi (20.7 MPa)** at 28 days.
 2. Maximum Water-Cementitious Materials Ratio: 0.50.

- 1 3. Slump Limit: **4 inches (100 mm)**, plus or minus **1 inch (25 mm)**.
- 2 4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for **1-inch (25-mm)**
- 3 nominal maximum aggregate size.

- 4 C. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:
 - 5 1. Minimum Compressive Strength: **4000 psi (27.6 MPa)** at 28 days.
 - 6 2. Slump Limit: **4 inches (100 mm)**, plus or minus **1 inch (25 mm)**.
 - 7 3. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.

8 **2.13 FABRICATING REINFORCEMENT**

- 9 A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

10 **2.14 CONCRETE MIXING**

- 11 A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to
- 12 ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.
 - 13 1. When air temperature is between **85 and 90 deg F (30 and 32 deg C)**, reduce mixing and
 - 14 delivery time from 1-1/2 hours to 75 minutes; when air temperature is above **90 deg F**
 - 15 (**32 deg C**), reduce mixing and delivery time to 60 minutes.

16 **PART 3 - EXECUTION**

17 **3.1 FORMWORK**

- 18 A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical,
- 19 lateral, static, and dynamic loads, and construction loads that might be applied, until structure
- 20 can support such loads.

- 21 B. Construct formwork so concrete members and structures are of size, shape, alignment,
- 22 elevation, and position indicated, within tolerance limits of ACI 117.

- 23 C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
 - 24 1. Class A, **1/8 inch (3.2 mm)** for smooth-formed finished surfaces.
 - 25 2. Class B, **1/4 inch (6 mm)** for rough-formed finished surfaces.

- 26 D. Construct forms tight enough to prevent loss of concrete mortar.

- 27 E. Fabricate forms for easy removal without hammering or prying against concrete surfaces.
- 28 Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide
- 29 top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 30 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 31 2. Do not use rust-stained steel form-facing material.

- 1 F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required
2 elevations and slopes in finished concrete surfaces. Provide and secure units to support screed
3 strips; use strike-off templates or compacting-type screeds.
- 4 G. Provide temporary openings for cleanouts and inspection ports where interior area of
5 formwork is inaccessible. Close openings with panels tightly fitted to forms and securely
6 braced to prevent loss of concrete mortar. Locate temporary openings in forms at
7 inconspicuous locations.
- 8 H. Chamfer where specified exterior corners and edges of permanently exposed concrete.
- 9 I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads
10 required in the Work. Determine sizes and locations from trades providing such items.
- 11 J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt,
12 and other debris just before placing concrete.
- 13 K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and
14 maintain proper alignment.
- 15 L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written
16 instructions, before placing reinforcement.

17 3.2 EMBEDDED ITEMS

- 18 A. Place and secure anchorage devices and other embedded items required for adjoining work
19 that is attached to or supported by cast-in-place concrete. Use setting drawings, templates,
20 diagrams, instructions, and directions furnished with items to be embedded.
- 21 1. Install anchor rods, accurately located, to elevations required and complying with
22 tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and
23 Bridges."
24 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer
25 face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles,
26 and other conditions.
27 3. Install dovetail anchor slots in concrete structures as indicated.

28 3.3 REMOVING AND REUSING FORMS

- 29 A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does
30 not support weight of concrete may be removed after cumulatively curing at not less than **50**
31 **deg F (10 deg C)** for 24 hours after placing concrete. Concrete has to be hard enough to not be
32 damaged by form-removal operations and curing and protection operations need to be
33 maintained.

- 1 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that
2 supports weight of concrete in place until concrete has achieved at least 70 percent of
3 its 28-day design compressive strength.
- 4 2. Remove forms only if shores have been arranged to permit removal of forms without
5 loosening or disturbing shores.
- 6 B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or
7 otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply
8 new form-release agent.
- 9 C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints.
10 Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete
11 surfaces unless approved by Architect.

12 **3.4 VAPOR RETARDERS**

- 13 A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to
14 ASTM E 1643 and manufacturer's written instructions.
- 15 1. Lap joints **6 inches (150 mm)** and seal with manufacturer's recommended tape.
- 16 B. Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder according to
17 manufacturer's written instructions.
- 18 C. Granular Course: Cover vapor retarder with granular fill, moisten, and compact with
19 mechanical equipment to elevation tolerances of plus **0 inch (0 mm)** or minus **3/4 inch (19**
20 **mm)**.
- 21 1. Place and compact a **1/2-inch- (13-mm-)** thick layer of fine-graded granular material
22 over granular fill.

23 **3.5 STEEL REINFORCEMENT**

- 24 A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- 25 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before
26 placing concrete.
- 27 B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that
28 would reduce bond to concrete.
- 29 C. Accurately position, support, and secure reinforcement against displacement. Locate and
30 support reinforcement with bar supports to maintain minimum concrete cover. Do not tack
31 weld crossing reinforcing bars.
- 32 1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

- 1 D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- 2 E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to
3 minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset
4 laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps
5 with wire.
- 6 **3.6 JOINTS**
- 7 A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- 8 B. Construction Joints: Install so strength and appearance of concrete are not impaired, at
9 locations indicated or as approved by Architect.
- 10 1. Place joints perpendicular to main reinforcement. Continue reinforcement across
11 construction joints unless otherwise indicated. Do not continue reinforcement through
12 sides of strip placements of floors and slabs.
- 13 2. Form keyed joints as indicated. Embed keys at least **1-1/2 inches (38 mm)** into concrete.
- 14 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset
15 joints in girders a minimum distance of twice the beam width from a beam-girder
16 intersection.
- 17 4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and
18 girders and at the top of footings or floor slabs.
- 19 5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls,
20 near corners, and in concealed locations where possible.
- 21 6. Use a bonding agent at locations where fresh concrete is placed against hardened or
22 partially hardened concrete surfaces.
- 23 7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against
24 hardened or partially hardened concrete surfaces.
- 25 C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning
26 concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-
27 fourth of concrete thickness as follows:
- 28 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing
29 each edge of joint to a radius of **1/8 inch (3.2 mm)**. Repeat grooving of contraction joints
30 after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
- 31 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof
32 abrasive or diamond-rimmed blades. Cut **1/8-inch- (3.2-mm-)** wide joints into concrete
33 when cutting action will not tear, abrade, or otherwise damage surface and before
34 concrete develops random contraction cracks.
- 35 D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab
36 junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and
37 other locations, as indicated.

- 1 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished
2 concrete surface unless otherwise indicated.
- 3 2. Terminate full-width joint-filler strips not less than **1/2 inch (13 mm)** or more than **1 inch**
4 **(25 mm)** below finished concrete surface where joint sealants, specified in
5 Section 079200 "Joint Sealants," are indicated.
- 6 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is
7 required, lace or clip sections together.
- 8 E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate
9 or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.
- 10 3.7 WATERSTOPS
- 11 A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a
12 continuous diaphragm. Install in longest lengths practicable. Support and protect exposed
13 waterstops during progress of the Work. Field fabricate joints in waterstops according to
14 manufacturer's written instructions.
- 15 B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated,
16 according to manufacturer's written instructions, adhesive bonding, mechanically fastening,
17 and firmly pressing into place. Install in longest lengths practicable.
- 18 3.8 **CONCRETE PLACEMENT**
- 19 A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded
20 items is complete and that required inspections have been performed.
- 21 B. Do not add water to concrete during delivery, at Project site, or during placement unless
22 approved by Architect.
- 23 C. Before test sampling and placing concrete, water may be added at Project site, subject to
24 limitations of ACI 301.
- 25 1. Do not add water to concrete after adding high-range water-reducing admixtures to
26 mixture.
- 27 D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no
28 new concrete will be placed on concrete that has hardened enough to cause seams or planes
29 of weakness. If a section cannot be placed continuously, provide construction joints as
30 indicated. Deposit concrete to avoid segregation.
- 31 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures
32 and in a manner to avoid inclined construction joints.
- 33 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
- 34 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators
35 vertically at uniformly spaced locations to rapidly penetrate placed layer and at least **6**
36 **inches (150 mm)** into preceding layer. Do not insert vibrators into lower layers of

1 concrete that have begun to lose plasticity. At each insertion, limit duration of vibration
2 to time necessary to consolidate concrete and complete embedment of reinforcement
3 and other embedded items without causing mixture constituents to segregate.

4 E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits
5 of construction joints, until placement of a panel or section is complete.

6 1. Consolidate concrete during placement operations so concrete is thoroughly worked
7 around reinforcement and other embedded items and into corners.

8 2. Maintain reinforcement in position on chairs during concrete placement.

9 3. Screed slab surfaces with a straightedge and strike off to correct elevations.

10 4. Slope surfaces uniformly to drains where required.

11 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured
12 surface plane, before excess bleedwater appears on the surface. Do not further disturb
13 slab surfaces before starting finishing operations.

14 F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from
15 physical damage or reduced strength that could be caused by frost, freezing actions, or low
16 temperatures.

17 1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C)
18 for three successive days, maintain delivered concrete mixture temperature within the
19 temperature range required by ACI 301.

20 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete
21 on frozen subgrade or on subgrade containing frozen materials.

22 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or
23 chemical accelerators unless otherwise specified and approved in mixture designs.

24 G. Hot-Weather Placement: Comply with ACI 301 and as follows:

25 1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled
26 mixing water or chopped ice may be used to control temperature, provided water
27 equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to
28 cool concrete is Contractor's option.

29 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep
30 subgrade uniformly moist without standing water, soft spots, or dry areas.

31 **3.9 FINISHING FORMED SURFACES**

32 A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie
33 holes and defects repaired and patched. Remove fins and other projections that exceed
34 specified limits on formed-surface irregularities.

35 1. Apply to concrete surfaces not exposed to public view.

36 B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in
37 an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and

1 defects. Remove fins and other projections that exceed specified limits on formed-surface
2 irregularities.

3 1. Apply to concrete surfaces exposed to public view or to receive a rubbed finish.

4 C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where
5 indicated:

6 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete
7 surfaces and rub with carborundum brick or another abrasive until producing a uniform
8 color and texture. Do not apply cement grout other than that created by the rubbing
9 process.

10 2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick
11 paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-
12 half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white
13 portland cement in amounts determined by trial patches so color of dry grout will match
14 adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens,
15 rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.

16 3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland
17 cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add
18 white portland cement in amounts determined by trial patches so color of dry grout will
19 match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling
20 motion, finish surface with a cork float.

21 D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces
22 adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent
23 formed surfaces. Continue final surface treatment of formed surfaces uniformly across
24 adjacent unformed surfaces unless otherwise indicated.

25 **3.10 FINISHING FLOORS AND SLABS**

26 A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and
27 finishing operations for concrete surfaces. Do not wet concrete surfaces.

28 B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-
29 floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of **1/4**
30 **inch (6 mm)** in one direction.

31 1. Apply scratch finish to surfaces indicated.

32 C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or
33 inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots.
34 Repeat float passes and restraightening until surface is left with a uniform, smooth, granular
35 texture.

36 1. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-
37 applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

- 1 D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by
2 hand or power-driven trowel. Continue troweling passes and restraighten until surface is free
3 of trowel marks and uniform in texture and appearance. Grind smooth any surface defects
4 that would telegraph through applied coatings or floor coverings.
- 5 1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring,
6 carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-
7 finish coating system.
- 8 2. Finish surfaces to the following tolerances, according to **ASTM E 1155 (ASTM E 1155M)**,
9 for a randomly trafficked floor surface:
- 10
- 11 a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with
12 minimum local values of flatness, F(F) 17; and of levelness, F(L) 15 for areas to
13 receive applied floor finish.
- 14 b. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with
15 minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-
16 grade for lab spaces.
- 17 3. Finish and measure surface so gap at any point between concrete surface and an
18 unlevelled, freestanding, **10-ft.- (3.05-m-)** long straightedge resting on two high spots
19 and placed anywhere on the surface does not exceed **3/16 inch (4.8 mm)**.
- 20 E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry
21 tile is to be installed by either thickset or thin-set method. While concrete is still plastic,
22 slightly scarify surface with a fine broom.
- 23 1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- 24 F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and
25 elsewhere as indicated.
- 26 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with
27 fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish
28 with Architect before application.
- 29 **3.11 MISCELLANEOUS CONCRETE ITEMS**
- 30 A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in
31 place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-
32 place construction. Provide other miscellaneous concrete filling indicated or required to
33 complete the Work.
- 34 B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green
35 and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and
36 terminations slightly rounded.

3.12 CONCRETE PROTECTING AND CURING

- 1 **3.12 CONCRETE PROTECTING AND CURING**
- 2 A. General: Protect freshly placed concrete from premature drying and excessive cold or hot
3 temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather
4 protection during curing.
- 5 B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or
6 windy conditions cause moisture loss approaching **0.2 lb/sq. ft. x h (1 kg/sq. m x h)** before and
7 during finishing operations. Apply according to manufacturer's written instructions after
8 placing, screeding, and bull floating or darbying concrete, but before float finishing.
- 9 C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported
10 slabs, and other similar surfaces. If forms remain during curing period, moist cure after
11 loosening forms. If removing forms before end of curing period, continue curing for the
12 remainder of the curing period.
- 13 D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed
14 surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- 15 E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
- 16 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the
17 following materials:
- 18 a. Water.
- 19 b. Continuous water-fog spray.
- 20 c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete
21 surfaces and edges with **12-inch** lap over adjacent absorptive covers.
- 22 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover
23 for curing concrete, placed in widest practicable width, with sides and ends lapped at
24 least **12 inches (300 mm)**, and sealed by waterproof tape or adhesive. Cure for not less
25 than seven days. Immediately repair any holes or tears during curing period using cover
26 material and waterproof tape.
- 27 a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to
28 receive floor coverings.
- 29 b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to
30 receive penetrating liquid floor treatments.
- 31 c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining
32 cover or a curing compound that the manufacturer certifies will not interfere with
33 bonding of floor covering used on Project.
- 34 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller
35 according to manufacturer's written instructions. Recoat areas subjected to heavy
36 rainfall within three hours after initial application. Maintain continuity of coating and
37 repair damage during curing period.

- 1 a. Removal: After curing period has elapsed, remove curing compound without
2 damaging concrete surfaces by method recommended by curing compound
3 manufacturer unless manufacturer certifies curing compound will not interfere
4 with bonding of floor covering used on Project.
- 5 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a
6 continuous operation by power spray or roller according to manufacturer's written
7 instructions. Recoat areas subjected to heavy rainfall within three hours after initial
8 application. Repeat process 24 hours later and apply a second coat. Maintain continuity
9 of coating and repair damage during curing period.
- 10 F. Polished Concrete Floor Treatment: Apply polished concrete finish system to cured and
11 prepared slabs to match accepted mockup.
- 12 1. Machine grind floor surfaces to receive polished finishes level and smooth and to depth
13 required to reveal aggregate to match approved mockup.
- 14 2. Apply penetrating liquid floor treatment for polished concrete in polishing sequence and
15 according to manufacturer's written instructions, allowing recommended drying time
16 between successive coats.
- 17 3. Continue polishing with progressively finer grit diamond polishing pads to gloss level to
18 match approved mockup.
- 19 4. Control and dispose of waste products produced by grinding and polishing operations.
- 20 5. Neutralize and clean polished floor surfaces.
- 21 G. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to
22 hardened concrete by power spray or roller according to manufacturer's written instructions.

23 3.13 JOINT FILLING

- 24 A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
- 25 1. Defer joint filling until concrete has aged at least six month(s). Do not fill joints until
26 construction traffic has permanently ceased.
- 27 B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact
28 faces of joint clean and dry.
- 29 C. Install semirigid joint filler full depth in saw-cut joints and at least **2 inches (50 mm)** deep in
30 formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

31 3.14 CONCRETE SURFACE REPAIRS

- 32 A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove
33 and replace concrete that cannot be repaired and patched to Architect's approval.

- 1 B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two
2 and one-half parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water
3 for handling and placing.
- 4 C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks,
5 spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and
6 stains and other discolorations that cannot be removed by cleaning.
- 7 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more
8 than 1/2 inch (13 mm) in any dimension to solid concrete. Limit cut depth to 3/4 inch
9 (19 mm). Make edges of cuts perpendicular to concrete surface. Clean, dampen with
10 water, and brush-coat holes and voids with bonding agent. Fill and compact with
11 patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar
12 or cone plugs secured in place with bonding agent.
- 13 2. Repair defects on surfaces exposed to view by blending white portland cement and
14 standard portland cement so that, when dry, patching mortar will match surrounding
15 color. Patch a test area at inconspicuous locations to verify mixture and color match
16 before proceeding with patching. Compact mortar in place and strike off slightly higher
17 than surrounding surface.
- 18 3. Repair defects on concealed formed surfaces that affect concrete's durability and
19 structural performance as determined by Architect.
- 20 D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and
21 verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces
22 sloped to drain for trueness of slope and smoothness; use a sloped template.
- 23 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts,
24 honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or
25 that penetrate to reinforcement or completely through unreinforced sections regardless
26 of width, and other objectionable conditions.
- 27 2. After concrete has cured at least 14 days, correct high areas by grinding.
- 28 3. Correct localized low areas during or immediately after completing surface finishing
29 operations by cutting out low areas and replacing with patching mortar. Finish repaired
30 areas to blend into adjacent concrete.
- 31 4. Correct other low areas scheduled to receive floor coverings with a repair
32 underlayment. Prepare, mix, and apply repair underlayment and primer according to
33 manufacturer's written instructions to produce a smooth, uniform, plane, and level
34 surface. Feather edges to match adjacent floor elevations.
- 35 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low
36 areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent
37 floor elevations. Prepare, mix, and apply repair topping and primer according to
38 manufacturer's written instructions to produce a smooth, uniform, plane, and level
39 surface.
- 40 6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in
41 diameter, by cutting out and replacing with fresh concrete. Remove defective areas with
42 clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm)

clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes **1 inch (25 mm)** or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

- B. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

- C. Inspections:

1. Steel reinforcement placement.
2. Verification of use of required design mixture.
3. Concrete placement, including conveying and depositing.
4. Curing procedures and maintenance of curing temperature.
5. Verification of concrete strength before removal of shores and forms from beams and slabs.

- D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding **5 cu. yd. (4 cu. m)**, but less than **25 cu. yd. (19 cu. m)**, plus one set for each additional **50 cu. yd. (38 cu. m)** or fraction thereof.
2. Testing Frequency: Obtain at least one composite sample for each **100 cu. yd. (76 cu. m)** or fraction thereof of each concrete mixture placed each day.

- a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

- 1 3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample,
2 but not less than one test for each day's pour of each concrete mixture. Perform
3 additional tests when concrete consistency appears to change.
- 4 4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for
5 each composite sample, but not less than one test for each day's pour of each concrete
6 mixture.
- 7 5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is
8 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test
9 for each composite sample.
- 10 6. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test
11 for each composite sample, but not less than one test for each day's pour of each
12 concrete mixture.
- 13 7. Compression Test Specimens: ASTM C 31/C 31M.
 - 14 a. Cast and laboratory cure two sets of two standard cylinder specimens for each
15 composite sample.
 - 16 b. Cast and field cure two sets of two standard cylinder specimens for each
17 composite sample.
- 18 8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured
19 specimens at 7 days and one set of two specimens at 28 days.
 - 20 a. Test one set of two field-cured specimens at 7 days and one set of two specimens
21 at 28 days.
 - 22 b. A compressive-strength test shall be the average compressive strength from a set
23 of two specimens obtained from same composite sample and tested at age
24 indicated.
- 25 9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-
26 cured cylinders, Contractor shall evaluate operations and provide corrective procedures
27 for protecting and curing in-place concrete.
- 28 10. Strength of each concrete mixture will be satisfactory if every average of any three
29 consecutive compressive-strength tests equals or exceeds specified compressive
30 strength and no compressive-strength test value falls below specified compressive
31 strength by more than 500 psi (3.4 MPa).
- 32 11. Test results shall be reported in writing to Architect, concrete manufacturer, and
33 Contractor within 48 hours of testing. Reports of compressive-strength tests shall
34 contain Project identification name and number, date of concrete placement, name of
35 concrete testing and inspecting agency, location of concrete batch in Work, design
36 compressive strength at 28 days, concrete mixture proportions and materials,
37 compressive breaking strength, and type of break for both 7- and 28-day tests.
- 38 12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device
39 may be permitted by Architect but will not be used as sole basis for approval or
40 rejection of concrete.
- 41 13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete
42 when test results indicate that slump, air entrainment, compressive strengths, or other

1 requirements have not been met, as directed by Architect. Testing and inspecting
2 agency may conduct tests to determine adequacy of concrete by cored cylinders
3 complying with ASTM C 42/C 42M or by other methods as directed by Architect.

4 14. Additional testing and inspecting, at Contractor's expense, will be performed to
5 determine compliance of replaced or additional work with specified requirements.

6 15. Correct deficiencies in the Work that test reports and inspections indicate do not
7 comply with the Contract Documents.

8 E. Measure floor and slab flatness and levelness according to **ASTM E 1155** (**ASTM E 1155M**)
9 within 48 hours of finishing.

10 **3.16 PROTECTION OF LIQUID FLOOR TREATMENTS**

11 A. Protect liquid floor treatment from damage and wear during the remainder of construction
12 period. Use protective methods and materials, including temporary covering, recommended in
13 writing by liquid floor treatments installer.

14 **END OF SECTION 033000**

DIVISION 4

1 **SECTION 042000 - UNIT MASONRY**

2 **PART 1 - GENERAL**

3 **1.1 SUMMARY**

4 A. Section Includes:

- 5 1. Concrete masonry units (CMU's).
6 2. Face brick.

7 B. Related Sections:

- 8 1. Division 05 Section "Metal Fabrications" for furnishing steel lintels and shelf angles for
9 unit masonry.

10 **1.2 PRECONSTRUCTION TESTING**

11 A. Preconstruction Testing Service: Engage a qualified independent testing agency to perform
12 preconstruction testing indicated below. Retesting of materials that fail to comply with
13 specified requirements shall be done at Contractor's expense.

- 14 1. Clay Masonry Unit Test: For each type of unit required, according to ASTM C 67 for
15 compressive strength.
16 2. Concrete Masonry Unit Test: For each type of unit required, according to ASTM C 140
17 for compressive strength.

18 **1.3 SUBMITTALS**

19 A. Product Data: For each type of product indicated.

20 B. Shop Drawings: For reinforcing steel. Detail bending and placement of unit masonry
21 reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement."

22 C. Samples for Verification: For each type and color of exposed masonry unit and colored
23 mortar.

24 D. Material Certificates: For each type and size of product indicated. For masonry units include
25 material test reports substantiating compliance with requirements.

26 E. Mix Designs: For each type of mortar and grout. Include description of type and proportions
27 of ingredients.

- 28 1. Include test reports for mortar mixes required to comply with property specification.
29 Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water
30 retention, and ASTM C 91 for air content.

- 1 2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with
2 compressive strength requirement.

3 **1.4 QUALITY ASSURANCE**

4 A. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements
5 in the Contract Documents.

6 B. Sample Panels: Build sample panels to verify selections made under sample submittals and to
7 demonstrate aesthetic effects. Comply with requirements in Division 01 Section "Quality
8 Requirements" for mockups.

- 9 1. Build sample panels for each type of exposed unit masonry construction in sizes
10 approximately **48 inches (1200 mm)** long by **48 inches (1200 mm)** high by full thickness.

11 **1.5 PROJECT CONDITIONS**

12 A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with
13 ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by
14 frost or by freezing conditions. Comply with cold-weather construction requirements
15 contained in ACI 530.1/ASCE 6/TMS 602.

16 B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained
17 in ACI 530.1/ASCE 6/TMS 602.

18 **PART 2 - PRODUCTS**

19 **2.1 MASONRY UNITS, GENERAL**

20 A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units
21 to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use
22 units where such defects will be exposed in the completed Work.

23 B. Fire-Resistance Ratings: Where indicated, provide units that comply with requirements for
24 fire-resistance ratings indicated as determined by testing according to ASTM E 119, by
25 equivalent masonry thickness, or by other means, as acceptable to authorities having
26 jurisdiction.

27 **2.2 CONCRETE MASONRY UNITS**

28 A. Shapes: Provide shapes indicated and for lintels, corners, jambs, sashes, movement joints,
29 headers, bonding, and other special conditions.

30 B. CMUs: ASTM C 90.

- 31 1. Density Classification: Normal weight.

1 **2.3 BRICK**

2 A. General: Provide shapes indicated and as follows:

3 1. For ends of sills and caps and for similar applications that would otherwise expose
4 unfinished brick surfaces, provide units without cores or frogs and with exposed
5 surfaces finished.

6 2. Provide special shapes for applications where shapes produced by sawing would result
7 in sawed surfaces being exposed to view.

8 B. Face Brick: Facing brick complying with ASTM C 216.

9 1. Grade: SW.

10 2. Type: To match existing face brick

11 3. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated
12 "not effloresced."

13 4. Size: To match existing face brick.

14 **2.4 MORTAR AND GROUT MATERIALS**

15 A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather
16 construction. Provide natural color or white cement as required to produce mortar color
17 indicated.

18 B. Hydrated Lime: ASTM C 207, Type S.

19 C. Colored Cement Product: Packaged blend made from portland cement and hydrated lime and
20 mortar pigments, all complying with specified requirements, and containing no other
21 ingredients.

22 D. Aggregate for Mortar: ASTM C 144.

23 1. For joints less than **1/4 inch (6 mm)** thick, use aggregate graded with 100 percent
24 passing the **No. 16 (1.18-mm)** sieve.

25 2. White-Mortar Aggregates: Natural white sand or crushed white stone.

26 3. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to
27 produce required mortar color.

28 E. Aggregate for Grout: ASTM C 404.

29 F. Cold-Weather Admixture: Cold-Weather Admixtures are not permitted.

30 G. Water: Potable.

2.5 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, **Grade 60** (Grade 420).
- B. Masonry Joint Reinforcement, General: ASTM A 951/A 951M.
1. Interior Walls: Hot-dip galvanized, carbon steel.
 2. Exterior Walls: Hot-dip galvanized, carbon steel.
 3. Wire Size for Side Rods: **0.187-inch (4.76-mm)** diameter.
 4. Wire Size for Cross Rods: **0.187-inch (4.76-mm)** diameter.
 5. Wire Size for Veneer Ties: **0.187-inch (4.76-mm)** diameter.
 6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than **16 inches (407 mm)** o.c.
 7. Provide in lengths of not less than **10 feet (3 m)**, with prefabricated corner and tee units.
- C. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

2.6 TIES AND ANCHORS

- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.
1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M; with ASTM A 153/A 153M, Class B-2 coating.
 2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A 153/A 153M, Class B coating.
 3. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least **5/8-inch (16-mm)** cover on outside face. Outer ends of wires are bent 90 degrees and extend **2 inches (50 mm)** parallel to face of veneer.
- C. Individual Wire Ties: Rectangular units with closed ends and not less than **4 inches (100 mm)** wide.
1. Wire: Fabricate from **1/4-inch- (6.35-mm-)** diameter, hot-dip galvanized steel wire.
- D. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Connector Section: Dovetail tabs for inserting into dovetail slots in concrete and attached to tie section; formed from **01.05-inch- (2.66-mm-)** thick, steel sheet, galvanized after fabrication.
 2. Tie Section: Triangular-shaped wire tie, sized to extend within **1 inch (25 mm)** of masonry face, made from **0.25-inch- (6.35-mm-)** diameter, hot-dip galvanized steel wire.

1 E. Adjustable Masonry-Veneer Anchors:

2 1. General: Provide anchors that allow vertical adjustment but resist tension and
3 compression forces perpendicular to plane of wall, for attachment over sheathing to
4 wood or metal studs, and as follows:

5 a. Structural Performance Characteristics: Capable of withstanding a 100-lbf (445-N)
6 load in both tension and compression without deforming or developing play in
7 excess of 0.05 inch (1.3 mm).

8 2. Screw-Attached, Masonry-Veneer Anchors: Units consisting of a wire tie and a metal
9 anchor section.

10 a. Anchor Section: Rib-stiffened, sheet metal plate with screw holes top and
11 bottom, having slotted holes for inserting wire tie.

12 b. Fabricate sheet metal anchor sections and other sheet metal parts from 1.05-
13 inch- (2.66-mm-) thick, steel sheet, galvanized after fabrication.

14 c. Wire Ties: Triangular-, rectangular-, or T-shaped wire ties fabricated from 0.25-
15 inch- (6.35-mm-) diameter, hot-dip galvanized steel wire.

16 **2.7 EMBEDDED FLASHING MATERIALS**

17 A. Flexible Flashing: Use one of the following unless otherwise indicated:

18 1. Copper-Laminated Flashing: 7-oz./sq. ft. (2-kg/sq. m) copper sheet bonded between 2
19 layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.

20 2. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a
21 polyester-reinforced ethylene interpolymer alloy.

22 B. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products
23 or products recommended by flashing manufacturer for bonding flashing sheets to each other
24 and to substrates.

25 **2.8 MISCELLANEOUS MASONRY ACCESSORIES**

26 A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1;
27 compressible up to 35 percent; formulated from neoprene.

28 B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying
29 with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to
30 maintain lateral stability in masonry wall; size and configuration as indicated.

31 C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226,
32 Type I (No. 15 asphalt felt).

33 D. Weep/Vent Products: Use the following unless otherwise indicated:

1 1. Mesh Weep/Vent: Free-draining mesh; made from polyethylene strands, full height and
2 width of head joint and depth **1/8 inch (3 mm)** less than depth of outer wythe; in color
3 selected from manufacturer's standard.

4 E. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not
5 degrade within the wall cavity.

6 1. Provide the following configuration:

7 a. Strips, full-depth of cavity and **10 inches (250 mm)** high, with dovetail shaped
8 notches **7 inches (175 mm)** deep.

9 **2.9 CAVITY-WALL INSULATION**

10 A. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, closed-cell product extruded
11 with an integral skin.

12 B. Adhesive: Type recommended by insulation board manufacturer for application indicated.

13 **2.10 MASONRY CLEANERS**

14 A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing
15 mortar/grout stains, efflorescence, and other new construction stains from new masonry
16 without discoloring or damaging masonry surfaces. Use product expressly approved for
17 intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

18 **2.11 MORTAR AND GROUT MIXES**

19 A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators,
20 retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless
21 otherwise indicated.

22 1. Do not use calcium chloride in mortar or grout.

23 2. Use portland cement-lime mortar unless otherwise indicated.

24 B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix.
25 Measure quantities by weight to ensure accurate proportions, and thoroughly blend
26 ingredients before delivering to Project site.

27 C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the
28 following types of mortar for applications stated unless another type is indicated.

29 1. For masonry below grade or in contact with earth, use Type M.

30 2. For reinforced masonry, use Type S.

31 3. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls;
32 for interior load-bearing walls; for interior non-load-bearing partitions; and for other
33 applications where another type is not indicated, use Type N.

- 1 D. Colored-Aggregate Mortar: Produce required mortar color by using colored aggregates and
2 natural color or white cement as necessary to produce required mortar color.
- 3 1. Application: Use colored aggregate mortar for exposed mortar joints with the following
4 units:
- 5 a. Face brick.
- 6 E. Grout for Unit Masonry: Comply with ASTM C 476.
- 7 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that
8 will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout
9 spaces and pour height.
- 10 2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for
11 specified 28-day compressive strength indicated, but not less than 2000 psi (14 MPa).
- 12 3. Provide grout with a slump of 8 to 11 inches (203 to 279 mm) as measured according to
13 ASTM C 143/C 143M.

14 PART 3 - EXECUTION

15 3.1 INSTALLATION, GENERAL

- 16 A. Use full-size units without cutting if possible. If cutting is required to provide a continuous
17 pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp,
18 unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install
19 cut units with cut surfaces and, where possible, cut edges concealed.
- 20 B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and
21 textures.
- 22 C. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. (30
23 g/194 sq. cm) per minute when tested per ASTM C 67. Allow units to absorb water so they are
24 damp but not wet at time of laying.

25 3.2 TOLERANCES

- 26 A. Dimensions and Locations of Elements:
- 27 1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch (12
28 mm) or minus 1/4 inch (6 mm).
- 29 2. For location of elements in plan do not vary from that indicated by more than plus or
30 minus 1/2 inch (12 mm).
- 31 3. For location of elements in elevation do not vary from that indicated by more than plus
32 or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.
- 33 B. Lines and Levels:

- 1 1. For bed joints and top surfaces of bearing walls do not vary from level by more than **1/4**
- 2 **inch in 10 feet (6 mm in 3 m)**, or **1/2 inch (12 mm)** maximum.
- 3 2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary
- 4 from level by more than **1/8 inch in 10 feet (3 mm in 3 m)**, **1/4 inch in 20 feet (6 mm in 6**
- 5 **m)**, or **1/2 inch (12 mm)** maximum.
- 6 3. For vertical lines and surfaces do not vary from plumb by more than **1/4 inch in 10 feet**
- 7 **(6 mm in 3 m)**, **3/8 inch in 20 feet (9 mm in 6 m)**, or **1/2 inch (12 mm)** maximum.
- 8 4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and
- 9 expansion and control joints, do not vary from plumb by more than **1/8 inch in 10 feet**
- 10 **(3 mm in 3 m)**, **1/4 inch in 20 feet (6 mm in 6 m)**, or **1/2 inch (12 mm)** maximum.
- 11 5. For lines and surfaces do not vary from straight by more than **1/4 inch in 10 feet (6 mm**
- 12 **in 3 m)**, **3/8 inch in 20 feet (9 mm in 6 m)**, or **1/2 inch (12 mm)** maximum.

13 C. Joints:

- 14 1. For bed joints, do not vary from thickness indicated by more than plus or minus **1/8 inch**
- 15 **(3 mm)**, with a maximum thickness limited to **1/2 inch (12 mm)**.
- 16 2. For head and collar joints, do not vary from thickness indicated by more than plus **3/8**
- 17 **inch (9 mm)** or minus **1/4 inch (6 mm)**.
- 18 3. For exposed head joints, do not vary from thickness indicated by more than plus or
- 19 minus **1/8 inch (3 mm)**.

20 **3.3 LAYING MASONRY WALLS**

- 21 A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint
- 22 thicknesses and for accurate location of openings, movement-type joints, returns, and offsets.
- 23 Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at
- 24 other locations.
- 25 B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in
- 26 running bond; do not use units with less than nominal **4-inch (100-mm)** horizontal face
- 27 dimensions at corners or jambs.
- 28 C. Built-in Work: As construction progresses, build in items specified in this and other Sections.
- 29 Fill in solidly with masonry around built-in items.
- 30 D. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- 31 E. Fill cores in hollow CMUs with grout **24 inches (600 mm)** under bearing plates, beams, lintels,
- 32 posts, and similar items unless otherwise indicated.

33 **3.4 MORTAR BEDDING AND JOINTING**

- 34 A. Lay hollow CMUs as follows:
- 35 1. With face shells fully bedded in mortar and with head joints of depth equal to bed
- 36 joints.

- 1 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
- 2 3. With webs fully bedded in mortar in grouted masonry, including starting course on
- 3 footings.
- 4 4. With entire units, including areas under cells, fully bedded in mortar at starting course
- 5 on footings where cells are not grouted.

6 B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient
7 mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head
8 joints.

9 C. Tool exposed joints to match existing joints.

10 D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than
11 paint) unless otherwise indicated.

12 **3.5 CAVITY WALLS**

13 A. Bond wythes of cavity walls together using one of the following methods:

14 1. Individual Metal Ties: Provide ties as shown installed in horizontal joints, but not less
15 than one metal tie for **2.67 sq. ft. (0.25 sq. m)** of wall area spaced not to exceed **16**
16 **inches (406 mm)** o.c. horizontally and **16 inches (406 mm)** o.c. vertically. Stagger ties in
17 alternate courses. Provide additional ties within **12 inches (305 mm)** of openings and
18 space not more than **36 inches (915 mm)** apart around perimeter of openings. At
19 intersecting and abutting walls, provide ties at no more than **24 inches (610 mm)** o.c.
20 vertically.

21 2. Masonry Joint Reinforcement: Installed in horizontal mortar joints.

22 a. Where one wythe is of clay masonry and the other of concrete masonry, use
23 adjustable (two-piece) type reinforcement to allow for differential movement
24 regardless of whether bed joints align.

25 B. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds
26 away from cavity, to minimize mortar protrusions into cavity. Do not attempt to trowel or
27 remove mortar fins protruding into cavity.

28 C. Coat cavity face of backup wythe to comply with Division 07 Section "Bituminous
29 Dampproofing."

30 D. Installing Cavity-Wall Insulation: Place small dabs of adhesive, spaced approximately **12 inches**
31 **(300 mm)** o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners
32 designed for this purpose. Fit courses of insulation between wall ties and other confining
33 obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside
34 wythe of masonry or other construction as shown.

3.6 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of **5/8 inch (16 mm)** on exterior side of walls, **1/2 inch (13 mm)** elsewhere. Lap reinforcement a minimum of **6 inches (150 mm)**.
1. Space reinforcement not more than **16 inches (406 mm)** o.c.
 2. Provide reinforcement not more than **8 inches (203 mm)** above and below wall openings and extending **12 inches (305 mm)** beyond openings in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.

3.7 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

- A. Anchor masonry to structural steel and concrete where masonry abuts or faces structural steel or concrete to comply with the following:
1. Provide an open space not less than **1/2 inch (13 mm)** wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
 2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
 3. Space anchors as indicated, but not more than **24 inches (610 mm)** o.c. vertically and **36 inches (915 mm)** o.c. horizontally.

3.8 ANCHORING MASONRY VENEERS

- A. Anchor masonry veneers to concrete and masonry backup with masonry-veneer anchors to comply with the following requirements:
1. Fasten screw-attached anchors to concrete and masonry backup with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.
 2. Embed tie sections in masonry joints.
 3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
 4. Space anchors as indicated, but not more than **16 inches (406 mm)** o.c. vertically and **16 inches (406 mm)** o.c. horizontally with not less than 1 anchor for each **2.67 sq. ft. (0.25 sq. m)** of wall area. Install additional anchors within **12 inches (305 mm)** of openings and at intervals, not exceeding **36 inches (914 mm)**, around perimeter.

3.9 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.
- B. Install flashing as follows unless otherwise indicated:
1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
 2. At lintels and shelf angles, extend flashing a minimum of **6 inches (150 mm)** into masonry at each end. At heads and sills, extend flashing **6 inches (150 mm)** at ends and turn up not less than **2 inches (50 mm)** to form end dams.
 3. Cut flexible flashing flush with face of wall after masonry wall construction is completed.
- C. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:
1. Use specified weep/vent products to form weep holes.
 2. Space weep holes **24 inches (600 mm)** o.c. unless otherwise indicated.
- D. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.

3.10 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
 2. Limit height of vertical grout pours to not more than **60 inches (1520 mm)**.

1 **3.11 FIELD QUALITY CONTROL**

2 A. Testing and Inspecting: Engage special inspectors to perform tests and inspections and
3 prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform
4 tests and inspections. Retesting of materials that fail to comply with specified requirements
5 shall be done at Contractor's expense.

6 B. Inspections:

7 1. Begin masonry construction only after inspectors have verified proportions of site-
8 prepared mortar.

9 2. Place grout only after inspectors have verified compliance of grout spaces and of grades,
10 sizes, and locations of reinforcement.

11 3. Place grout only after inspectors have verified proportions of site-prepared grout.

12 C. Testing Prior to Construction: One set of tests.

13 D. Testing Frequency: One set of tests for each 5000 sq. ft. (464 sq. m) of wall area or portion
14 thereof.

15 E. Clay Masonry Unit Test: For each type of unit provided, according to ASTM C 67 for
16 compressive strength.

17 F. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for
18 compressive strength.

19 G. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to
20 ASTM C 780.

21 H. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test
22 mortar for mortar air content.

23 I. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

24 **3.12 REPAIRING, POINTING, AND CLEANING**

25 A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove
26 mortar fins and smears before tooling joints.

27 B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

28 1. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for
29 comparison purposes.

30 2. Protect surfaces from contact with cleaner.

31 3. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by
32 rinsing surfaces thoroughly with clear water.

- 1 4. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's
2 written instructions.
3 5. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to
4 type of stain on exposed surfaces.

5 **3.13 MASONRY WASTE DISPOSAL**

- 6 A. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-
7 contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill
8 material as fill is placed.
- 9 1. Do not dispose of masonry waste as fill within 18 inches (450 mm) of finished grade.
- 10 B. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as
11 described above, and other masonry waste, and legally dispose of off Owner's property.

12 **END OF SECTION 042000**

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DIVISION 5

1 **SECTION 051200 - STRUCTURAL STEEL FRAMING**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section Includes:

- 8 1. Structural steel.
9 2. Field-installed shear connectors.
10 3. Grout.

- 11 B. Related Requirements:

- 12 1. Section 053100 "Steel Decking" for field installation of shear connectors through deck.
13 2. Section 055000 "Metal Fabrications" for steel lintels and shelf angles not attached to
14 structural-steel frame and other steel items not defined as structural steel.
15 3. Section 099000 "Painting" for surface-preparation and priming requirements.

16 **1.3 DEFINITIONS**

- 17 A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in
18 AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

19 **1.4 COORDINATION**

- 20 A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with
21 paint and coating manufacturers' written recommendations to ensure that shop primers and
22 topcoats are compatible with one another.

- 23 B. Coordinate installation of anchorage items to be embedded in or attached to other
24 construction without delaying the Work. Provide setting diagrams, sheet metal templates,
25 instructions, and directions for installation.

26 **1.5 PREINSTALLATION MEETINGS**

- 27 A. Preinstallation Conference: Conduct conference at Project site.

1 **1.6 ACTION SUBMITTALS**

2 A. Product Data: For each type of product.

3 B. Shop Drawings: Show fabrication of structural-steel components.

4 1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.

5 2. Include embedment Drawings.

6 3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds,
7 and show size, length, and type of each weld. Show backing bars that are to be removed
8 and supplemental fillet welds where backing bars are to remain.

9 4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts.
10 Identify pretensioned and slip-critical, high-strength bolted connections.

11 C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide
12 according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," for each welded joint
13 whether prequalified or qualified by testing, including the following:

14 1. Power source (constant current or constant voltage).

15 2. Electrode manufacturer and trade name, for demand critical welds.

16 **1.7 INFORMATIONAL SUBMITTALS**

17 A. Qualification Data: For Installer, fabricator, shop-painting applicators, professional engineer,
18 testing agency.

19 B. Welding certificates.

20 C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers,
21 certifying that shop primers are compatible with topcoats.

22 D. Mill test reports for structural steel, including chemical and physical properties.

23 E. Product Test Reports: For the following:

24 1. Bolts, nuts, and washers including mechanical properties and chemical analysis.

25 2. Direct-tension indicators.

26 3. Tension-control, high-strength, bolt-nut-washer assemblies.

27 4. Shear stud connectors.

28 5. Shop primers.

29 6. Nonshrink grout.

30 F. Survey of existing conditions.

31 G. Source quality-control reports.

32 H. Field quality-control special inspection reports.

1 **1.8 QUALITY ASSURANCE**

2 A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality
3 Certification Program and is designated an AISC-Certified Plant, Category STD.

4 B. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification
5 Program.

6 C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M,
7 "Structural Welding Code - Steel."

8 1. Welders and welding operators performing work on bottom-flange, demand-critical
9 welds shall pass the supplemental welder qualification testing, as required by
10 AWS D1.8/D1.8M. FCAW-S and FCAW-G shall be considered separate processes for
11 welding personnel qualification.

12 D. Comply with applicable provisions of the following specifications and documents:

13 1. AISC 303.

14 2. AISC 341 and AISC 341s1.

15 3. AISC 360.

16 4. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

17 **1.9 DELIVERY, STORAGE, AND HANDLING**

18 A. Store materials to permit easy access for inspection and identification. Keep steel members off
19 ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel
20 members and packaged materials from corrosion and deterioration.

21 1. Do not store materials on structure in a manner that might cause distortion, damage, or
22 overload to members or supporting structures. Repair or replace damaged materials or
23 structures as directed.

24 B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.

25 1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes
26 repackaging and seals containers.

27 2. Clean and relubricate bolts and nuts that become dry or rusty before use.

28 3. Comply with manufacturers' written recommendations for cleaning and lubricating
29 ASTM F 1852 fasteners and for retesting fasteners after lubrication.

PART 2 - PRODUCTS**2.1 PERFORMANCE REQUIREMENTS**

A. Connections: Provide details of simple shear connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand loads indicated and comply with other information and restrictions indicated.

1. Select and complete connections using schematic details indicated and AISC 360.
2. Use [Load and Resistance Factor Design; data are given at factored-load level]
[Allowable Stress Design; data are given at service-load level].

B. Construction: Shear wall system

2.2 STRUCTURAL-STEEL MATERIALS

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

B. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than the following:

1. W-Shapes: 60 percent.
2. Channels, Angles: 60 percent.
3. Plate and Bar: 25 percent.
4. All Other Steel Materials: 25 percent.

C. W-Shapes: ASTM A 992/A 992M.

D. Channels, Angles: ASTM A 36/A 36M.

E. Plate and Bar: ASTM A 36/A 36M.

F. Cold-Formed Hollow Structural Sections: ASTM A 500/A 500M, Grade B, structural tubing.

G. Welding Electrodes: Comply with AWS requirements.

2.3 BOLTS, CONNECTORS, AND ANCHORS

A. High-Strength Bolts, Nuts, and Washers: **ASTM A 325 (ASTM A 325M)**, Type 1, heavy-hex steel structural bolts; **ASTM A 563, Grade C, (ASTM A 563M, Class 8S)** heavy-hex carbon-steel nuts; and **ASTM F 436 (ASTM F 436M)**, Type 1, hardened carbon-steel washers; all with plain finish.

1. Direct-Tension Indicators: **ASTM F 959, Type 325 (ASTM F 959M, Type 8.8)**, compressible-washer type with plain finish.

1 B. Shear Connectors: ASTM A 108, Grades 1015 through 1020, headed-stud type, cold-finished
2 carbon steel; AWS D1.1/D1.1M, Type B.

3 C. Unheaded Anchor Rods: ASTM F 1554, Grade 36.

4 1. Configuration: Hooked.

5 2. Nuts: ASTM A 563 (ASTM A 563M) heavy-hex carbon steel.

6 3. Plate Washers: ASTM A 36/A 36M carbon steel.

7 4. Washers: ASTM F 436 (ASTM F 436M), Type 1, hardened carbon steel.

8 5. Finish: Plain.

9 D. Threaded Rods: ASTM A 572/A 572M, Grade 50 (345).

10 1. Nuts: ASTM A 563 (ASTM A 563M) heavy-hex carbon steel.

11 2. Washers: ASTM A 36/A 36M carbon steel.

12 3. Finish: Plain.

13 2.4 PRIMER

14 A. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer
15 complying with MPI#79 and compatible with topcoat.

16 B. Galvanizing Repair Paint: [MPI#18, MPI#19, or SSPC-Paint 20] [ASTM A 780/A 780M].

17 2.5 GROUT

18 A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107/C 1107M, factory-packaged,
19 nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency
20 suitable for application and a 30-minute working time.

21 2.6 FABRICATION

22 A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate
23 according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to
24 AISC 360.

25 1. Camber structural-steel members where indicated.

26 2. Fabricate beams with rolling camber up.

27 3. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain
28 markings until structural steel has been erected.

29 4. Mark and match-mark materials for field assembly.

30 5. Complete structural-steel assemblies, including welding of units, before starting shop-
31 priming operations.

32 B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

- 1 1. Plane thermally cut edges to be welded to comply with requirements in
2 AWS D1.1/D1.1M.
- 3 C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- 4 D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- 5 E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-
6 SP 2, "Hand Tool Cleaning." or SSPC-SP 3, "Power Tool Cleaning."
- 7 F. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear
8 connectors. Use automatic end welding of headed-stud shear connectors according to
9 AWS D1.1/D1.1M and manufacturer's written instructions.
- 10 G. Steel Wall-Opening Framing: Select true and straight members for fabricating steel wall-
11 opening framing to be attached to structural-steel frame. Straighten as required to provide
12 uniform, square, and true members in completed wall framing. Build up welded framing, weld
13 exposed joints continuously, and grind smooth.
- 14 H. Welded Door Frames: Build up welded door frames attached to structural-steel frame. Weld
15 exposed joints continuously and grind smooth. Plug-weld fixed steel bar stops to frames.
16 Secure removable stops to frames with countersunk machine screws, uniformly spaced not
17 more than **10 inches (250 mm)** o.c. unless otherwise indicated.
- 18 I. Holes: Provide holes required for securing other work to structural steel and for other work to
19 pass through steel members.
 - 20 1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes
21 or enlarge holes by burning.
 - 22 2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to
23 steel surfaces.
 - 24 3. Weld threaded nuts to framing and other specialty items indicated to receive other
25 work.

26 **2.7 SHOP CONNECTIONS**

- 27 A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for
28 Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
 - 29 1. Joint Type: Snug tightened.
- 30 B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding
31 procedure specifications, weld quality, and methods used in correcting welding work.
 - 32 1. Assemble and weld built-up sections by methods that maintain true alignment of axes
33 without exceeding tolerances in AISC 303 for mill material.

1 **2.8 SHOP PRIMING**

2 A. Shop prime steel surfaces except the following:

- 3 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded
4 members to a depth of **2 inches (50 mm)**.
- 5 2. Surfaces to be field welded.
- 6 3. Surfaces of high-strength bolted, slip-critical connections.
- 7 4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
- 8 5. Galvanized surfaces.
- 9 6. Surfaces enclosed in interior construction.

10 B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and
11 spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and
12 standards:

- 13 1. SSPC-SP 2, "Hand Tool Cleaning."
14 2. SSPC-SP 3, "Power Tool Cleaning."

15 C. Priming: Immediately after surface preparation, apply primer according to manufacturer's
16 written instructions and at rate recommended by SSPC to provide a minimum dry film
17 thickness of **1.5 mils (0.038 mm)**. Use priming methods that result in full coverage of joints,
18 corners, edges, and exposed surfaces.

- 19 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
20 2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or
21 erection. Change color of second coat to distinguish it from first.

22 D. Painting: Prepare steel and apply a one-coat, nonasphaltic primer complying with SSPC-
23 PS Guide 7.00, "Painting System Guide 7.00: Guide for Selecting One-Coat Shop Painting
24 Systems," to provide a dry film thickness of not less than **1.5 mils (0.038 mm)**.

25 **2.9 GALVANIZING**

26 A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel
27 according to ASTM A 123/A 123M.

- 28 1. Fill vent and drain holes that are exposed in the finished Work unless they function as
29 weep holes, by plugging with zinc solder and filing off smooth.
- 30 2. Galvanize [lintels] [shelf angles] [and] [welded door frames] attached to structural-steel
31 frame and located in exterior walls.

32 **2.10 SOURCE QUALITY CONTROL**

33 A. Testing Agency: Owner will engage a qualified testing agency to perform shop tests and
34 inspections.

- 1 1. Provide testing agency with access to places where structural-steel work is being
2 fabricated or produced to perform tests and inspections.
- 3 B. Bolted Connections: Inspect shop-bolted connections according to RCSC's "Specification for
4 Structural Joints Using ASTM A 325."
- 5 C. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1/D1.1M
6 and the following inspection procedures, at testing agency's option:
- 7 1. Liquid Penetrant Inspection: ASTM E 165.
8 2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld.
9 Cracks or zones of incomplete fusion or penetration are not accepted.
10 3. Ultrasonic Inspection: ASTM E 164.
11 4. Radiographic Inspection: ASTM E 94.
- 12 D. In addition to visual inspection, test and inspect shop-welded shear connectors according to
13 requirements in AWS D1.1/D1.1M for stud welding and as follows:
- 14 1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree
15 flash or welding repairs to any shear connector.
16 2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear
17 connectors if weld fracture occurs on shear connectors already tested.
- 18 E. Prepare test and inspection reports.

19 **PART 3 - EXECUTION**

20 **3.1 EXAMINATION**

- 21 A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing
22 surfaces and locations of anchor rods, bearing plates, and other embedments for compliance
23 with requirements.
- 24 1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods,
25 bearing plates, and other embedments showing dimensions, locations, angles, and
26 elevations.
- 27 B. Proceed with installation only after unsatisfactory conditions have been corrected.

28 **3.2 PREPARATION**

- 29 A. Provide temporary shores, guys, braces, and other supports during erection to keep structural
30 steel secure, plumb, and in alignment against temporary construction loads and loads equal in
31 intensity to design loads. Remove temporary supports when permanent structural steel,
32 connections, and bracing are in place unless otherwise indicated.

- 1 1. Do not remove temporary shoring supporting composite deck construction until cast-in-
2 place concrete has attained its design compressive strength.

3 **3.3 ERECTION**

- 4 A. Set structural steel accurately in locations and to elevations indicated and according to
5 AISC 303 and AISC 360.

- 6 B. Baseplates, Bearing Plates and Leveling Plates: Clean concrete- and masonry-bearing surfaces
7 of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface
8 of plates.

- 9 1. Set plates for structural members on wedges, shims, or setting nuts as required.
10 2. Weld plate washers to top of baseplate.
11 3. Snug-tighten anchor rods after supported members have been positioned and plumbed.
12 Do not remove wedges or shims but, if protruding, cut off flush with edge of plate
13 before packing with grout.
14 4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain.
15 Neatly finish exposed surfaces; protect grout and allow to cure. Comply with
16 manufacturer's written installation instructions for shrinkage-resistant grouts.

- 17 C. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for
18 Steel Buildings and Bridges."

- 19 D. Align and adjust various members that form part of complete frame or structure before
20 permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in
21 permanent contact with members. Perform necessary adjustments to compensate for
22 discrepancies in elevations and alignment.

- 23 1. Level and plumb individual members of structure.
24 2. Make allowances for difference between temperature at time of erection and mean
25 temperature when structure is completed and in service.

- 26 E. Splice members only where indicated.

- 27 F. Do not use thermal cutting during erection unless approved by Engineer. Finish thermally cut
28 sections within smoothness limits in AWS D1.1/D1.1M.

- 29 G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must
30 be enlarged to admit bolts.

- 31 H. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear
32 connectors. Use automatic end welding of headed-stud shear connectors according to
33 AWS D1.1/D1.1M and manufacturer's written instructions.

1 3.4 FIELD CONNECTIONS

2 A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural
3 Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.

4 1. Joint Type: Snug tightened.

5 B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding
6 procedure specifications, weld quality, and methods used in correcting welding work.

7 1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary
8 connections, and removal of paint on surfaces adjacent to field welds.

9 2. Remove backing bars or runoff tabs where indicated, back gouge, and grind steel
10 smooth.

11 3.5 FIELD QUALITY CONTROL

12 A. Special Inspections: Owner will engage a qualified special inspector to perform the following
13 special inspections:

14 1. Verify structural-steel materials and inspect steel frame joint details.

15 2. Verify weld materials and inspect welds.

16 3. Verify connection materials and inspect high-strength bolted connections.

17 B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

18 C. Bolted Connections: Inspect bolted connections according to RCSC's "Specification for
19 Structural Joints Using ASTM A 325 or A 490 Bolts."

20 D. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.

21 1. In addition to visual inspection, test and inspect field welds according to
22 AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:

23 a. Liquid Penetrant Inspection: ASTM E 165.

24 b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on
25 finished weld. Cracks or zones of incomplete fusion or penetration are not
26 accepted.

27 c. Ultrasonic Inspection: ASTM E 164.

28 d. Radiographic Inspection: ASTM E 94.

29 E. In addition to visual inspection, test and inspect field-welded shear connectors according to
30 requirements in AWS D1.1/D1.1M for stud welding and as follows:

31 1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree
32 flash or welding repairs to any shear connector.

- 1 2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear
2 connectors if weld fracture occurs on shear connectors already tested.

3 **3.6 REPAIRS AND PROTECTION**

4 A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair
5 galvanizing to comply with ASTM A 780/A 780M.

6 B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged
7 or missing and paint with the same material as used for shop painting to comply with SSPC-
8 PA 1 for touching up shop-painted surfaces.

9 1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool
10 cleaning.

11 C. Touchup Painting: Cleaning and touchup painting are specified in Section 099113 "Exterior
12 Painting" and Section 099123 "Interior Painting."

13 **END OF SECTION 051200**

14

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1 **SECTION 053100 - STEEL DECKING**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section Includes:

- 8 1. Roof deck.

- 9 B. Related Requirements:

- 10 1. Section 051200 "Structural Steel Framing" for shop- and field-welded shear connectors.
11 2. Section 055000 "Metal Fabrications" for framing deck openings with miscellaneous steel
12 shapes.

13 **1.3 ACTION SUBMITTALS**

- 14 A. Product Data: For each type of deck, accessory, and product indicated.

- 15 B. Shop Drawings:

- 16 1. Include layout and types of deck panels, anchorage details, reinforcing channels, pans,
17 cut deck openings, special jointing, accessories, and attachments to other construction.

18 **1.4 INFORMATIONAL SUBMITTALS**

- 19 A. Welding certificates.

- 20 B. Product Certificates: For each type of steel deck.

- 21 C. Evaluation Reports: For steel deck.

- 22 D. Field quality-control reports.

23 **1.5 QUALITY ASSURANCE**

- 24 A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

- 25 B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3, "Structural
26 Welding Code - Sheet Steel."

1 **1.6 DELIVERY, STORAGE, AND HANDLING**

2 A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage,
3 and handling.

4 B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a
5 waterproof covering and ventilate to avoid condensation.

6 1. Protect and ventilate acoustical cellular roof deck with factory-installed insulation to
7 maintain insulation free of moisture.

8 **PART 2 - PRODUCTS**

9 **2.1 PERFORMANCE REQUIREMENTS**

10 A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to
11 AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

12 B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency.
13 Identify products with appropriate markings of applicable testing agency.

14 1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of
15 another qualified testing agency.

16 C. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of
17 preconsumer recycled content not less than 25 percent.

18 D. Low-Emitting Materials: Paints and coatings shall comply with the testing and product
19 requirements of the California Department of Health Services' "Standard Practice for the
20 Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental
21 Chambers."

22 **2.2 ROOF DECK**

23 A. Manufacturers: Subject to compliance with requirements, [available manufacturers offering
24 products that may be incorporated into the Work include, but are not limited to, the
25 following]:

26 1. [ASC Profiles, Inc.; a Blue Scope Steel company.](#)

27 2. [Canam United States; Canam Group Inc.](#)

28 3. [CMC Joist & Deck.](#)

29 4. [Consolidated Systems, Inc.; Metal Dek Group.](#)

30 5. [Cordeck.](#)

31 6. [DACS, Inc.](#)

32 7. [Epic Metals Corporation.](#)

33 8. [Marlyn Steel Decks, Inc.](#)

- 1 9. [New Millennium Building Systems, LLC.](#)
 - 2 10. [Nucor Corp.; Vulcraft Group.](#)
 - 3 11. [Roof Deck, Inc.](#)
 - 4 12. [Valley Joist; Subsidiary of EBSCO Industries, Inc.](#)
 - 5 13. [Verco Manufacturing Co.](#)
 - 6 14. [Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.](#)
- 7 B. Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI
8 Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 31, and with the
9 following:
- 10 1. Galvanized-Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33 (230) zinc
11 coating.
 - 12 2. Deck Profile: Type WR, wide rib
 - 13 3. Profile Depth: 1-1/2 inches (38 mm).
 - 14 4. Design Uncoated-Steel Thickness: 0.0295 inch (0.75 mm).
 - 15 5. Span Condition: Triple span or more.
 - 16 6. Side Laps: Overlapped.

17 2.3 ACCESSORIES

- 18 A. General: Provide manufacturer's standard accessory materials for deck that comply with
19 requirements indicated.
- 20 B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically
21 driven carbon-steel fasteners; or self-drilling, self-threading screws.
- 22 C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel
23 screws, No. 10 (4.8-mm) minimum diameter.
- 24 D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.
- 25 E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000
26 psi (230 MPa), not less than 0.0359-inch (0.91-mm) design uncoated thickness, of same
27 material and finish as deck; of profile indicated or required for application.
- 28 F. Galvanizing Repair Paint: ASTM A 780

29 PART 3 - EXECUTION

30 3.1 EXAMINATION

- 31 A. Examine supporting frame and field conditions for compliance with requirements for
32 installation tolerances and other conditions affecting performance.
- 33 B. Proceed with installation only after unsatisfactory conditions have been corrected.

1 **3.2 INSTALLATION, GENERAL**

- 2 A. Install deck panels and accessories according to applicable specifications and commentary in
3 SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.
- 4 B. Install temporary shoring before placing deck panels if required to meet deflection limitations.
- 5 C. Locate deck bundles to prevent overloading of supporting members.
- 6 D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned
7 and bearing on supporting frame before being permanently fastened. Do not stretch or
8 contract side-lap interlocks.
- 9 1. Align cellular deck panels over full length of cell runs and align cells at ends of abutting
10 panels.
- 11 E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.
- 12 F. Cut and neatly fit deck panels and accessories around openings and other work projecting
13 through or adjacent to deck.
- 14 G. Provide additional reinforcement and closure pieces at openings as required for strength,
15 continuity of deck, and support of other work.
- 16 H. Comply with AWS requirements and procedures for manual shielded metal arc welding,
17 appearance and quality of welds, and methods used for correcting welding work.
- 18 I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical
19 fasteners and install according to deck manufacturer's written instructions.

20 **3.3 ROOF-DECK INSTALLATION**

- 21 A. Fasten roof-deck panels to steel supporting members by arc spot (puddle) welds of the surface
22 diameter indicated or arc seam welds with an equal perimeter that is not less than **1-1/2**
23 **inches (38 mm)** long, and as follows:
- 24 1. Weld Diameter: **5/8 inch (16 mm)**, nominal.
- 25 2. Weld Spacing: Weld edge and interior ribs of deck units with a minimum of two welds
26 per deck unit at each support. Space welds **18 inches (457 mm)** apart, maximum.
- 27 B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels
28 between supports, at intervals not exceeding the lesser of 1/2 of the span or **36 inches (914**
29 **mm)**, and as follows:
- 30 1. Fasten with a minimum of **1-1/2-inch- (38-mm-)** long welds.
- 31 C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of **1-1/2**
32 **inches (38 mm)**, with end joints as follows:

- 1 1. End Joints: Lapped 2 inches (51 mm) minimum
- 2 D. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated.
- 3 Install with adhesive according to manufacturer's written instructions to ensure complete
- 4 closure.

5 **3.4 FIELD QUALITY CONTROL**

- 6 A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- 7 B. Field welds will be subject to inspection.
- 8 C. Testing agency will report inspection results promptly and in writing to Contractor and
- 9 Architect.
- 10 D. Remove and replace work that does not comply with specified requirements.
- 11 E. Additional inspecting, at Contractor's expense, will be performed to determine compliance of
- 12 corrected work with specified requirements.

13 **3.5 PROTECTION**

- 14 A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck
- 15 with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- 16 B. Provide final protection and maintain conditions to ensure that steel deck is without damage
- 17 or deterioration at time of Substantial Completion.

18

19 **END OF SECTION 053100**

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SECTION 054000 - COLD-FORMED METAL FRAMING**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes the following:

1. Exterior non-load-bearing wall framing.
2. Floor joist framing.
3. Ceiling joist framing.

- B. Related Sections include the following:

1. Division 05 Section "Metal Fabrications" for masonry shelf angles and connections.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.

1. Design Loads: As follows:

- a. Contractor is responsible for providing assemblies designed to provide 10# psf collateral load in addition to the dead load of framing and any applied materials.

2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:

- a. Exterior Non-Load-Bearing Framing: Horizontal deflection of 1/360 of the wall height.
- b. Floor Joist Framing: Vertical deflection of 1/480 for live loads and 1/360 for total loads of the span.
- c. Ceiling Joist Framing: Vertical deflection of 1/360 of the span.

3. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F (67 deg C).

1 4. Design framing system to maintain clearances at openings, to allow for construction
2 tolerances, and to accommodate live load deflection of primary building structure as
3 follows:

4
5 a. Upward and downward movement of 1/2 inch (13 mm).
6

7 B. Cold-Formed Steel Framing, General: Design according to AISI's "Standard for Cold-Formed
8 Steel Framing - General Provisions."
9

10 1. Design exterior non-load-bearing wall framing to accommodate horizontal deflection
11 without regard for contribution of sheathing materials.
12

13 **1.4 SUBMITTALS**

14
15 A. Product Data: For each type of cold-formed metal framing product and accessory indicated.
16

17 B. Shop Drawings: Show layout, spacings, sizes, thicknesses, and types of cold-formed metal
18 framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
19 Show reinforcing channels, opening framing, supplemental framing, strapping, bracing,
20 bridging, splices, accessories, connection details, and attachment to adjoining work.
21

22 1. For cold-formed metal framing indicated to comply with design loads, include structural
23 analysis data signed and sealed by the qualified professional engineer responsible for
24 their preparation.
25

26 C. Welding certificates.
27

28 D. Product Test Reports: From a qualified testing agency, unless otherwise stated, indicating that
29 each of the following complies with requirements, based on evaluation of comprehensive tests
30 for current products:
31

32 1. Steel sheet.

33 2. Power-actuated anchors.

34 3. Mechanical fasteners.

35 4. Vertical deflection clips.

36 5. Miscellaneous structural clips and accessories.
37

38 **1.5 QUALITY ASSURANCE**

39
40 A. Engineering Responsibility: Preparation of Shop Drawings, design calculations, and other
41 structural data by a qualified professional engineer.
42

43 B. Professional Engineer Qualifications: A professional engineer who is legally qualified to
44 practice in jurisdiction where Project is located and who is experienced in providing
45 engineering services of the kind indicated. Engineering services are defined as those

1 performed for installations of cold-formed metal framing that are similar to those indicated for
2 this Project in material, design, and extent.

- 3
- 4 C. Product Tests: Mill certificates or data from a qualified independent testing agency indicating
5 steel sheet complies with requirements, including base-metal thickness, yield strength, tensile
6 strength, total elongation, chemical requirements, and metallic-coating thickness.
- 7
- 8 D. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural
9 Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."
- 10
- 11 E. Fire-Test-Response Characteristics: Where indicated, provide cold-formed metal framing
12 identical to that of assemblies tested for fire resistance per ASTM E 119 by a testing and
13 inspecting agency acceptable to authorities having jurisdiction.
- 14
- 15 F. AISI Specifications and Standards: Comply with AISI's "North American Specification for the
16 Design of Cold-Formed Steel Structural Members" and its "Standard for Cold-Formed Steel
17 Framing - General Provisions."
- 18

19 **1.6 DELIVERY, STORAGE, AND HANDLING**

- 20
- 21 A. Protect cold-formed metal framing from corrosion, deformation, and other damage during
22 delivery, storage, and handling.
- 23
- 24 B. Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid
25 condensation.
- 26

27 **PART 2 - PRODUCTS**

28 **2.1 MANUFACTURERS**

- 29
- 30 A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering
31 cold-formed metal framing that may be incorporated into the Work include, but are not
32 limited to, the following:
- 33
- 34
- 35
- 36 1. Dietrich Metal Framing; a Worthington Industries Company.
- 37 2. Dale/Incor.
- 38 3. Clark Steel Framing.
- 39

40 **2.2 MATERIALS**

- 41
- 42 A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and
43 coating weight as follows:
- 44
- 45 1. Grade: ST50H (ST340H) As required by structural performance.
- 46 2. Coating: G60 (Z180), A60 (ZF180), AZ50 (AZ150), or GF30 (ZGF90).

1 B. Steel Sheet for Vertical Deflection Clips: ASTM A 653/A 653M, structural steel, zinc coated, of
2 grade and coating as follows:

- 3
4 1. Grade: 50 (340), Class 1 or 2 As required by structural performance.
5 2. Coating: G90 (Z275).
6

7 **2.3 EXTERIOR NON-LOAD-BEARING WALL FRAMING**

8

9 A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched,
10 with stiffened flanges, and as follows:

- 11 1. Minimum Base-Metal Thickness: 0.0428 inch (1.09 mm).
12 2. Flange Width: 1-5/8 inches (41 mm).
13

14 B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated,
15 unpunched, with unstiffened flanges, and as follows:

- 16
17 1. Minimum Base-Metal Thickness: Matching steel studs.
18 2. Flange Width: 1-1/4 inches (32 mm).
19

20 C. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched,
21 with unstiffened flanges, of web depth to contain studs while allowing free vertical movement,
22 with flanges designed to support horizontal and lateral loads and transfer them to the primary
23 structure, and as follows:

- 24
25 1. Available Manufacturers: Subject to compliance with requirements, manufacturers
26 offering products that may be incorporated into the Work include, but are not limited
27 to, the following:
28
29 a. See Available Manufacturers above in Section 2.1A.
30
31 2. Minimum Base-Metal Thickness: 0.0538 inch (1.37 mm).
32 3. Flange Width: 1 inch (25 mm) plus the design gap for 1-story structures.
33

34 **2.4 FLOOR JOIST FRAMING**

35

36 A. Steel Joists: Manufacturer's standard C-shaped steel joists, of web depths indicated,
37 unpunched, with stiffened flanges, and as follows:

- 38
39 1. Minimum Base-Metal Thickness: 0.0428 inch (1.09 mm).
40 2. Flange Width: 1-5/8 inches (41 mm), minimum.
41

42 B. Steel Joist Track: Manufacturer's standard U-shaped steel joist track, of web depths indicated,
43 unpunched, with unstiffened flanges, and as follows:

- 44
45 1. Minimum Base-Metal Thickness: Matching steel joists.

- 1 2. Flange Width: 1-5/8 inches (41 mm), minimum.

2
3 **2.5 CEILING JOIST FRAMING**

- 4
5 A. Steel Ceiling Joists: Manufacturer's standard C-shaped steel sections, of web depths indicated,
6 [unpunched,] with stiffened flanges, and as follows:

- 7
8 1. Minimum Base-Metal Thickness: 0.0329 inch (0.84 mm).
9 2. Flange Width: 1-5/8 inches (41 mm), minimum.

10
11 **2.6 FRAMING ACCESSORIES**

- 12
13 A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade,
14 Type H, metallic coated, of same grade and coating weight used for framing members.

- 15
16 B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise
17 indicated, as follows:

- 18 1. Supplementary framing.
19 2. Bracing, bridging, and solid blocking.
20 3. Web stiffeners.
21 4. Anchor clips.
22 5. End clips.
23 6. Gusset plates.
24 7. Stud kickers, knee braces, and girts.
25 8. Joist hangers and end closures.
26 9. Hole reinforcing plates.
27 10. Backer plates.

28
29 **2.7 ANCHORS, CLIPS, AND FASTENERS**

- 30
31 A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to
32 ASTM A 123/A 123M.

- 33
34 B. Power-Actuated Anchors: Fastener system of type suitable for application indicated,
35 fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load
36 equal to 10 times design load, as determined by testing per ASTM E 1190 conducted by a
37 qualified independent testing agency.

- 38
39 C. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping
40 steel drill screws.

- 41
42 1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.

- 43
44 D. Welding Electrodes: Comply with AWS standards.
45
46

2.8 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: SSPC-Paint 20 or DOD-P-21035.
- B. Shims: Load bearing, high-density multimonomer plastic, nonleaching.
- C. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6.4 mm) thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

2.9 FABRICATION

- A. Fabricate cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
 - 1. Fabricate framing assemblies using jigs or templates.
 - 2. Cut framing members by sawing or shearing; do not torch cut.
 - 3. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
 - a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by not less than three exposed screw threads.
 - 4. Fasten other materials to cold-formed metal framing by welding, bolting, or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.
- C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 - 1. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
 - 2. Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance.
1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Install load bearing shims or grout between the underside of wall bottom track or rim track and the top of foundation wall or slab at stud or joist locations to ensure a uniform bearing surface on supporting concrete or masonry construction.
- B. Install sealer gaskets to isolate the underside of wall bottom track or rim track and the top of foundation wall or slab at stud or joist locations.

3.3 INSTALLATION, GENERAL

- A. Cold-formed metal framing may be shop or field fabricated for installation, or it may be field assembled.
- B. Install cold-formed metal framing according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions" and to manufacturer's written instructions unless more stringent requirements are indicated.
- C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.
1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch (1.6 mm).
- D. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened.
1. Cut framing members by sawing or shearing; do not torch cut.
 2. Fasten cold-formed metal framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
 - a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - b. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.
- E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.

- 1 F. Install temporary bracing and supports to secure framing and support loads comparable in
2 intensity to those for which structure was designed. Maintain braces and supports in place,
3 undisturbed, until entire integrated supporting structure has been completed and permanent
4 connections to framing are secured.
5
- 6 G. Do not bridge building expansion and control joints with cold-formed metal framing.
7 Independently frame both sides of joints.
8
- 9 H. Install insulation, specified in Division 07 Section "Thermal Insulation," in built-up exterior
10 framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are
11 inaccessible on completion of framing work.
12
- 13 I. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's
14 standard punched openings.
15
- 16 J. Erection Tolerances: Install cold-formed metal framing level, plumb, and true to line to a
17 maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
18
- 19 1. Space individual framing members no more than plus or minus 1/8 inch (3 mm) from
20 plan location. Cumulative error shall not exceed minimum fastening requirements of
21 sheathing or other finishing materials.
22

23 3.4 EXTERIOR NON-LOAD-BEARING "Z" FURRING INSTALLATION

24

- 25 A. Install continuous Z furring sized to match rigid insulation. Align furring accurately and
26 securely anchor to supporting structure as indicated.
27
- 28 B. Space horizontally applied Z furring as follows:
29
- 30 1. Z Spacing: 16 inches (406 mm) o.c. vertically, as indicated.
31

32 3.5 JOIST INSTALLATION AT IDF ROOMS

33

- 34 A. Install perimeter joist track sized to match joists. Align and securely anchor or fasten track to
35 supporting structure at corners, ends, and spacings indicated on Shop Drawings.
36
- 37 B. Install joists bearing on supporting frame, level, straight, and plumb; adjust to final position,
38 brace, and reinforce. Fasten joists to both flanges of joist track.
39 1. Reinforce ends and bearing points of joists with web stiffeners, end clips, joist hangers,
40 steel clip angles, or steel-stud sections as indicated on Shop Drawings.
41
- 42 C. Space joists not more than 2 inches (51 mm) from abutting walls, and as follows:
43
- 44 1. Joist Spacing: 16 inches (406 mm).
45

- 1 D. Frame openings with built-up joist headers consisting of joist and joist track, nesting joists, or
2 another combination of connected joists if indicated.
3
- 4 E. Install joist reinforcement at interior supports with single, short length of joist section located
5 directly over interior support, with lapped joists of equal length to joist reinforcement, or as
6 indicated on Shop Drawings.
7
- 8 F. Secure joists to load-bearing interior walls to prevent lateral movement of bottom flange.
9
- 10 G. Install miscellaneous joist framing and connections, including web stiffeners, closure pieces,
11 clip angles, continuous angles, hold-down angles, anchors, and fasteners, to provide a
12 complete and stable joist-framing assembly.
13

14 **3.6 REPAIRS AND PROTECTION**

15

- 16 A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and
17 installed cold-formed metal framing with galvanized repair paint according to ASTM A 780 and
18 manufacturer's written instructions.
19
- 20 B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and
21 Installer, that ensure that cold-formed metal framing is without damage or deterioration at
22 time of Substantial Completion.

23 **END OF SECTION 054000**

24

1

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SECTION 055000 - METAL FABRICATIONS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes the following:

1. Steel framing and supports for operable partitions.
2. Steel framing and supports for overhead doors.
3. Steel framing and supports for countertops.
4. Steel framing and supports for mechanical and electrical equipment.
5. Steel framing and supports for applications where framing and supports are not specified in other Sections.
6. Shelf angles.
7. Loose bearing and leveling plates.
8. Metal bollards.

- B. Products furnished, but not installed, under this Section include the following:

1. Loose steel lintels.

- C. Related Sections include the following:

1. Division 03 Section "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, wedge-type inserts and other items indicated to be cast into concrete.
2. Division 04 Section "Unit Masonry" for installing loose lintels, anchor bolts, and other items indicated to be built into unit masonry.
3. Division 05 Section "Structural Steel Framing."
4. Division 05 Section "Metal Stairs."
5. Division 06 Section "Miscellaneous Rough Carpentry" for metal framing anchors.

1.3 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Nonslip aggregates and nonslip-aggregate surface finishes.
2. Paint products.

B. Shop Drawings: Show fabrication and installation details for metal fabrications.

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items, including prefabricated boot or other means of providing roofing surface protection from anchorage damage. See A2.71 for typical application.
2. Provide templates for anchors and bolts specified for installation under other Sections.

C. Welding certificates.

1.5 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."
2. AWS D1.2, "Structural Welding Code--Aluminum."
3. AWS D1.3, "Structural Welding Code--Sheet Steel."

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Provide allowance for trimming and fitting at site.

1.7 COORDINATION

A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.3 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Steel Tubing: ASTM A 500, cold-formed steel tubing.
- C. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.

2.4 NONFERROUS METALS

- A. Aluminum Plate and Sheet: ASTM B 209 (ASTM B 209M), Alloy 6061-T6.
- B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), Alloy 6063-T6.
- C. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.
- D. Bronze Plate, Sheet, Strip, and Bars: ASTM B 36/B 36M, Alloy UNS No. C28000 (muntz metal, 60 percent copper).
- E. Nickel Silver Extrusions: ASTM B 151/B 151M, Alloy UNS No. C74500.

2.5 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.

2.6 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Shop Primers: Provide primers that comply with Division 09 painting Sections.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- E. Concrete Materials and Properties: Comply with requirements in Division 03 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa), unless otherwise indicated.

2.7 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.

- 1 G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude
2 water. Provide weep holes where water may accumulate.
3
- 4 H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws,
5 and similar items.
6
- 7 I. Provide for anchorage of type indicated; coordinate with supporting structure. Space
8 anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
9
- 10 1. Where units are indicated to be cast into concrete or built into masonry, equip with
11 integrally welded steel strap anchors, 1/8 by 1-1/2 inches (3.2 by 38 mm), with a
12 minimum 6-inch (150-mm) embedment and 2-inch (50-mm) hook, not less than 8 inches
13 (200 mm) from ends and corners of units and 24 inches (600 mm) o.c., unless otherwise
14 indicated.
15

16 2.8 MISCELLANEOUS FRAMING AND SUPPORTS

- 17
- 18 A. General: Provide steel framing and supports not specified in other Sections as needed to
19 complete the Work.
20
- 21 B. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise
22 indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive
23 adjacent construction retained by framing and supports. Cut, drill, and tap units to receive
24 hardware, hangers, and similar items.
25
- 26 1. Fabricate units from slotted channel framing where indicated.
27 2. Furnish inserts if units are installed after concrete is placed.
28
- 29 C. Galvanize miscellaneous framing and supports where indicated.
30
- 31 D. Prime miscellaneous framing and supports with zinc-rich primer where indicated.
32

33 2.9 SHELF ANGLES

- 34
- 35 A. Fabricate shelf angles from steel angles of sizes indicated and for attachment to concrete
36 framing. Provide horizontally slotted holes to receive 3/4-inch (19-mm) bolts, spaced not
37 more than 6 inches (150 mm) from ends and 24 inches (600 mm) o.c., unless otherwise
38 indicated.
39
- 40 1. Provide mitered and welded units at corners.
41 2. Provide open joints in shelf angles at expansion and control joints. Make open joint
42 approximately 2 inches (50 mm) larger than expansion or control joint.
43
- 44 B. For cavity walls, provide vertical channel brackets to support angles from backup masonry and
45 concrete.
46

1 C. Galvanize shelf angles located in exterior walls.

2
3 D. Prime shelf angles located in exterior walls with zinc-rich primer.

4
5 **2.10 LOOSE BEARING AND LEVELING PLATES**

6
7 A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete
8 construction.

9
10 **2.11 MISCELLANEOUS STEEL TRIM**

11
12 A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles
13 shown with continuously welded joints and smooth exposed edges. Miter corners and use
14 concealed field splices where possible.

15
16 B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation
17 with other work.

18
19 1. Provide with integrally welded steel strap anchors for embedding in concrete or
20 masonry construction.

21
22 C. Galvanize exterior miscellaneous steel trim.

23
24 **2.14 METAL BOLLARDS**

25
26 A. Fabricate metal bollards from Schedule 40 steel pipe.

27 B. Fabricate bollards with 3/8-inch- (9.5-mm-) thick steel baseplates for bolting to concrete slab.
28 Drill baseplates at all 4 corners for 3/4-inch (19-mm) anchor bolts.

29
30 1. Where bollard are to be anchored to sloping concrete slabs, angle baseplates for plumb
31 alignment of bollards.

32 2. Where bollards are to be cast into the ground, see Sheet A6.51.

33
34 C. After installation of bollard install "ENCORE" (or equal" plastic protective sleeve (1-866-737-
35 8900).

36
37 **2.15 FINISHES, GENERAL**

38
39 A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for
40 recommendations for applying and designating finishes.

41
42 B. Finish metal fabrications after assembly.

2.16 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:
1. ASTM A 123/A 123M, for galvanizing steel and iron products.
 2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.
- B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
1. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
- C. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2.17 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

PART 3 - EXECUTION**3.1 INSTALLATION, GENERAL**

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:

- 1 1. Use materials and methods that minimize distortion and develop strength and corrosion
- 2 resistance of base metals.
- 3 2. Obtain fusion without undercut or overlap.
- 4 3. Remove welding flux immediately.
- 5 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no
- 6 roughness shows after finishing and contour of welded surface matches that of adjacent
- 7 surface.
- 8

9 D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal
10 fabrications are required to be fastened to in-place construction. Provide threaded fasteners
11 for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws,
12 and other connectors.

13 E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete,
14 masonry, or similar construction.

15 F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with
16 grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

17 3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

18 A. General: Install framing and supports to comply with requirements of items being supported,
19 including manufacturers' written instructions and requirements indicated on Shop Drawings.

20 B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

21 3.3 INSTALLING BEARING AND LEVELING PLATES

22 A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to
23 improve bond to surfaces. Clean bottom surface of plates.

24 B. Set bearing and leveling plates on wedges, shims, or leveling nuts. Do not remove wedges or
25 shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.

- 26 1. Use nonshrink grout, nonmetallic, in concealed locations where not exposed to
- 27 moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise
- 28 indicated.

- 29 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

30 3.4 INSTALLING METAL BOLLARDS

31 A. Anchor bollards to existing construction with anchor bolts. Provide four 3/4-inch (19-mm)
32 bolts at each bollard, unless otherwise indicated.

- 33 1. Embed anchor bolts at least 4 inches (100 mm) in concrete.

- 1 B. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches (75
2 mm) above bottom of excavation. Place concrete and vibrate or tamp for consolidation.
3 Support and brace bollards in position until concrete has cured.
4
- 5 C. Fill bollards solidly with concrete, mounding top surface to shed water.
6
- 7 D. Coordinate installation with previously bid Structural Package Addendum Sheet D3-A9.
8

9 **3.5 ADJUSTING AND CLEANING**
10

- 11 A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and
12 abraded areas. Paint uncoated and abraded areas with the same material as used for shop
13 painting to comply with SSPC-PA 1 for touching up shop-painted surfaces. Also see Division 09
14 Painting Sections.
15
- 16 B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair
17 galvanizing to comply with ASTM A 780.

18 **END OF SECTION 055000**
19

1

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1 **SECTION 055100 - METAL STAIRS**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. This Section includes the following:

- 8 1. Preassembled steel stairs with concrete-filled treads at interior stairwells.

- 9 B. Related Sections include the following:

- 10 1. Division 05 Section "Pipe and Tube Railings" for pipe and tube railings integral with the
11 interior stairwell and mezzanine stairs.
12 2. Division 09 Section "Painting" for paint systems applied to metal stair and handrailing
13 components.

14 **1.3 PERFORMANCE REQUIREMENTS**

- 15 A. Structural Performance of Stairs: Provide metal stairs capable of withstanding the effects of
16 gravity loads and the following loads and stresses within limits and under conditions indicated:

- 17 1. Uniform Load: 100 lbf/sq. ft. (4.79 kN/sq. m).
18 2. Concentrated Load: 300 lbf (1.33 kN) applied on an area of 4 sq. in. (2580 sq. mm).
19 3. Uniform and concentrated loads need not be assumed to act concurrently.
20 4. Stair Framing: Capable of withstanding stresses resulting from railing loads in addition
21 to loads specified above.
22 5. Limit deflection of treads, platforms, and framing members to L/240 or 1/4 inch (6.4
23 mm), whichever is less.

- 24 B. Seismic Performance: Provide metal stairs capable of withstanding the effects of earthquake
25 motions determined according to current edition of Indiana Building Code and ASCE 7,
26 "Minimum Design Loads for Buildings and Other Structures": Section 9, "Earthquake Loads."

27 **1.4 SUBMITTALS**

- 28 A. Product Data: For metal stairs and the following:

- 29 1. Prefilled metal-pan stair treads.

- 1 B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- 2 1. Provide templates for anchors and bolts specified for installation under other Sections.
- 3 2. For installed products indicated to comply with design loads, include structural analysis
- 4 data signed and sealed by the qualified professional engineer responsible for their
- 5 preparation.
- 6 C. Welding certificates.
- 7 D. Qualification Data: For professional engineer.

8 **1.5 QUALITY ASSURANCE**

- 9 A. Installer Qualifications: Fabricator of products.
- 10 B. NAAMM Stair Standard: Comply with "Recommended Voluntary Minimum Standards for Fixed
- 11 Metal Stairs" in NAAMM AMP 510, "Metal Stairs Manual," for class of stair designated, unless
- 12 more stringent requirements are indicated.
- 13 1. Preassembled Stairs: Commercial class.
- 14 C. Welding: Qualify procedures and personnel according to the following:
- 15 1. AWS D1.1, "Structural Welding Code--Steel."
- 16 2. AWS D1.3, "Structural Welding Code--Sheet Steel."

17 **1.6 COORDINATION**

- 18 A. Coordinate installation of anchorages for metal stairs. Furnish setting drawings, templates,
- 19 and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and
- 20 items with integral anchors, that are to be embedded in concrete or masonry. Deliver such
- 21 items to Project site in time for installation.
- 22 B. Coordinate locations of hanger rods and struts with other work so that they will not encroach
- 23 on required stair width and will be within the fire-resistance-rated stair enclosure.

24 **PART 2 - PRODUCTS**

25 **2.1 METALS, GENERAL**

- 26 A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise
- 27 indicated. For components exposed to view in the completed Work, provide materials without
- 28 seam marks, roller marks, rolled trade names, or blemishes.

29 **2.2 FERROUS METALS**

- 30 A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

- 1 B. Steel Tubing: ASTM A 500 (cold formed) or ASTM A 513, Type 5 (mandrel drawn).
- 2 C. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with
3 ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- 4 D. Iron Castings: Either gray or malleable iron, unless otherwise indicated.
- 5 1. Gray Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by
6 structural loads.
- 7 2. Malleable Iron: ASTM A 47/A 47M.
- 8 E. Uncoated, Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, structural steel, Grade 30
9 (Grade 205), unless another grade is required by design loads.

10 **2.3 FASTENERS**

- 11 A. General: Provide zinc-plated fasteners with coating complying with ASTM B 633,
12 Class Fe/Zn 25 for exterior use, and Class Fe/Zn 5 where built into exterior walls. Select
13 fasteners for type, grade, and class required.
- 14 B. Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A (ASTM F 568M, Property
15 Class 4.6); with hex nuts, ASTM A 563 (ASTM A 563M); and, where indicated, flat washers.
- 16 C. Anchor Bolts: ASTM F 1554, Grade 36.
- 17 1. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts for stairs indicated
18 to be shop primed with zinc-rich primer.
- 19 D. Machine Screws: ASME B18.6.3 (ASME B18.6.7M).
- 20 E. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).
- 21 F. Plain Washers: Round, ASME B18.22.1 (ASME B18.22M).
- 22 G. Lock Washers: Helical, spring type, ASME B18.21.1 (ASME B18.21.2M).
- 23 H. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without
24 failure, a load equal to six times the load imposed when installed in unit masonry and four
25 times the load imposed when installed in concrete, as determined by testing according to
26 ASTM E 488, conducted by a qualified independent testing agency.
- 27 1. Material for Anchors in Interior Locations: Carbon-steel components zinc-plated to
28 comply with ASTM B 633, Class Fe/Zn 5.

29 **2.4 MISCELLANEOUS MATERIALS**

- 30 A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy
31 welded.

- 1 B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer
2 complying with MPI#79.
- 3 1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according
4 to 40 CFR 59, Subpart D (EPA Method 24).
- 5 2. Use primer containing pigments that make it easily distinguishable from zinc-rich
6 primer.
- 7 C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- 8 D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous
9 grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer
10 for interior and exterior applications.
- 11 E. Concrete Materials and Properties: Comply with requirements in Division 03 Section "Cast-in-
12 Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day
13 compressive strength of 3000 psi (20 MPa), unless otherwise indicated.
- 14 F. Welded Wire Fabric: ASTM A 185, 6 by 6 inches (152 by 152 mm)--W1.4 by W1.4, unless
15 otherwise indicated.

16 2.5 FABRICATION, GENERAL

- 17 A. Provide complete stair assemblies, including metal framing, hangers, struts, railings, clips,
18 brackets, bearing plates, and other components necessary to support and anchor stairs and
19 platforms on supporting structure.
- 20 1. Join components by welding, unless otherwise indicated.
- 21 2. Use connections that maintain structural value of joined pieces.
- 22 B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius
23 of approximately 1/32 inch (1 mm), unless otherwise indicated. Remove sharp or rough areas
24 on exposed surfaces.
- 25 C. Form bent-metal corners to smallest radius possible without causing grain separation or
26 otherwise impairing work.
- 27 D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
- 28 E. Weld connections to comply with the following:
- 29 1. Use materials and methods that minimize distortion and develop strength and corrosion
30 resistance of base metals.
- 31 2. Obtain fusion without undercut or overlap.
- 32 3. Remove welding flux immediately.
- 33 4. Weld exposed corners and seams continuously, unless otherwise indicated.

1 5. At exposed connections, finish exposed welds and surfaces smooth and blended so no
2 roughness shows after finishing and contour of welded surface matches that of adjacent
3 surface.

4 F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners
5 where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk)
6 screws or bolts unless otherwise indicated. Locate joints where least conspicuous.

7 G. Fabricate joints that will be exposed to weather in a manner to exclude water. Provide weep
8 holes where water may accumulate.

9 **2.6 STEEL-FRAMED STAIRS**

10 A. Stair Framing:

11 1. Fabricate stringers of steel channels.

12 a. Provide closures for exposed ends of channel stringers.

13 2. Construct platforms of steel channel headers and miscellaneous framing members as
14 needed to comply with performance requirements.

15 3. Weld or bolt stringers to headers; weld or bolt framing members to stringers and
16 headers. If using bolts, fabricate and join so bolts are not exposed on finished surfaces.

17 B. Metal-Pan Stairs: Form risers, subtread pans, and subplatforms to configurations shown from
18 steel sheet of thickness needed to comply with performance requirements but not less than
19 0.0677 inch (1.7 mm).

20 1. Steel Sheet: Uncoated cold-rolled steel sheet, unless otherwise indicated.

21 2. Attach risers and subtreads to stringers with brackets made of steel angles or bars.
22 Weld brackets to stringers and attach metal pans to brackets by welding, riveting, or
23 bolting.

24 3. Shape metal pans to include nosing integral with riser.

25 4. Provide subplatforms of configuration indicated or, if not indicated, the same as
26 subtreads. Weld subplatforms to platform framing.

27 **2.7 FINISHES**

28 A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for
29 recommendations for applying and designating finishes.

30 B. Finish metal stairs after assembly.

31 C. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with
32 minimum requirements indicated below for SSPC surface preparation specifications and
33 environmental exposure conditions of installed products:

- 1 1. Interior Stairs (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
- 2 2. Interior Stairs (SSPC Zone 1A): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- 3 D. Apply shop primer to uncoated surfaces of metal stair components, except those with
- 4 galvanized finishes and those to be embedded in concrete or masonry unless otherwise
- 5 indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and
- 6 Maintenance Painting of Steel," for shop painting.
- 7 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

8 **PART 3 - EXECUTION**

9 **3.1 INSTALLATION, GENERAL**

- 10 A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary
- 11 for securing metal stairs to in-place construction. Include threaded fasteners for concrete and
- 12 masonry inserts, through-bolts, lag bolts, and other connectors.
- 13 B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing
- 14 metal stairs. Set units accurately in location, alignment, and elevation, measured from
- 15 established lines and levels and free of rack.
- 16 C. Install metal stairs by welding stair framing to weld plates cast into masonry, unless otherwise
- 17 indicated.
- 18 D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete,
- 19 masonry, or similar construction.
- 20 E. Fit exposed connections accurately together to form hairline joints. Weld connections that are
- 21 not to be left as exposed joints but cannot be shop welded because of shipping size
- 22 limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip
- 23 galvanized after fabrication and are for bolted or screwed field connections.
- 24 F. Field Welding: Comply with the following requirements:
 - 25 1. Use materials and methods that minimize distortion and develop strength and corrosion
 - 26 resistance of base metals.
 - 27 2. Obtain fusion without undercut or overlap.
 - 28 3. Remove welding flux immediately.
 - 29 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no
 - 30 roughness shows after finishing and contour of welded surface matches that of adjacent
 - 31 surface.
- 32 G. Place and finish concrete fill for treads and platforms to comply with Division 03 Section "Cast-
- 33 in-Place Concrete."

1 **3.2 INSTALLING METAL STAIRS WITH GROUTED BASEPLATES**

2 A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to
3 improve bond to surfaces. Clean bottom surface of baseplates.

4 B. Set steel stair baseplates on wedges, shims, or leveling nuts. After stairs have been positioned
5 and aligned, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off
6 flush with edge of bearing plate before packing with grout.

7 1. Use nonmetallic, nonshrink grout, unless otherwise indicated.

8 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

9 **3.3 ADJUSTING AND CLEANING**

10 A. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and
11 abraded areas of shop paint are specified in Division 09 painting Sections.

12 **END OF SECTION 055100**

13

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1 **SECTION 055213 - PIPE AND TUBE RAILINGS**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. This Section includes the following:

- 8 1. Steel pipe handrailings/guardrailings integral with interior stairwells and mezzanines.

- 9 B. Related Sections include the following:

- 10 1. Division 05 Section "Metal Stairs" for steel tube railings associated with metal stairs.
11 2. Division 09 Section "Painting" for paint systems applied in pipe and tube railing systems.

12 **1.3 PERFORMANCE REQUIREMENTS**

- 13 A. General: In engineering railings to withstand structural loads indicated, determine allowable
14 design working stresses of railing materials based on the following:

- 15 1. Steel: 72 percent of minimum yield strength.

- 16 B. Structural Performance: Provide railings capable of withstanding the effects of gravity loads
17 and the following loads and stresses within limits and under conditions indicated:

- 18 1. Handrails:

- 19 a. Uniform load of 50 lbf/ ft. (0.73 kN/m) applied in any direction.
20 b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
21 c. Uniform and concentrated loads need not be assumed to act concurrently.

- 22 2. Top Rails of Guards:

- 23 a. Uniform load of 50 lbf/ ft. (0.73 kN/m) applied in any direction.
24 b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
25 c. Uniform and concentrated loads need not be assumed to act concurrently.

- 26 3. Infill of Guards:

- 27 a. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft.
28 (0.093 sq. m).

1 b. Infill load and other loads need not be assumed to act concurrently.

2 **1.4 SUBMITTALS**

3 A. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

4 1. For installed products indicated to comply with design loads, include structural analysis
5 data signed and sealed by the qualified professional engineer responsible for their
6 preparation.

7 B. Welding certificates.

8 C. Qualification Data: For professional engineer.

9 **1.5 QUALITY ASSURANCE**

10 A. Welding: Qualify procedures and personnel according to the following:

11 1. AWS D1.1, "Structural Welding Code--Steel."

12 **1.6 PROJECT CONDITIONS**

13 A. Field Measurements: Verify actual locations of walls and other construction contiguous with
14 railings by field measurements before fabrication and indicate measurements on Shop
15 Drawings.

16 **1.7 COORDINATION AND SCHEDULING**

17 A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and
18 directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items
19 with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to
20 Project site in time for installation.

21 B. Schedule installation so wall attachments are made only to completed walls. Do not support
22 railings temporarily by any means that do not satisfy structural performance requirements.

23 **PART 2 - PRODUCTS**

24 **2.1 METALS, GENERAL**

25 A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller
26 marks, rolled trade names, stains, discolorations, or blemishes.

27 B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as
28 supported rails, unless otherwise indicated.

1 **2.2 STEEL AND IRON**

- 2 A. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless
3 another grade and weight are required by structural loads.
- 4 B. Plates, Shapes, and Bars: ASTM A 36/A 36M.
- 5 C. Castings: Either gray or malleable iron, unless otherwise indicated.
- 6 1. Gray Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by
7 structural loads.
- 8 2. Malleable Iron: ASTM A 47/A 47M.

9 **2.3 FASTENERS**

- 10 A. General: Provide the following:
- 11 1. Steel Railings: Plated steel fasteners complying with ASTM B 633, Class Fe/Zn 25 for
12 electrodeposited zinc coating.
- 13 B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and
14 class required to produce connections suitable for anchoring railings to other types of
15 construction indicated and capable of withstanding design loads.
- 16 C. Fasteners for Interconnecting Railing Components:
- 17 1. Provide concealed fasteners for interconnecting railing components and for attaching
18 them to other work, unless otherwise indicated.
- 19 2. Provide tamper-resistant flat-head machine screws for exposed fasteners, unless
20 otherwise indicated.

21 **2.4 MISCELLANEOUS MATERIALS**

- 22 A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy
23 welded.
- 24 B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer
25 complying with MPI#79.
- 26 1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according
27 to 40 CFR 59, Subpart D (EPA Method 24).
- 28 2. Use primer containing pigments that make it easily distinguishable from zinc-rich
29 primer.
- 30 C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

1 D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous
2 grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer
3 for interior and exterior applications.

4 E. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion
5 cement formulation for mixing with water at Project site to create pourable anchoring,
6 patching, and grouting compound.

7 **2.5 FABRICATION**

8 A. General: Fabricate railings to comply with requirements indicated for design, dimensions,
9 member sizes and spacing, details, finish, and anchorage, but not less than that required to
10 support structural loads.

11 B. Assemble railings in the shop to greatest extent possible to minimize field splicing and
12 assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly
13 mark units for reassembly and coordinated installation. Use connections that maintain
14 structural value of joined pieces.

15 C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius
16 of approximately 1/32 inch (1 mm), unless otherwise indicated. Remove sharp or rough areas
17 on exposed surfaces.

18 D. Form work true to line and level with accurate angles and surfaces.

19 E. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide
20 weep holes where water may accumulate.

21 F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.

22 G. Connections: Fabricate railings with welded connections, unless otherwise indicated.

23 H. Welded Connections: Cope components at connections to provide close fit, or use fittings
24 designed for this purpose. Weld all around at connections, including at fittings.

25 1. Use materials and methods that minimize distortion and develop strength and corrosion
26 resistance of base metals.

27 2. Obtain fusion without undercut or overlap.

28 3. Remove flux immediately.

29 4. At exposed connections, finish exposed surfaces smooth and blended so no roughness
30 shows after finishing and welded surface matches contours of adjoining surfaces.

31 I. Form changes in direction as follows:

32 1. By bending.

- 1 J. Form simple and compound curves by bending members in jigs to produce uniform curvature
2 for each repetitive configuration required; maintain cross section of member throughout
3 entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of
4 components.
- 5 K. Close exposed ends of railing members with prefabricated end fittings.
- 6 L. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close
7 ends of returns unless clearance between end of rail and wall is 1/4 inch (6 mm) or less.
- 8 M. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings,
9 and anchors to interconnect railing members to other work, unless otherwise indicated.
- 10 N. Provide inserts and other anchorage devices for connecting railings to concrete or masonry
11 work. Fabricate anchorage devices capable of withstanding loads imposed by railings.
12 Coordinate anchorage devices with supporting structure.
- 13 O. Toe Boards: Where indicated, provide toe boards at railings around openings and at edge of
14 open-sided floors and platforms. Fabricate to dimensions and details indicated.

15 **2.6 FINISHES, GENERAL**

- 16 A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for
17 recommendations for applying and designating finishes.

18 **2.7 STEEL AND IRON FINISHES**

- 19 A. For nongalvanized steel railings, provide nongalvanized ferrous-metal fittings, brackets,
20 fasteners, and sleeves, except galvanize anchors to be embedded in exterior concrete or
21 masonry.
- 22 B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with
23 minimum requirements indicated below for SSPC surface preparation specifications and
24 environmental exposure conditions of installed railings:
- 25 1. Interior Railings (SSPC Zone 1A): SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
26 2. Interior Railings (SSPC Zone 1A): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- 27 C. Apply shop primer to prepared surfaces of railings, unless otherwise indicated. Comply with
28 requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and
29 Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to
30 be embedded in concrete or masonry.
- 31 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 - EXECUTION**3.1 INSTALLATION, GENERAL**

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
 - 1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 - 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
 - 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (5 mm in 3 m).
- C. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- D. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.2 RAILING CONNECTIONS

- A. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in Part 2 "Fabrication" Article whether welding is performed in the shop or in the field.

3.3 ANCHORING POSTS

- A. For steel pipe railings, weld flanges to post and bolt to metal supporting surfaces.

3.4 ATTACHING HANDRAILS TO WALLS

- A. Attach handrails to wall with wall brackets. Provide brackets with 1-1/2-inch (38-mm) clearance from inside face of handrail and finished wall surface.
 - 1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.
- B. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- C. Secure wall brackets to building construction as follows:
 - 1. For solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.

1 2. For hollow masonry anchorage, use toggle bolts.

2 **3.5 ADJUSTING AND CLEANING**

3 A. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and
4 abraded areas of shop paint are specified in Division 09 painting Sections.

5 **3.6 PROTECTION**

6 A. Protect finishes of railings from damage during construction period with temporary protective
7 coverings approved by railing manufacturer. Remove protective coverings at time of
8 Substantial Completion.

9 B. Restore finishes damaged during installation and construction period so no evidence remains
10 of correction work. Return items that cannot be refinished in the field to the shop; make
11 required alterations and refinish entire unit, or provide new units.

12 **END OF SECTION 055213**

13

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DIVISION 6

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section Includes:

1. Rooftop equipment bases and support curbs.
2. Wood blocking and nailers.
3. Wood furring and grounds.

- B. Related Requirements:

1. Division 06 finish carpentry Sections for nonstructural carpentry items exposed to view and not specified in another Section.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction

1 that periodically performs inspections to verify that the material bearing the classification
2 marking is representative of the material tested.

3 4 **1.5 DELIVERY, STORAGE, AND HANDLING**

- 5
6 A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation.
7 Protect lumber from weather by covering with waterproof sheeting, securely anchored.
8 Provide for air circulation around stacks and under coverings.
9

10 11 **PART 2 - PRODUCTS**

12 13 **2.1 WOOD PRODUCTS, GENERAL**

- 14
15 A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is
16 indicated, provide lumber that complies with the applicable rules of any rules-writing agency
17 certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the
18 ALSC Board of Review to inspect and grade lumber under the rules indicated.
19

- 20 1. Factory mark each piece of lumber with grade stamp of grading agency.
21 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for
22 moisture content specified. Where actual sizes are indicated, they are minimum
23 dressed sizes for dry lumber.
24 3. Provide dressed lumber, S4S, unless otherwise indicated.
25

- 26 B. Maximum Moisture Content of Lumber: 19 percent for 2-inch nominal (38-mm actual)
27 thickness or less, no limit for more than 2-inch nominal (38-mm actual) thickness unless
28 otherwise indicated.
29

30 31 **2.2 WOOD-PRESERVATIVE-TREATED MATERIALS**

- 32 A. Preservative Treatment by Pressure Process: AWWA U1; Use Category UC2 for interior
33 construction not in contact with the ground, Use Category UC3b for exterior construction not
34 in contact with the ground, and Use Category UC4a for items in contact with the ground.
35

- 36 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no
37 arsenic or chromium.
38 2. For exposed items indicated to receive a stained or natural finish, use chemical
39 formulations that do not require incising, contain colorants, bleed through, or otherwise
40 adversely affect finishes.
41

- 42 B. Pressure treated aboveground items with waterborne preservatives to a minimum retention
43 of 0.25 lb./cu.ft. (4.0 kg/cu.m.) After treatment, kiln-dry lumber to a maximum moisture
44 content of 19 percent. Treat indicated items and the following:
45

- 1 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar
- 2 members in connection with roofing, flashing, vapor barriers, and waterproofing.
- 3 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in
- 4 contact with masonry or concrete.
- 5

6 **2.3 FIRE-RETARDANT-TREATED MATERIALS**

7

- 8 A. General: Where fire-retardant-treated materials are indicated, use materials complying with
- 9 requirements in this article, that are acceptable to authorities having jurisdiction, and with
- 10 fire-test-response characteristics specified as determined by testing identical products per test
- 11 method indicated by a qualified testing agency.
- 12

- 13 1. Treatment type: Interior Type A
- 14 2. Treatment Type: Exterior
- 15 3. Treatment Types: interior Type a for protected wood and Exterior for wood exposed to
- 16 weather
- 17

18 **2.4 DIMENSION LUMBER FRAMING**

19

- 20 A. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade and any of the following
- 21 species:
- 22

- 23 1. Hem-fir (north); NLGA.
- 24 2. Mixed southern pine; SPIB.
- 25 3. Spruce-pine-fir; NLGA.
- 26

- 27 B. Other Framing: No. 2 grade and any of the following species:
- 28

- 29 1. Hem-fir (north); NLGA.
- 30 2. Southern pine; SPIB.
- 31 3. Spruce-pine-fir; NLGA.
- 32 4. Douglas fir-larch (north); NLGA.
- 33

34 **2.5 MISCELLANEOUS LUMBER**

35

- 36 A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of
- 37 other construction, including the following:
- 38

- 39 1. Blocking.
- 40 2. Nailers.
- 41 3. Rooftop equipment bases and support curbs.
- 42 4. Cants.
- 43 5. Furring.
- 44 6. Grounds.
- 45 7. Utility shelving.
- 46

- 1 B. For utility shelving, provide lumber with 19 percent maximum moisture content and any of the
2 following species and grades:

- 3
4 1. Provide 1-inch nominal (19mm actual) thickness boards of species and grade indicated
5 above for exposed boards. Provide shelf cleats 1by4 inch nominal size boards of species
6 and grade indicated above for exposed boards.

7
8 **2.6 FASTENERS**

- 9
10 A. General: Provide fasteners of size and type indicated that comply with requirements specified
11 in this article for material and manufacture.

- 12
13 1. Where carpentry is exposed to weather, in ground contact, pressure-preservative
14 treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating
15 complying with ASTM A 153/A 153M or of Type 304 stainless steel.

- 16 B. Nails, Brads, and Staples: ASTM F 1667.

- 17
18 C. Power-Driven Fasteners: NES NER-272.

- 19
20 D. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6);
21 with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

22
23 **2.7 METAL FRAMING ANCHORS**

- 24
25 A. Manufacturers: Subject to compliance with requirements, available manufacturers offering
26 products that may be incorporated into the Work include, but are not limited to, the following:

- 27
28 1. Cleveland Steel Specialty Co.
29 2. KC Metals Products, Inc.
30 3. Phoenix Metal Products, Inc.
31 4. Simpson Strong-Tie Co., Inc.
32 5. USP Structural Connectors.

- 33
34 B. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M,
35 G60 (Z180) coating designation.

- 36
37 1. Use for interior locations unless otherwise indicated.

- 38
39 C. Hot-Dip Heavy-Galvanized Steel Sheet: ASTM A 653/A 653M; Structural Steel (SS), high-
40 strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS
41 Type B); G185 (Z550) coating designation; and not less than 0.036 inch (0.9 mm) thick.

- 42
43 1. Use for wood-preservative-treated lumber and where indicated.

- 44
45 D. Stainless-Steel Sheet: ASTM A 666, Type 304.
46

- 1 1. Use for exterior locations and where indicated.

2
3 **2.8 MISCELLANEOUS MATERIALS**

- 4
5 A. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying
6 with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

- 7
8 1. Adhesives shall have a VOC content of 70 g/L or less when calculated according to
9 40 CFR 59, Subpart D (EPA Method 24).

10
11
12 **PART 3 - EXECUTION**

13
14 **3.1 INSTALLATION, GENERAL**

- 15
16 A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.
17 Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring,
18 nailers, blocking, grounds, and similar supports to comply with requirements for attaching
19 other construction.

- 20
21 B. Where wood-preserved-treated lumber is installed adjacent to metal decking, install
22 continuous flexible flashing separator between wood and metal decking.

- 23
24 C. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame
25 Construction," unless otherwise indicated.

- 26
27 D. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written
28 instructions. Install fasteners through each fastener hole.

- 29
30 E. Do not splice structural members between supports unless otherwise indicated.

- 31
32 F. Provide blocking and framing as indicated and as required to support facing materials, fixtures,
33 specialty items, and trim.

- 34
35 1. Provide metal clips for fastening gypsum board or lath at corners and intersections
36 where framing or blocking does not provide a surface for fastening edges of panels.
37 Space clips not more than 16 inches (406 mm) o.c.

- 38
39 G. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated
40 and as follows:

- 41
42 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96
43 inches (2438 mm) o.c. with solid wood blocking or noncombustible materials accurately
44 fitted to close furred spaces.

- 45 2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at
46 ceiling line of top story, and at not more than 96 inches (2438 mm) o.c. Where fire

1 blocking is not inherent in framing system used, provide closely fitted solid wood blocks
2 of same width as framing members and 2-inch nominal (38-mm actual) thickness.

- 3 3. Fire block concealed spaces between floor sleepers with same material as sleepers to
4 limit concealed spaces to not more than 100 sq. ft. (9.3 sq. m) and to solidly fill space
5 below partitions.
6 4. Fire block concealed spaces behind combustible cornices and exterior trim at not more
7 than 20 feet (6 m) o.c.
8

9 H. Sort and select lumber so that natural characteristics will not interfere with installation or with
10 fastening other materials to lumber. Do not use materials with defects that interfere with
11 function of member or pieces that are too small to use with minimum number of joints or
12 optimum joint arrangement.
13

14 I. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated
15 lumber.
16

- 17 1. Use inorganic boron for items that are continuously protected from liquid water.
18 2. Use copper naphthenate for items not continuously protected from liquid water.
19

20 J. Securely attach carpentry work to substrate by anchoring and fastening as indicated,
21 complying with the following:

- 22 1. NES NER-272 for power-driven fasteners.
23 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
24 3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2),
25 "Alternate Attachments," in ICC's International Residential Code for One- and Two-
26 Family Dwellings.
27

28 K. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully
29 penetrate members where opposite side will be exposed to view or will receive finish
30 materials. Make tight connections between members. Install fasteners without splitting
31 wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
32

33 **3.2 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION**

34

35 A. Install where indicated and where required for screeding or attaching other work. Form to
36 shapes indicated and cut as required for true line and level of attached work. Coordinate
37 locations with other work involved.
38

39 B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with
40 surfaces unless otherwise indicated.
41
42

1 **3.3 PROTECTION**

2

3 A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite
4 protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate
5 treatment. Apply borate solution by spraying to comply with EPA-registered label.

6

7 B. Protect miscellaneous rough carpentry from weather. If, despite protection, miscellaneous
8 rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution
9 by spraying to comply with EPA-registered label.

10 **END OF SECTION 061053**

11

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1 **SECTION 061600 - SHEATHING**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section Includes:
- 8 1. Wall sheathing.
9 2. Sheathing joint and penetration treatment.

10 **1.3 ACTION SUBMITTALS**

- 11 A. Product Data: For each type of process and factory-fabricated product. Indicate component
12 materials and dimensions and include construction and application details.
- 13 1. Include data for wood-preservative treatment from chemical treatment manufacturer
14 and certification by treating plant that treated plywood complies with requirements.
15 Indicate type of preservative used and net amount of preservative retained.
- 16 2. For products receiving a waterborne treatment, include statement that moisture
17 content of treated materials was reduced to levels specified before shipment to Project
18 site.
- 19 3. Include copies of warranties from chemical treatment manufacturers for each type of
20 treatment.

21 **1.4 QUALITY ASSURANCE**

- 22 A. Testing Agency Qualifications: For testing agency providing classification marking for fire-
23 retardant-treated material, an inspection agency acceptable to authorities having jurisdiction
24 that periodically performs inspections to verify that the material bearing the classification
25 marking is representative of the material tested.

26 **1.5 DELIVERY, STORAGE, AND HANDLING**

- 27 A. Stack panels flat with spacers beneath and between each bundle to provide air circulation.
28 Protect sheathing from weather by covering with waterproof sheeting, securely anchored.
29 Provide for air circulation around stacks and under coverings.

30 **PART 2 - PRODUCTS**

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For assemblies with fire-resistance ratings, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory."

2.2 WOOD PANEL PRODUCTS

- A. Plywood: Either DOC PS 1 or DOC PS 2 unless otherwise indicated.
- B. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
- C. Factory mark panels to indicate compliance with applicable standard.

2.3 PRESERVATIVE-TREATED PLYWOOD

- A. Preservative Treatment by Pressure Process: AWWPA U1; Use Category UC3b.
1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.
- C. Application: Treat all plywood unless otherwise indicated.

2.4 WALL SHEATHING

- A. Plywood Wall Sheathing: Exterior sheathing.
1. Span Rating: Not less than 20/0.
2. Nominal Thickness: Not less than 1/2 inch.
- B. Glass-Mat Gypsum Wall Sheathing: ASTM C 1177/1177M.
1. Products: Subject to compliance with requirements, provide one of the following:
- a. CertainTeed Corporation; GlasRoc.
- b. G-P Gypsum Corporation; Dens-Glass Gold.
- c. United States Gypsum Co.; Securock.
2. Type and Thickness: Type X, 5/8 inch thick.
3. Size: 48 by 96 inches or 48 by 120 inches for vertical installation.

1 **2.5 FASTENERS**

2 A. General: Provide fasteners of size and type indicated that comply with requirements specified
3 in this article for material and manufacture.

4 1. For roof and wall sheathing, provide fasteners with hot-dip zinc coating complying with
5 ASTM A 153/A 153M.

6 B. Nails, Brads, and Staples: ASTM F 1667.

7 C. Power-Driven Fasteners: NES NER-272.

8 D. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C 954,
9 except with wafer heads and reamer wings, length as recommended by screw manufacturer
10 for material being fastened.

11 1. For wall and roof sheathing panels, provide screws with organic-polymer or other
12 corrosion-protective coating having a salt-spray resistance of more than 800 hours
13 according to ASTM B 117.

14 E. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in
15 length recommended by sheathing manufacturer for thickness of sheathing to be attached,
16 with organic-polymer or other corrosion-protective coating having a salt-spray resistance of
17 more than 800 hours according to ASTM B 117.

18 1. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C 1002.

19 2. For steel framing from 0.033 to 0.112 inch thick, use screws that comply with
20 ASTM C 954.

21 **2.6 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS**

22 A. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with
23 ASTM C 834, compatible with sheathing tape and sheathing and recommended by tape and
24 sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed
25 fasteners.

26 1. Sheathing Tape: Self-adhering glass-fiber tape, minimum 2 inches wide, 10 by 10 or 10
27 by 20 threads/inch, of type recommended by sheathing and tape manufacturers for use
28 with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a
29 history of successful in-service use.

30 **PART 3 - EXECUTION**

31

3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
1. NES NER-272 for power-driven fasteners.
 2. Table 2304.9.1, "Fastening Schedule," in ICC's "International Building Code."
 3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's "International Residential Code for One- and Two-Family Dwellings."
- D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.
- E. Coordinate wall sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
1. Wall and Roof Sheathing:
 - a. Screw to cold-formed metal framing.
 - b. Space panels 1/8 inch apart at edges and ends.

3.3 GYPSUM SHEATHING INSTALLATION

- A. Comply with GA-253 and with manufacturer's written instructions.
1. Fasten gypsum sheathing to wood framing with nails.
 2. Fasten gypsum sheathing to cold-formed metal framing with screws.
 3. Install boards with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
 4. Install boards with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.
- B. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.
- C. Horizontal Installation: Install sheathing with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent boards without forcing. Abut ends of boards over centers of studs, and stagger end joints of adjacent boards not less than one stud spacing. Attach boards at perimeter and within field of board to each steel stud.
1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of boards.
 2. For sheathing under stucco cladding, boards may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.
- D. Vertical Installation: Install board vertical edges centered over studs. Abut ends and edges of each board with those of adjacent boards. Attach boards at perimeter and within field of board to each stud.
1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of boards.
 2. For sheathing under stucco cladding, boards may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.
- E. Seal sheathing joints according to sheathing manufacturer's written instructions.
1. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel silicone emulsion sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.

END OF SECTION 061600

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DIVISION 7

1 **SECTION 071900 - WATER REPELLENTS**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section includes penetrating water-repellent treatments for the following vertical and
8 horizontal surfaces:

- 9 1. Concrete unit masonry.

- 10 B. Related Requirements:

- 11 1. Section 042000 "Unit Masonry" for integral water-repellent admixture for unit masonry
12 assemblies.

13 **1.3 ACTION SUBMITTALS**

- 14 A. Product Data: For each type of product.

- 15 1. Include manufacturer's printed statement of VOC content.
16 2. Include manufacturer's recommended number of coats for each type of substrate and
17 spreading rate for each separate coat.
18 3. Include printout of current "MPI Approved Products List" for each product category
19 specified in Part 2 that specifies water repellents approved by MPI, with the proposed
20 product highlighted.

21 **1.4 INFORMATIONAL SUBMITTALS**

- 22 A. Qualification Data: For Applicator.

- 23 B. Product Certificates: For each type of water repellent.

- 24 C. Sample Warranty: For special warranty.

25 **1.5 QUALITY ASSURANCE**

- 26 A. Applicator Qualifications: An employer of workers trained and approved by manufacturer.

1.6 FIELD CONDITIONS

A. Limitations: Proceed with application only when the following existing and forecasted weather and substrate conditions permit water repellents to be applied according to manufacturers' written instructions and warranty requirements:

1. Concrete surfaces and mortar have cured for not less than 28 days.
2. Building has been closed in for not less than 30 days before treating wall assemblies.
3. Ambient temperature is above 40 deg F (4.4 deg C) and below 100 deg F (37.8 deg C) and will remain so for 24 hours.
4. Substrate is not frozen and substrate-surface temperature is above 40 deg F (4.4 deg C) and below 100 deg F (37.8 deg C).
5. Rain or snow is not predicted within 24 hours.
6. Not less than seven days have passed since surfaces were last wet.
7. Windy conditions do not exist that might cause water repellent to be blown onto vegetation or surfaces not intended to be treated.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which Applicator agree(s) to repair or replace materials that fail to maintain water repellency specified in "Performance Requirements" Article within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS**2.1 PERFORMANCE REQUIREMENTS**

A. Performance: Water repellents shall meet the following performance requirements as determined by testing on manufacturer's standard substrates representing those indicated for this Project.

B. Water Absorption: Minimum 80 percent reduction of water absorption after 24 hours for treated compared to untreated specimens when tested according to the following:

1. Concrete Masonry Units: ASTM C 140.

C. Water-Vapor Transmission: Comply with one or both of the following:

1. Maximum 10 percent reduction water-vapor transmission of treated compared to untreated specimens, according to ASTM E 96/E 96M.
2. Minimum 80 percent water-vapor transmission of treated compared to untreated specimens, according to ASTM D 1653.

D. Water Penetration and Leakage through Masonry: Minimum 90 percent reduction in leakage rate of treated compared to untreated specimens, according to ASTM E 514/E 514M.

- 1 E. Durability: Maximum 5 percent loss of water-repellent performance after 2500 hours of
2 weathering according to ASTM G 154 compared to water-repellent-treated specimens before
3 weathering.
- 4 F. Chloride-Ion Intrusion in Concrete: NCHRP Report 244, Series II tests.
- 5 1. Reduction of Water Absorption: 80 percent.
6 2. Reduction in Chloride Content: 80 percent.

7 **2.2 PENETRATING WATER REPELLENTS**

- 8 A. Silane/Siloxane-Blend, Penetrating Water Repellent: Clear, silane and siloxane blend with 600
9 g/L or less of VOCs.

10 **PART 3 - EXECUTION**

11 **3.1 EXAMINATION**

- 12 A. Examine substrates, areas, and conditions, with Applicator present, for compliance with
13 requirements and conditions affecting performance of the Work.
- 14 1. Verify that surfaces are clean and dry according to water-repellent manufacturer's
15 requirements. Check moisture content in **three** representative locations by method
16 recommended by manufacturer.
- 17 2. Verify that there is no efflorescence or other removable residues that would be trapped
18 beneath the application of water repellent.
- 19 3. Verify that required repairs are complete, cured, and dry before applying water
20 repellent.
- 21 B. Test pH level according to water-repellent manufacturer's written instructions to ensure
22 chemical bond to silica-containing or siliceous minerals.
- 23 C. Proceed with installation only after unsatisfactory conditions have been corrected.

24 **3.2 PREPARATION**

- 25 A. New Construction and Repairs: Allow concrete and other cementitious materials to age before
26 application of water repellent, according to repellent manufacturer's written instructions.
- 27 B. Cleaning: Before application of water repellent, clean substrate of substances that could
28 impair penetration or performance of product according to water-repellent manufacturer's
29 written instructions and as follows:
- 30 1. Concrete Unit Masonry: Remove oil, curing compounds, laitance, and other substances
31 that inhibit penetration or performance of water repellents according to ASTM E 1857.

- 1 C. Protect adjoining work, including mortar and sealant bond surfaces, from spillage or blow-over
2 of water repellent. Cover adjoining and nearby surfaces of aluminum and glass if there is the
3 possibility of water repellent being deposited on surfaces. Cover live vegetation.
- 4 D. Coordination with Mortar Joints: Do not apply water repellent until pointing mortar for joints
5 adjacent to surfaces receiving water-repellent treatment has been installed and cured.
- 6 E. Coordination with Sealant Joints: Do not apply water repellent until sealants for joints adjacent
7 to surfaces receiving water-repellent treatment have been installed and cured.
- 8 1. Water-repellent work may precede sealant application only if sealant adhesion and
9 compatibility have been tested and verified using substrate, water repellent, and sealant
10 materials identical to those required.

11 3.3 APPLICATION

- 12 A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect the
13 substrate before application of water repellent and to instruct Applicator on the product and
14 application method to be used.
- 15 B. Apply coating of water repellent on surfaces to be treated using 15 psi-(103 kPa-) pressure
16 spray with a fan-type spray nozzle to the point of saturation. Apply coating in dual passes of
17 uniform, overlapping strokes. Remove excess material; do not allow material to puddle beyond
18 saturation. Comply with manufacturer's written instructions for application procedure unless
19 otherwise indicated.
- 20 C. Apply a second saturation coating, repeating first application. Comply with manufacturer's
21 written instructions for limitations on drying time between coats and after rainstorm wetting
22 of surfaces between coats. Consult manufacturer's technical representative if written
23 instructions are not applicable to Project conditions.

24 3.4 CLEANING

- 25 A. Immediately clean water repellent from adjoining surfaces and surfaces soiled or damaged by
26 water-repellent application as work progresses. Correct damage to work of other trades
27 caused by water-repellent application, as approved by Architect.
- 28 B. Comply with manufacturer's written cleaning instructions.

29 END OF SECTION 071900

1 **SECTION 072100 - THERMAL INSULATION**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. This Section includes the following:

- 8 1. Perimeter insulation under slabs-on-grade.
9 2. Cavity-Wall Board Insulation.
10 3. Glass Fiber Blanket Insulation for use in metal wall framing.
11 4. Spray Foam Insulation.
12 5. Sound Attenuation Insulation

- 13 B. Related Sections include the following:

- 14 1. Division 04 Section "Unit Masonry" for cavity wall insulation installed as part of exterior
15 wall assemblies.
16 2. Division 09 Section "Gypsum Board" for installation in metal-framed assemblies of
17 insulation specified by referencing this Section.
18 3. Division 21 Section "Fire-Suppression Systems Insulation."
19 4. Division 22 Section "Plumbing Insulation."
20 5. Division 23 Section "HVAC Insulation."

21 **1.3 SUBMITTALS**

- 22 A. Product Data: For each type of product indicated.

23 **1.4 QUALITY ASSURANCE**

- 24 A. Source Limitations: Obtain each type of building insulation through one source from a single
25 manufacturer.

- 26 B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-
27 response characteristics indicated, as determined by testing identical products per test
28 method indicated below by UL or another testing and inspecting agency acceptable to
29 authorities having jurisdiction. Identify materials with appropriate markings of applicable
30 testing and inspecting agency.

- 31 1. Surface-Burning Characteristics: ASTM E 84.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect plastic insulation as follows:
1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
 2. Protect against ignition at all times. Do not deliver plastic insulating materials to project site before installation time.
 3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Products: Subject to compliance with requirements, provide one of the products specified.
 2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 FOAM-PLASTIC BOARD INSULATION

- A. Extruded-Polystyrene Board Insulation for use in below grade perimeter foundation walls: ASTM C 578, of type and density indicated below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively:
1. Manufacturers:
 - a. DiversiFoam Products.
 - b. Dow Chemical Company.
 - c. Owens Corning.
 2. Edge Treatment: Tongue and Groove.
 3. Thickness: 3 inch.
 4. Type IV, 1.60 lb/cu. ft. (26 kg/cu. m), unless otherwise indicated.
Compressive Strength: 40 psi per ASTM D1621.
R-Value: 5.0 per 1 inch or 15.

2.3 GLASS-FIBER BLANKET INSULATION**A. Manufacturers:**

1. CertainTeed Corporation.
2. Guardian Fiberglass, Inc.
3. Johns Manville.
4. Knauf Fiber Glass.
5. Owens Corning.

B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.**C. Sustainability Requirements:** Provide glass-fiber blanket insulation as follows:

1. Free of Formaldehyde: Insulation manufactured with 100 percent acrylic binders and no formaldehyde.
2. Low Emitting: Insulation tested according to ASTM D 5116 and shown to emit less than 0.05-ppm formaldehyde.

D. Where glass-fiber blanket insulation is indicated by the following thicknesses, provide blankets in batt or roll form with thermal resistances indicated:

1. 3-1/2 inches (89 mm) thick with a thermal resistance of 13 deg F x h x sq. ft./Btu at 75 deg F (2.3 K x sq. m/W at 24 deg C).
2. 5-1/2 inches (140 mm) thick with a thermal resistance of 19 deg F x h x sq. ft./Btu at 75 deg F (3.3 K x sq. m/W at 24 deg C).

2.4 CAVITY WALL BOARD INSULATION**A. Manufacturers:**

1. Dow Chemical Company.

B. Extruded-Polystyrene Board Insulation: ASTM C 578, closed-cell structure, of type and density indicated below.

1. Type IV, Thickness, 1 1/2" where indicated and 3" in cavity wall locations.
2. R value per inch: R = 5 minimum.
3. Compressive Strength: 15 psi.
4. Water absorption: 0.3 max. per ASTM C272.
5. Water vapor permeance: 1.5 per max, per ASTM E96
6. Edge treatment: Square Edge.

1 C. Accessories:

2
3 Products: Subject to compliance with requirements, provide one of the following:

4
5 1. Penetration Filler: Provide insulation manufacturer's recommended polyurethane foam
6 for sealing seams and penetrations of insulation.

7
8 a. Acceptable Products: The Dow Chemical Company "Great Stuff™ Pro Gaps &
9 Cracks" single-component polyurethane insulating foam sealant.

10 b. Acceptable Products: The Dow Chemical Company "Great Stuff™ Pro Window &
11 Door" single-component polyurethane low-pressure foam sealant.

12
13 2. Gap Air Infiltration Filler: Two Component, Quick Cure Polyurethane Foam:

14 a. Acceptable Products: The Dow Chemical Company FROTH-PAK™ Foam Insulation
15 two component, quick-cure polyurethane foam.

16
17 (1) NFPA 286 Approval for Exposed use to the interior of the building without
18 the need for a 15-min thermal barrier

19 (2) ASTM E-84 Class A

20 **2.5 SPRAY FOAM INSULATION**

21
22 A. Foam: BASF Polyurethane Foam Enterprises Spraytite/CF 158 Series; sprayed-in-place two-
23 component closed-cell polyurethane made by combining an isocyanate (A) component with a
24 polyol (B) component, with the following physical characteristics:

25 1. Density in Place: 1.88 to 2.35 lb/cu ft (30 to 38 kg/cu m), when tested in accordance
26 with ASTM D 1622.

27 2. Compressive Strength: 30 to 35 psi (2.1 to 2.4 Pa), when tested in accordance with
28 ASTM D 1621.

29 3. Closed Cell Content: Less than 90 percent, when tested in accordance with ASTM D
30 2856.

31 4. R-Value: 6.2 per inch, when tested in accordance with ASTM C 518.

32 5. Permeance: 2.38 perms at one inch, when tested in accordance with ASTM E-96.

33 6. Flame Spread Index: Less than 25, when tested in accordance with ASTM E 84.

34 7. Smoke Developed Index: Less than 450, when tested in accordance with ASTM E 84.

35 **2.6 VAPOR RETARDERS**

36 A. Polyethylene Vapor Retarders: ASTM D 4397, 6 mils (0.15 mm) thick, with maximum
37 permeance rating of 0.13 perm (7.5 ng/Pa x s x sq. m).

38 B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder
39 manufacturer for sealing joints and penetrations in vapor retarder.

- 1 C. Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.
- 2 D. Single-Component Nonsag Urethane Sealant: ASTM C 920, Type I, Grade NS, Class 25, Use NT
- 3 related to exposure, and Use O related to vapor-barrier-related substrates.

4 **2.7 AUXILIARY INSULATING MATERIALS**

- 5 A. Insulating Foam Sealant: Dow Chemical Company “Great Stuff Pro”. Minimal-expanding,
- 6 single component polyurethane foam sealant for use at all locations at which the primary
- 7 insulating material does not fill the gaps, cracks or joints between building materials.
- 8 B. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by insulation
- 9 manufacturers for sealing joints and penetrations in vapor-retarder facings.
- 10 C. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation
- 11 securely to substrates indicated without damaging insulation and substrates.

12 **PART 3 - EXECUTION**

13 **3.1 EXAMINATION**

- 14 A. Examine substrates and conditions, with Installer present, for compliance with requirements
- 15 of Sections in which substrates and related work are specified and for other conditions
- 16 affecting performance.
- 17 1. Proceed with installation only after unsatisfactory conditions have been corrected.

18 **3.2 PREPARATION**

- 19 A. Clean substrates of substances harmful to insulation or vapor retarders, including removing
- 20 projections capable of puncturing vapor retarders or of interfering with insulation attachment.

21 **3.3 INSTALLATION, GENERAL**

- 22 A. Comply with insulation manufacturer's written instructions applicable to products and
- 23 application indicated.
- 24 B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at
- 25 any time to ice, rain, and snow.
- 26 C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit
- 27 tightly around obstructions and fill voids with insulation. Remove projections that interfere
- 28 with placement.
- 29 D. Water-Piping Coordination: If water piping is located within insulated exterior walls,
- 30 coordinate location of piping to ensure that it is placed on warm side of insulation and
- 31 insulation encapsulates piping.

- 1 E. For preformed insulating units, provide sizes to fit applications indicated and selected from
2 manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation
3 units to produce thickness indicated unless multiple layers are otherwise shown or required to
4 make up total thickness.

5 **3.4 INSTALLATION OF PERIMETER AND UNDER-SLAB INSULATION**

- 6 A. On vertical surfaces, set insulation units in adhesive applied according to manufacturer's
7 written instructions. Use adhesive recommended by insulation manufacturer.

- 8 1. If not otherwise indicated, extend insulation a minimum of 24 inches (610 mm) below
9 exterior grade line.

- 10 B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written
11 instructions. Stagger end joints and tightly abut insulation units.

- 12 1. If not otherwise indicated, extend insulation a minimum of 24 inches (610 mm) into the
13 interior of the foundation wall.

14 **3.5 INSTALLATION OF WALL INSULATION**

- 15 A. On units of foam-plastic board insulation, install pads of adhesive spaced approximately 24
16 inches (610 mm) o.c. both ways on inside face, and as recommended by manufacturer. Fit
17 courses of insulation between metal z-framing and other obstructions, with edges butted
18 tightly in both directions. Press units firmly against inside substrates indicated for full contact
19 with adhesive.

- 20 B. Install units of cellular-glass insulation with closely fitting joints using method indicated:

- 21 1. Serrated-Trowel Method: Apply adhesive to entire surface of each cellular-glass
22 insulation unit with serrated trowel complying with insulation manufacturer's written
23 instructions.

- 24 2. Coat edges of insulation units with full bed of adhesive to seal joints between insulation
25 and between insulation and adjoining construction.

26 **3.6 INSTALLATION OF GENERAL BUILDING INSULATION**

- 27 A. Apply insulation units to substrates by method indicated, complying with manufacturer's
28 written instructions. If no specific method is indicated, bond units to substrate with adhesive
29 or use mechanical anchorage to provide permanent placement and support of units.

- 30 B. Seal joints between foam-plastic insulation units by applying adhesive, mastic, or sealant to
31 edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed
32 installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.

- 1 C. Set vapor-retarder-faced units with vapor retarder to warm-in-winter side of construction,
2 unless otherwise indicated.
- 3 1. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation
4 to surrounding construction to ensure airtight installation.
- 5 D. Stuff glass-fiber loose-fill insulation into miscellaneous voids and cavity spaces where shown.
6 Compact to approximately 40 percent of normal maximum volume equaling a density of
7 approximately 2.5 lb/cu. ft. (40 kg/cu. m).

8 **3.7 INSTALLATION OF VAPOR RETARDERS**

- 9 A. General: Extend vapor retarder to extremities of areas to be protected from vapor
10 transmission. Secure in place with adhesives or other anchorage system as indicated. Extend
11 vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with
12 loose-fiber insulation.
- 13 B. Seal vertical joints in vapor retarders over framing by lapping not less than two wall studs.
14 Fasten vapor retarders to wood framing at top, end, and bottom edges; at perimeter of wall
15 openings; and at lap joints. Space fasteners 16 inches (400 mm) o.c.
- 16 C. Before installing vapor retarder, apply urethane sealant to flanges of metal framing including
17 runner tracks, metal studs, and framing around door and window openings. Seal overlapping
18 joints in vapor retarders with vapor-retarder tape according to vapor-retarder manufacturer's
19 written instructions. Seal butt joints with vapor-retarder tape. Locate all joints over framing
20 members or other solid substrates.
- 21 D. Firmly attach vapor retarders to metal framing and solid substrates with vapor-retarder
22 fasteners as recommended by vapor-retarder manufacturer.
- 23 E. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor
24 retarders with vapor-retarder tape to create an airtight seal between penetrating objects and
25 vapor retarder.
- 26 F. Repair tears or punctures in vapor retarders immediately before concealment by other work.
27 Cover with vapor-retarder tape or another layer of vapor retarder.

28 **3.8 PROTECTION**

- 29 A. Protect installed insulation and vapor retarders from damage due to harmful weather
30 exposures, physical abuse, and other causes. Provide temporary coverings or enclosures
31 where insulation is subject to abuse and cannot be concealed and protected by permanent
32 construction immediately after installation.

33 **END OF SECTION 072100**

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1 **SECTION 076200 - SHEET METAL FLASHING AND TRIM**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section Includes:

8 1. Formed Products:

- 9 a. Formed low-slope roof sheet metal fabrications.
10 b. Formed equipment support flashing.
11 c. Formed overhead-piping safety pans.

- 12 B. Related Sections:

- 13 1. Division 04 Section "Unit Masonry" for embedded flashing assemblies.
14 2. Division 06 Section "Miscellaneous Rough Carpentry" for wood nailers, curbs, and
15 blocking.

16 **1.3 PERFORMANCE REQUIREMENTS**

- 17 A. General: Sheet metal flashing and trim assemblies as indicated shall withstand wind loads,
18 structural movement, thermally induced movement, and exposure to weather without failure
19 due to defective manufacture, fabrication, installation, or other defects in construction.
20 Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain
21 watertight.

- 22 B. Fabricate and install roof edge flashing and copings capable of resisting the following forces
23 according to recommendations in FMG Loss Prevention Data Sheet 1-49:

- 24 1. Wind Zone 1: For velocity pressures of 21 to 30 lbf/sq. ft. (1.00 to 1.44 kPa): 60-lbf/sq.
25 ft. (2.87-kPa) perimeter uplift force, 90-lbf/sq. ft. (4.31-kPa) corner uplift force, and 30-
26 lbf/sq. ft. (1.44-kPa) outward force.

- 27 C. Thermal Movements: Provide sheet metal flashing and trim that allows for thermal
28 movements from ambient and surface temperature changes.

- 29 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C),
30 material surfaces.

1 1.4 SUBMITTALS

2 A. Product Data: For each type of product indicated. Include construction details, material
3 descriptions, dimensions of individual components and profiles, and finishes for each
4 manufactured product and accessory.

5 B. Shop Drawings: Show fabrication and installation layouts of sheet metal flashing and trim,
6 including plans, elevations, expansion-joint locations, and keyed details. Distinguish between
7 shop- and field-assembled work. Include the following:

8 1. Identification of material, thickness, weight, and finish for each item and location in
9 Project.

10 2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and
11 dimensions.

12 3. Details for joining, supporting, and securing sheet metal flashing and trim, including
13 layout of fasteners, cleats, clips, and other attachments. Include pattern of seams.

14 4. Details of termination points and assemblies, including fixed points.

15 5. Details of expansion joints and expansion-joint covers, including showing direction of
16 expansion and contraction.

17 6. Details of special conditions.

18 7. Details of connections to adjoining work.

19 8. Detail formed flashing and trim at a scale of not less than 3 inches per 12 inches.

20 C. Samples for Initial Selection: For each type of sheet metal flashing, trim, and accessory
21 indicated with factory-applied color finishes involving color selection.

22 D. Samples for Verification: For each type of exposed finish required, prepared on Samples of
23 size indicated below:

24 1. Sheet Metal Flashing, Roof Divider Coping, Gutters and Downspouts: 12 inches (300
25 mm) long by actual width of unit, including finished seam and in required profile.
26 Include fasteners, cleats, clips, closures, and other attachments.

27 E. Qualification Data: For qualified fabricator.

28 F. Maintenance Data: For sheet metal flashing, trim, and accessories to include in maintenance
29 manuals.

30 G. Warranty: Sample of special warranty.

31 1.5 QUALITY ASSURANCE

32 A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet
33 metal flashing and trim similar to that required for this Project and whose products have a
34 record of successful in-service performance.

- 1 B. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal
2 Manual" unless more stringent requirements are specified or shown on Drawings.

3 **1.6 DELIVERY, STORAGE, AND HANDLING**

- 4 A. Do not store sheet metal flashing and trim materials in contact with other materials that might
5 cause staining, denting, or other surface damage. Store sheet metal flashing and trim
6 materials away from uncured concrete and masonry.

- 7 B. Protect strippable protective covering on sheet metal flashing and trim from exposure to
8 sunlight and high humidity, except to the extent necessary for the period of sheet metal
9 flashing and trim installation.

10 **1.7 WARRANTY**

- 11 A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to
12 repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of
13 factory-applied finishes within specified warranty period.

- 14 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

- 15 a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
16 b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
17 c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

- 18 2. Finish Warranty Period: 20 years from date of Substantial Completion.

19 **PART 2 - PRODUCTS**

20 **2.1 SHEET METALS**

- 21 A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying
22 a strippable, temporary protective film before shipping.

- 23 B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish
24 required, with temper as required to suit forming operations and performance required.

- 25 1. As-Milled Finish: Mill finish.
26 2. Surface: Smooth, flat.

- 27 C. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304, dead soft, fully
28 annealed.

- 29 1. Finish: 2D (dull, cold rolled).
30 2. Surface: Smooth, flat.

- 1 D. Metallic-Coated Steel Sheet: Restricted flatness steel sheet, metallic coated by the hot-dip
2 process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
- 3 1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating
4 designation; structural quality.
- 5 2. Surface: Smooth, flat.
- 6 3. Exposed Coil-Coated Finish:
- 7 a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less
8 than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply
9 coating to exposed metal surfaces to comply with coating and resin
10 manufacturers' written instructions.
- 11 4. Color: As selected by Architect from manufacturer's full range.
- 12 5. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic
13 or polyester backer finish, consisting of prime coat and wash coat with a minimum total
14 dry film thickness of 0.5 mil (0.013 mm).

15 2.2 MISCELLANEOUS MATERIALS

- 16 A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings,
17 separators, sealants, and other miscellaneous items as required for complete sheet metal
18 flashing and trim installation and recommended by manufacturer of primary sheet metal
19 unless otherwise indicated.
- 20 B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and
21 bolts, and other suitable fasteners designed to withstand design loads and recommended by
22 manufacturer of primary sheet metal.
- 23 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
- 24 a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or
25 factory-applied coating.
- 26 b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for
27 metal being fastened.
- 28 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
- 29 3. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
- 30 4. Fasteners for Zinc-Coated (Galvanized) and Aluminum-Zinc Alloy-Coated Steel Sheet:
31 Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329 or Series 300
32 stainless steel.
- 33 C. Solder:
- 34 1. For Stainless Steel: ASTM B 32, Grade Sn60, with an acid flux of type recommended by
35 stainless-steel sheet manufacturer.

1 2. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50 percent tin and 50
2 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.

3 D. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant
4 tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining
5 tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.

6 E. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant; low modulus; of type,
7 grade, class, and use classifications required to seal joints in sheet metal flashing and trim and
8 remain watertight.

9 F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant;
10 polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited
11 movement.

12 G. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound,
13 recommended by aluminum manufacturer for exterior nonmoving joints, including riveted
14 joints.

15 H. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

16 I. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

17 **2.3 FABRICATION, GENERAL**

18 A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in
19 SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry,
20 metal thickness, and other characteristics of item indicated. Fabricate items at the shop to
21 greatest extent possible.

22 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with
23 performance requirements, but not less than that specified for each application and
24 metal.

25 2. Obtain field measurements for accurate fit before shop fabrication.

26 3. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool
27 marks and true to line and levels indicated, with exposed edges folded back to form
28 hems.

29 4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not
30 allowed on faces exposed to view.

31 B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation
32 to a tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and
33 within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

34 C. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric
35 sealant.

- 1 D. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion
2 joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl
3 sealant concealed within joints.
- 4 E. Fabricate continuous cleats and attachment devices from same material as accessory being
5 anchored or from compatible, noncorrosive metal.
- 6 F. Fabricate continuous cleats and attachment devices of sizes as recommended by SMACNA's
7 "Architectural Sheet Metal Manual" and by FMG Loss Prevention Data Sheet 1-49 for
8 application, but not less than thickness of metal being secured.
- 9 G. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal
10 with epoxy seam sealer. Rivet joints where necessary for strength.
- 11 H. Do not use graphite pencils to mark metal surfaces.

12 **2.4 LOW-SLOPE ROOF SHEET METAL FABRICATIONS**

- 13 A. Copings: Fabricate in minimum 96-inch- (2400-mm-) long, but not exceeding 10-foot- (3-m-)
14 long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous
15 cleats to support edge of external leg and drill elongated holes for fasteners on interior leg.
16 Miter corners, seal, and solder or weld watertight.
- 17 1. Coping Profile: SMACNA figure designation 3-4A. All coping material shall be galvanized
18 steel.
- 19 a. Top width of coping = 8" wide; Material Thickness = 24 gage; SMACNA Joint Style
20 = J2, Butt with 12 inch wide, concealed backup plate.
- 21 b. Top width of coping = 12" wide; Material Thickness = 24 gage; SMACNA Joint Style
22 = J2, Butt with 12 inch wide, concealed backup plate.
- 23 c. Top width of coping = 16" wide; Material Thickness = 22 gage; SMACNA Joint Style
24 = J5, Butt with 12 inch wide, concealed backup plate and 6 inch wide exposed
25 cover plates.
- 26 d. Top width of coping = 20" wide; Material Thickness = 22 gage; SMACNA Joint Style
27 = J5, Butt with 12 inch wide, concealed backup plate and 6 inch wide exposed
28 cover plates.
- 29 B. Counterflashing: Fabricate from the following materials:
- 30 1. Aluminum: 0.032 inch (0.81 mm) thick.
- 31 C. Flashing Receivers: Fabricate from the following materials:
- 32 1. Aluminum: 0.032 inch (0.81 mm) thick.
- 33 D. Roof-Penetration Flashing: Fabricate from the following materials:

1 1. Aluminum-Zinc Alloy-Coated Steel: 0.028 inch (0.71 mm) thick.

2 E. Roof-Drain Flashing: Fabricate from the following materials:

3 1. Stainless Steel: 0.016 inch (0.40 mm) thick.

4 **2.5 MISCELLANEOUS SHEET METAL FABRICATIONS**

5 A. Equipment Support Flashing: Fabricate from the following materials:

6 1. Aluminum-Zinc Alloy-Coated Steel: 0.028 inch (0.71 mm) thick.

7 B. Overhead-Piping Safety Pans: Fabricate from the following materials:

8 1. Aluminum-Zinc Alloy-Coated Steel: 0.040 inch (1.02 mm) thick.

9 **PART 3 - EXECUTION**

10 **3.1 EXAMINATION**

11 A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations,
12 dimensions and other conditions affecting performance of the Work.

13 1. Verify compliance with requirements for installation tolerances of substrates.

14 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely
15 anchored.

16 B. Proceed with installation only after unsatisfactory conditions have been corrected.

17 **3.2 INSTALLATION, GENERAL**

18 A. General: Anchor sheet metal flashing and trim and other components of the Work securely in
19 place, with provisions for thermal and structural movement. Use fasteners, solder, welding
20 rods, protective coatings, separators, sealants, and other miscellaneous items as required to
21 complete sheet metal flashing and trim system.

22 1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform,
23 neat seams with minimum exposure of solder, welds, and sealant.

24 2. Install sheet metal flashing and trim to fit substrates and to result in watertight
25 performance. Verify shapes and dimensions of surfaces to be covered before
26 fabricating sheet metal.

27 3. Install exposed sheet metal flashing and trim without excessive oil canning, buckling,
28 and tool marks.

29 4. Install sealant tape where indicated.

30 5. Torch cutting of sheet metal flashing and trim is not permitted.

31 6. Do not use graphite pencils to mark metal surfaces.

- 1 B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates,
2 protect against galvanic action by painting contact surfaces with bituminous coating or by
3 other permanent separation as recommended by SMACNA.
- 4 1. Coat back side of uncoated aluminum and stainless-steel sheet metal flashing and trim
5 with bituminous coating where flashing and trim will contact wood, ferrous metal, or
6 cementitious construction.
- 7 C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space
8 movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600
9 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would
10 not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less
11 than 1 inch (25 mm) deep, filled with sealant concealed within joints.
- 12 D. Fastener Sizes: Use fasteners of sizes that will penetrate wood sheathing not less than 1-1/4
13 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws and/or metal
14 decking not less than recommended by fastener manufacturer to achieve maximum pull-out
15 resistance.
- 16 E. Seal joints as shown and as required for watertight construction.
- 17 1. Where sealant-filled joints are used, embed hooked flanges of joint members not less
18 than 1 inch (25 mm) into sealant. Form joints to completely conceal sealant. When
19 ambient temperature at time of installation is moderate, between 40 and 70 deg F (4
20 and 21 deg C), set joint members for 50 percent movement each way. Adjust setting
21 proportionately for installation at higher ambient temperatures. Do not install sealant-
22 type joints at temperatures below 40 deg F (4 deg C).
- 23 2. Prepare joints and apply sealants to comply with requirements in Division 07 Section
24 "Joint Sealants."
- 25 F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin
26 edges of sheets to be soldered to a width of 1-1/2 inches (38 mm), except reduce pre-tinning
27 where pre-tinned surface would show in completed Work.
- 28 1. Do not solder metallic-coated steel and aluminum sheet.
- 29 2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into
30 joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
- 31 3. Stainless-Steel Soldering: Tin edges of uncoated sheets using solder recommended for
32 stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning
33 and soldering. Comply with solder manufacturer's recommended methods for cleaning
34 and neutralization.
- 35 G. Rivets: Rivet joints in uncoated aluminum where indicated and where necessary for strength.

1 3.3 ROOF FLASHING INSTALLATION

2 A. General: Install sheet metal flashing and trim to comply with performance
3 requirements, sheet metal manufacturer's written installation instructions, and SMACNA's
4 "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units
5 true to line, and level as indicated. Install work with laps, joints, and seams that will be
6 permanently watertight and weather resistant.

7 B. Copings: Anchor to resist uplift and outward forces according to recommendations in
8 SMACNA's "Architectural Sheet Metal Manual" and as indicated.

9 1. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at
10 16-inch (400-mm) centers.

11 2. Anchor interior leg of coping with washers and screw fasteners through slotted holes at
12 16 inch (400 mm) centers.

13 C. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top
14 edge flared for elastomeric sealant, extending a minimum of 4 inches (100 mm) over base
15 flashing. Install stainless-steel draw band and tighten.

16 D. Counterflashing: Coordinate installation of counterflashing with installation of roof membrane
17 base flashing. Insert counterflashing in receivers and fit tightly to base flashing. Extend
18 counterflashing 4 inches (100 mm) over base flashing. Lap counterflashing joints a minimum
19 of 4 inches (100 mm) and bed with sealant. Secure in a waterproof manner by means of
20 anchor and washer at 16 inch centers.

21 E. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with
22 installation of roofing and other items penetrating roof. Seal with elastomeric or butyl sealant
23 and clamp flashing to pipes that penetrate roof.

24 3.4 MISCELLANEOUS FLASHING INSTALLATION

25 A. Overhead-Piping Safety Pans: Suspend pans independent from structure above as indicated
26 on Drawings. Pipe and install drain line to plumbing waste or drainage system.

27 B. Equipment Support Flashing: Coordinate installation of equipment support flashing with
28 installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to
29 equipment support member.

30 3.5 ERECTION TOLERANCES

31 A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance
32 of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-
33 inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

1 **3.6 CLEANING AND PROTECTION**

2 A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and
3 weathering.

4 B. Clean and neutralize flux materials. Clean off excess solder.

5 C. Clean off excess sealants.

6 D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim
7 are installed unless otherwise indicated in manufacturer's written installation instructions. On
8 completion of installation, remove unused materials and clean finished surfaces. Maintain in a
9 clean condition during construction.

10 E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated
11 beyond successful repair by finish touchup or similar minor repair procedures.

12 **END OF SECTION 076200**

1 **SECTION 079200 - JOINT SEALANTS**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section Includes:

- 8 1. Silicone joint sealants.
9 2. Urethane joint sealants.
10 3. Latex joint sealants.
11 4. Acoustical joint sealants.

- 12 B. Related Sections:

- 13 1. Division 04 Section "Unit Masonry" for masonry control and expansion joint fillers and
14 gaskets.

15 **1.3 SUBMITTALS**

- 16 A. Product Data: For each joint-sealant product indicated.

- 17 B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants
18 showing the full range of colors available for each product exposed to view.

- 19 C. Qualification Data: For qualified Installer.

- 20 D. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

- 21 E. Warranties: Sample of special warranties.

22 **1.4 QUALITY ASSURANCE**

- 23 A. Installer Qualifications: Manufacturer's authorized representative who is trained and
24 approved for installation of units required for this Project.

- 25 B. Source Limitations: Obtain each kind of joint sealant from single source from single
26 manufacturer.

1 **1.5 PROJECT CONDITIONS**

2 A. Do not proceed with installation of joint sealants under the following conditions:

- 3 1. When ambient and substrate temperature conditions are outside limits permitted by
4 joint-sealant manufacturer or are below 40 deg F (5 deg C).
5 2. When joint substrates are wet.
6 3. Where joint widths are less than those allowed by joint-sealant manufacturer for
7 applications indicated.
8 4. Where contaminants capable of interfering with adhesion have not yet been removed
9 from joint substrates.

10 **1.6 WARRANTY**

11 A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair
12 or replace joint sealants that do not comply with performance and other requirements
13 specified in this Section within specified warranty period.

- 14 1. Warranty Period: Two years from date of Substantial Completion.

15 B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant
16 manufacturer agrees to furnish joint sealants to repair or replace those that do not comply
17 with performance and other requirements specified in this Section within specified warranty
18 period.

- 19 1. Warranty Period: Two years from date of Substantial Completion.

20 C. Special warranties specified in this article exclude deterioration or failure of joint sealants from
21 the following:

- 22 1. Movement of the structure caused by structural settlement or errors attributable to
23 design or construction resulting in stresses on the sealant exceeding sealant
24 manufacturer's written specifications for sealant elongation and compression.
25 2. Disintegration of joint substrates from natural causes exceeding design specifications.
26 3. Mechanical damage caused by individuals, tools, or other outside agents.
27 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric
28 contaminants.

29 PART 2 - PRODUCTS

30 **2.1 MATERIALS, GENERAL**

31 A. Compatibility: Provide joint sealants, backings, and other related materials that are
32 compatible with one another and with joint substrates under conditions of service and
33 application, as demonstrated by joint-sealant manufacturer, based on testing and field
34 experience.

1 B. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the
2 weatherproofing system that comply with the following limits for VOC content when
3 calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):

- 4 1. Architectural Sealants: 250 g/L.
- 5 2. Sealant Primers for Nonporous Substrates: 250 g/L.
- 6 3. Sealant Primers for Porous Substrates: 775 g/L.

7 C. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for
8 each liquid-applied joint sealant specified, including those referencing ASTM C 920
9 classifications for type, grade, class, and uses related to exposure and joint substrates.

- 10 1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints
11 that will be continuously immersed in liquids, provide products that have undergone
12 testing according to ASTM C 1247. Liquid used for testing sealants is deionized water,
13 unless otherwise indicated.

14 D. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous
15 substrates, provide products that have undergone testing according to ASTM C 1248 and have
16 not stained porous joint substrates indicated for Project.

17 2.2 SILICONE JOINT SEALANTS

18 A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S,
19 Grade NS, Class 50, for Use NT.

- 20 1. Products: Subject to compliance with requirements, provide one of the following:
 - 21 a. BASF Building Systems; Omniseal 50.
 - 22 b. Dow Corning Corporation; 756 SMS, 791, 795 or 995.
 - 23 c. GE Advanced Materials - Silicones; SilGlaze II SCS2800, SilPruf NB SCS9000,
24 SilPruf SCS2000 or UltraPruf II SCS2900.
 - 25 d. May National Associates, Inc.; Bondaflex Sil 295.
 - 26 e. Pecora Corporation; 864, 895 or 898.
 - 27 f. Polymeric Systems, Inc.; PSI-641.
 - 28 g. Sika Corporation, Construction Products Division; SikaSil-C995.
 - 29 h. Tremco Incorporated; Spectrem 2 or Spectrem 3.

30 B. Mildew-Resistant, Single-Component, Acid-Curing Silicone Joint Sealant: ASTM C 920, Type S,
31 Grade NS, Class 25, for Use NT.

- 32 1. Products: Subject to compliance with requirements, provide one of the following::
 - 33 a. BASF Building Systems; Omniplus.
 - 34 b. Dow Corning Corporation; 786 Mildew Resistant.
 - 35 c. GE Advanced Materials - Silicones; Sanitary SCS1700.
 - 36 d. May National Associates, Inc.; Bondaflex Sil 100 WF.

- 1 e. Tremco Incorporated; Tremsil 200 Sanitary.

2 **2.3 URETHANE JOINT SEALANTS**

- 3 A. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25,
4 for Use NT.

- 5 1. Products: Subject to compliance with requirements, provide one of the following:

- 6 a. BASF Building Systems; Sonolastic NP1, Sonalastic TX1, or Sonolastic Ultra.
7 b. Bostik, Inc.; Chem-Calk 900, 915 or 916 Textured.
8 c. May National Associates, Inc.; Bondaflex PUR 25, Bondaflex PUR 25 Textured, or
9 Bondaflex PUR 40 FC.
10 d. Pacific Polymers International, Inc.; Elasto-Thane 230 Type II.
11 e. Pecora Corporation; Dynatrol I-XL.
12 f. Polymeric Systems, Inc.; Flexiprene 1000.
13 g. Schnee-Morehead, Inc.; Permthane SM7100, Permthane SM7108 or
14 Permthane SM7110.
15 h. Sika Corporation, Construction Products Division; Sikaflex - 1a.
16 i. Tremco Incorporated; Dymonic or Vulkem 116.

- 17 B. Single-Component, Nonsag, Traffic-Grade, Urethane Joint Sealant: ASTM C 920. Type S,
18 Grade NS, Class 25, for Use T.

- 19 1. Products: Subject to compliance with requirements, provide one of the following:

- 20 a. BASF Building Systems; Sonolastic NP1 or Sonolastic Ultra.
21 b. May National Associates, Inc.; Bondaflex PUR 40 FC.
22 c. Pacific Polymers International, Inc.; Elasto-Thane 230 Type II.
23 d. Sika Corporation, Construction Products Division; Sikaflex - 1a.
24 e. Tremco Incorporated; Vulkem 116.

- 25 C. Single-Component, Pourable, Traffic-Grade, Urethane Joint Sealant: ASTM C 920, Type S,
26 Grade P, Class 25, for Use T.

- 27 1. Products: Subject to compliance with requirements, provide one of the following:

- 28 a. BASF Building Systems; Sonolastic SL 1.
29 b. Bostik, Inc.; Chem-Calk 950.
30 c. May National Associates, Inc.; Bondaflex PUR 35 SL.
31 d. Pecora Corporation; Urexpand NR-201.
32 e. Polymeric Systems, Inc.; Flexiprene 952.
33 f. Schnee-Morehead, Inc.; Permthane SM7101.
34 g. Sika Corporation. Construction Products Division; Sikaflex - 1CSL.
35 h. Tremco Incorporated; Vulkem 45.

- 1 D. Multicomponent, Nonsag, Urethane Joint Sealant: ASTM C 920, Type M, Grade NS, Class 25,
2 for Use NT.
- 3 1. Products: Subject to compliance with requirements, provide one of the following:
- 4 a. BASF Building Systems; Sonolastic NP 2.
5 b. Bostik, Inc.; Chem-Calk 500.
6 c. May National Associates, Inc.; Bondaflex PUR 2 NS.
7 d. Pacific Polymers International, Inc.; Elasto-Thane 227 High Shore Type II, Elasto-
8 Thane 227 R Type II or Elasto-Thane 227 Type II.
9
10 e. Pecora Corporation; Dynatred.
11 f. Sika Corporation, Construction Products Division; Sikaflex - 2c NS or Sikaflex -
12 2c EZ Mix.
13 g. Tremco Incorporated; Vulkem 227.
- 14 E. Multicomponent, Nonsag, Traffic-Grade, Urethane Joint Sealant: ASTM C 920, Type M,
15 Grade NS, Class 25, for Use T.
- 16 1. Products: Subject to compliance with requirements, provide one of the following:
- 17 a. BASF Building Systems; Sonolastic NP 2.
18 b. LymTal International, Inc.; Iso-Flex 885 SG.
19 c. May National Associates, Inc.; Bondaflex PUR 2 NS.
20 d. Pacific Polymers International, Inc.; Elasto-Thane 227 High Shore Type II or Elasto-
21 Thane 227 Type II.
22 e. Pecora Corporation; Dynatred.
23 f. Sika Corporation, Construction Products Division; Sikaflex - 2c NS or Sikaflex -
24 2c EZ Mix.
25 g. Tremco Incorporated; Vulkem 227.
- 26 F. Immersible, Single-Component, Nonsag, Traffic-Grade, Urethane Joint Sealant: ASTM C 920,
27 Type S, Grade NS, Class 25, for Uses T and I.
- 28 1. Products: Subject to compliance with requirements provide one of the following:
- 29 a. BASF Building Systems; Sonolastic NP1.
30 b. Sika Corporation, Construction Products Division; Sikaflex - 1a.
31 c. Tremco Incorporated; Vulkem 116.
- 32 G. Immersible Multicomponent, Nonsag, Traffic-Grade, Urethane Joint Sealant: ASTM C 920,
33 Type M, Grade NS, Class 25, for Uses T and I.
- 34 1. Products: Subject to compliance with requirements, provide one of the following:
- 35 a. BASF Building Systems; Sonolastic NP 2.
36 b. LymTal International, Inc.; Iso-Flex 885 SG.

- 1 c. May National Associates, Inc.; Bondaflex PUR 2 NS.
- 2 d. Pecora Corporation; Dynatred.
- 3 e. Tremco Incorporated; Vulkem 227.

4 **2.4 LATEX JOINT SEALANTS**

5 A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

6 1. Products: Subject to compliance with requirements, provide one of the following:

- 7 a. BASF Building Systems; Sonolac.
- 8 b. Bostik, Inc.; Chem-Calk 600.
- 9 c. May National Associates, Inc.; Bondaflex 600 or Bondaflex Sil-A 700.
- 10 d. Pecora Corporation; AC-20+.
- 11 e. Schnee-Morehead, Inc.; SM 8200.
- 12 f. Tremco Incorporated; Tremflex 834.

13 **2.5 ACOUSTICAL JOINT SEALANTS**

14 A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant
15 complying with ASTM C 834. Product effectively reduces airborne sound transmission through
16 perimeter joints and openings in building construction as demonstrated by testing
17 representative assemblies according to ASTM E 90.

18 1. Products: Subject to compliance with requirements, provide one of the following:

- 19 a. Pecora Corporation; AC-20 FTR or AIS-919.
- 20 b. USG Corporation; SHEETROCK Acoustical Sealant.

21 **2.6 JOINT SEALANT BACKING**

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

25 B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin),
26 and of size and density to control sealant depth and otherwise contribute to producing
27 optimum sealant performance.

28 C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant
29 manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or
30 joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

- 1 a. Metal.
- 2 b. Glass.

3 B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as
4 indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to
5 comply with joint-sealant manufacturer's written instructions. Confine primers to areas of
6 joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

7 C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with
8 adjoining surfaces that otherwise would be permanently stained or damaged by such contact
9 or by cleaning methods required to remove sealant smears. Remove tape immediately after
10 tooling without disturbing joint seal.

11 3.3 INSTALLATION OF JOINT SEALANTS

12 A. General: Comply with joint-sealant manufacturer's written installation instructions for
13 products and applications indicated, unless more stringent requirements apply.

14 B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint
15 sealants as applicable to materials, applications, and conditions indicated.

16 C. Install sealant backings of kind indicated to support sealants during application and at position
17 required to produce cross-sectional shapes and depths of installed sealants relative to joint
18 widths that allow optimum sealant movement capability.

- 19 1. Do not leave gaps between ends of sealant backings.
- 20 2. Do not stretch, twist, puncture, or tear sealant backings.
- 21 3. Remove absorbent sealant backings that have become wet before sealant application
22 and replace them with dry materials.

23 D. Install bond-breaker tape behind sealants where sealant backings are not used between
24 sealants and backs of joints.

25 E. Install sealants using proven techniques that comply with the following and at the same time
26 backings are installed:

- 27 1. Place sealants so they directly contact and fully wet joint substrates.
- 28 2. Completely fill recesses in each joint configuration.
- 29 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow
30 optimum sealant movement capability.

31 F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or
32 curing begins, tool sealants according to requirements specified in subparagraphs below to
33 form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure
34 contact and adhesion of sealant with sides of joint.

- 35 1. Remove excess sealant from surfaces adjacent to joints.

- 1 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not
2 discolor sealants or adjacent surfaces.
- 3 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
- 4 a. Use masking tape to protect surfaces adjacent to recessed tooled joints.
- 5 G. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal
6 construction at perimeters, behind control joints, and at openings and penetrations with a
7 continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at
8 perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's
9 written recommendations.

10 **3.4 CLEANING**

- 11 A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by
12 methods and with cleaning materials approved in writing by manufacturers of joint sealants
13 and of products in which joints occur.

14 **3.5 PROTECTION**

- 15 A. Protect joint sealants during and after curing period from contact with contaminating
16 substances and from damage resulting from construction operations or other causes so
17 sealants are without deterioration or damage at time of Substantial Completion. If, despite
18 such protection, damage or deterioration occurs, cut out and remove damaged or
19 deteriorated joint sealants immediately so installations with repaired areas are
20 indistinguishable from original work.

21 **END OF SECTION 079200**

22

1

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DIVISION 8

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. Section Includes:

1. Standard hollow metal doors and frames.

- B. Related Sections:

1. Division 04 Section "Unit Masonry" for embedding anchors for hollow metal work into masonry construction.
2. Division 08 Section "Door Hardware" for door hardware for hollow metal doors.
3. Division 09 Sections "Painting" for field painting hollow metal doors and frames.
4. Division 26 Sections for electrical connections including conduit and wiring for door controls and operators.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.
- B. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, fire-resistance rating, and finishes.
- B. Shop Drawings: Include the following:
1. Elevations of each door design.
 2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 4. Locations of reinforcement and preparations for hardware.
 5. Details of each different wall opening condition.
 6. Details of anchorages, joints, field splices, and connections.
 7. Details of accessories.

- 1 8. Details of moldings, removable stops, and glazing.
2 9. Details of conduit and preparations for power, signal, and control systems.
3

- 4 C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified
5 testing agency, for each type of hollow metal door and frame assembly.
6

7 **1.5 QUALITY ASSURANCE**

- 8
9 A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.
10
11 B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled
12 by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive
13 pressure according to UBC Standard 7-2.
14
15 1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors
16 that have a maximum transmitted temperature end point of not more than 450 deg F
17 (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
18
19 C. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are
20 listed and labeled, by a testing and inspecting agency acceptable to authorities having
21 jurisdiction, for fire-protection ratings indicated, based on testing according to
22 UBC Standard 7-4. Label each individual glazed lite.
23

24 **1.6 DELIVERY, STORAGE, AND HANDLING**

- 25
26 A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit
27 and Project-site storage. Do not use nonvented plastic.
28
29 1. Provide additional protection to prevent damage to finish of factory-finished units.
30
31 B. Deliver welded frames with two removable spreader bars across bottom of frames, tack
32 welded to jambs and mullions.
33
34 C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a
35 vertical position with heads up, spaced by blocking, on minimum 4-inch- (102-mm-) high wood
36 blocking. Do not store in a manner that traps excess humidity.
37
38 1. Provide minimum 1/4-inch (6-mm) space between each stacked door to permit air
39 circulation.
40

41 **1.7 PROJECT CONDITIONS**

- 42
43 A. Field Measurements: Verify actual dimensions of openings by field measurements before
44 fabrication.
45
46

1.8 COORDINATION

- A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Ceco Door Products; an Assa Abloy Group company.
 2. Curries Company; an Assa Abloy Group company.
 3. Deansteel Manufacturing Company, Inc.
 4. Habersham Metal Products Company.
 5. Mesker Door Inc.
 6. Steelcraft; an Ingersoll-Rand company.

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.
- D. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.
1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.

- 1 G. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting
2 of fibers manufactured from slag or rock wool with 6- to 12-lb/cu. ft. (96- to 192-kg/cu. m)
3 density; with maximum flame-spread and smoke-development indexes of 25 and 50,
4 respectively; passing ASTM E 136 for combustion characteristics.
5
- 6 H. Glazing: Comply with requirements in Division 08 Section "Glazing."
7
- 8 I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-
9 mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos
10 fibers, sulfur components, and other deleterious impurities.
11

12 2.3 STANDARD HOLLOW METAL DOORS

- 13
- 14 A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with
15 smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated.
16 Comply with ANSI/SDI A250.8.
17
- 18 1. Design: Flush panel.
19 2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene,
20 polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
21
- 22 a. Fire Door Core: As required to provide fire-protection ratings indicated.
23 b. Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with
24 thermal-resistance value (R-value) of not less than 12.3 deg F x h x sq. ft./Btu
25 (2.166 K x sq. m/W) when tested according to ASTM C 1363.
26
- 27 1) Locations: Exterior doors and interior doors where indicated.
28
- 29 3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.
30
- 31 a. Beveled Edge: 1/8 inch in 2 inches (3 mm in 50 mm).
32
- 33 4. Vertical Edges for Double-Acting Doors: Round vertical edges with 2-1/8-inch (54-mm)
34 radius.
35 5. Top and Bottom Edges: Closed with flush or inverted 0.042-inch- (1.0-mm-) thick, end
36 closures or channels of same material as face sheets.
37 6. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors
38 and Frames."
39
- 40 B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Provide doors
41 complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and
42 model and ANSI/SDI A250.4 for physical performance level:
43
- 44 1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).
45

1 C. Interior Doors: Face sheets fabricated from cold-rolled steel sheet unless metallic-coated
2 sheet is indicated. Provide doors complying with requirements indicated below by referencing
3 ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

4
5 1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).
6

7 D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from
8 same material as door face sheets.
9

10 E. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled
11 steel sheet.
12

13 **2.4 STANDARD HOLLOW METAL FRAMES**

14
15 A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
16

17 B. Exterior Frames: Fabricated from metallic-coated steel sheet.
18

- 19 1. Fabricate frames with mitered or coped corners.
- 20 2. Fabricate frames as full profile welded unless otherwise indicated.
- 21 3. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
22

23 C. Interior Frames: Fabricated from cold-rolled steel sheet unless metallic-coated sheet is
24 indicated.
25

- 26 1. Fabricate frames with mitered or coped corners.
- 27 2. Fabricate frames as full profile welded unless otherwise indicated.
- 28 3. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
- 29 4. Frames for Wood Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
- 30 5. Frames for Borrowed Lights: Same as adjacent door frame.
31

32 D. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates
33 from same material as frames.
34

35 **2.5 FRAME ANCHORS**

36
37 A. Jamb Anchors:
38

- 39 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not
40 less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2
41 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.177
42 inch (4.5 mm) thick.
- 43 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042
44 inch (1.0 mm) thick.
45

- 1 B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick,
2 and as follows:

- 3
4 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
5

6 **2.6 STOPS AND MOLDINGS**

- 7
8 A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, fabricated from same
9 material as door face sheet in which they are installed.

- 10
11 B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16
12 mm) high unless otherwise indicated.

- 13
14 C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch (0.8 mm) thick, fabricated from
15 same material as frames in which they are installed.
16

17 **2.7 ACCESSORIES**

- 18
19 A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
20

- 21 B. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.
22

23 **2.8 FABRICATION**

- 24
25 A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form
26 metal to required sizes and profiles, with minimum radius for thickness of metal. Where
27 practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project
28 site, clearly identify work that cannot be permanently factory assembled before shipment.
29

- 30 B. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.
31

- 32 C. Hollow Metal Doors:
33

- 34 1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit
35 moisture to escape. Seal joints in top edges of doors against water penetration.
36 2. Glazed Lites: Factory cut openings in doors.
37 3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by
38 NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch (19
39 mm) beyond edge of door on which astragal is mounted.
40

- 41 D. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling
42 limitations, provide alignment plates or angles at each joint, fabricated of same thickness
43 metal as frames.
44

- 45 1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make
46 smooth, flush, and invisible.

- 1 2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face
- 2 seams or joints, fabricated from same material as door frame. Fasten members at
- 3 crossings and to jambs by butt welding.
- 4 3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners
- 5 unless otherwise indicated.
- 6 4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be
- 7 grouted.
- 8 5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot
- 9 welds per anchor.
- 10 6. Jamb Anchors: Provide number and spacing of anchors as follows:
- 11
- 12 a. Masonry Type: Locate anchors not more than 18 inches (457 mm) from top and
- 13 bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as
- 14 follows:
- 15
- 16 1) Two anchors per jamb up to 60 inches (1524 mm) high.
- 17 2) Three anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
- 18 3) Four anchors per jamb from 90 to 120 inches (2286 to 3048 mm) high.
- 19 4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches
- 20 (610 mm) or fraction thereof above 120 inches (3048 mm) high.
- 21
- 22 b. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and
- 23 bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as
- 24 follows:
- 25
- 26 1) Three anchors per jamb up to 60 inches (1524 mm) high.
- 27 2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
- 28 3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) high.
- 29 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches
- 30 (610 mm) or fraction thereof above 96 inches (2438 mm) high.
- 31 5) Two anchors per head for frames above 42 inches (1066 mm) wide and
- 32 mounted in metal-stud partitions.
- 33
- 34 7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers
- 35 as follows. Keep holes clear during construction.
- 36
- 37 a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
- 38 b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- 39
- 40 E. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold-
- 41 or hot-rolled steel sheet.
- 42
- 43 F. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised
- 44 hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the
- 45 Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door
- 46 Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

G. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. 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 is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow metal work.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.9 STEEL FINISHES

A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
- C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

- 1 D. Proceed with installation only after unsatisfactory conditions have been corrected.

2
3 **3.2 PREPARATION**

- 4
5 A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding,
6 filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed
7 faces.
8
9 B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness,
10 alignment, twist, and plumbness to the following tolerances:
11
12 1. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90
13 degrees from jamb perpendicular to frame head.
14 2. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line
15 parallel to plane of wall.
16 3. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on
17 parallel lines, and perpendicular to plane of wall.
18 4. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a perpendicular
19 line from head to floor.
20
21 C. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door
22 hardware.
23

24 **3.3 INSTALLATION**

- 25
26 A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in
27 place; comply with Drawings and manufacturer's written instructions.
28
29 B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with
30 ANSI/SDI A250.11.
31
32 1. Set frames accurately in position, plumbed, aligned, and braced securely until
33 permanent anchors are set. After wall construction is complete, remove temporary
34 braces, leaving surfaces smooth and undamaged.
35
36 a. At fire-protection-rated openings, install frames according to NFPA 80.
37 b. Where frames are fabricated in sections because of shipping or handling
38 limitations, field splice at approved locations by welding face joint continuously;
39 grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
40 c. Install frames with removable glazing stops located on secure side of opening.
41 d. Install door silencers in frames before grouting.
42 e. Remove temporary braces necessary for installation only after frames have been
43 properly set and secured.
44 f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim
45 as necessary to comply with installation tolerances.

- 1 g. Field apply bituminous coating to backs of frames that are filled with grout
2 containing antifreezing agents.
3
- 4 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor,
5 and secure with postinstalled expansion anchors.
6 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
7 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space
8 between frames and masonry with grout.
9 5. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment,
10 twist, and plumb to the following tolerances:
11
- 12 a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line
13 90 degrees from jamb perpendicular to frame head.
14 b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal
15 line parallel to plane of wall.
16 c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of
17 jambs on parallel lines, and perpendicular to plane of wall.
18 d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.
19
- 20 C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified
21 below. Shim as necessary.
22
- 23 1. Non-Fire-Rated Standard Steel Doors:
24
- 25 a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
26 b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6
27 mm).
28 c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
29 d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4
30 inch (19 mm).
31
- 32 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
33
- 34 D. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with
35 hollow metal manufacturer's written instructions.
36
- 37 1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not
38 more than 9 inches (230 mm) o.c. and not more than 2 inches (50 mm) o.c. from each
39 corner.
40

41 3.4 ADJUSTING AND CLEANING

42

- 43 A. Final Adjustments: Check and readjust operating hardware items immediately before final
44 inspection. Leave work in complete and proper operating condition. Remove and replace
45 defective work, including hollow metal work that is warped, bowed, or otherwise
46 unacceptable.

- 1 B. Remove grout and other bonding material from hollow metal work immediately after
2 installation.
- 3
- 4 C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of
5 prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- 6
- 7 D. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint
8 according to manufacturer's written instructions.

9 **END OF SECTION 081113**

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1 **SECTION 081416 - FLUSH WOOD DOORS**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section Includes:

- 8 1. Solid-core doors with wood-veneer faces.
9 2. Factory finishing flush wood doors.

- 10 B. Related Requirements:

- 11 1. Section 088000 "Glazing" for glass view panels in flush wood doors.

12 **1.3 PREINSTALLATION MEETINGS**

- 13 A. Preinstallation Conference: Conduct conference at Project site.

14 **1.4 ACTION SUBMITTALS**

- 15 A. Product Data: For each type of door. Include details of core and edge construction and trim for
16 openings. Include factory-finishing specifications.

- 17 B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door;
18 construction details not covered in Product Data; and the following:

- 19 1. Dimensions and locations of blocking.
20 2. Dimensions and locations of mortises and holes for hardware.
21 3. Dimensions and locations of cutouts.
22 4. Undercuts.
23 5. Requirements for veneer matching.
24 6. Doors to be factory finished and finish requirements.
25 7. Fire-protection ratings for fire-rated doors.

- 26 C. Samples for Initial Selection: For factory-finished doors.

- 27 D. Samples for Verification:

- 28 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches (200
29 by 250 mm), for each material and finish. For each wood species and transparent finish,

- 1 provide set of three Samples showing typical range of color and grain to be expected in
2 finished Work.
- 3 2. Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door
4 faces and edges representing actual materials to be used.
- 5 a. Provide Samples for each species of veneer and solid lumber required.
6 b. Provide Samples for each color, texture, and pattern of plastic laminate required.
7 c. Finish veneer-faced door Samples with same materials proposed for factory-
8 finished doors.

9 **1.5 INFORMATIONAL SUBMITTALS**

- 10 A. Sample Warranty: For special warranty.
- 11 B. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

12 **1.6 QUALITY ASSURANCE**

- 13 A. Manufacturer Qualifications: A qualified manufacturer is a certified participant in AWI's
14 Quality Certification Program.

15 **1.7 DELIVERY, STORAGE, AND HANDLING**

- 16 A. Comply with requirements of referenced standard and manufacturer's written instructions.
- 17 B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic sheeting.
- 18 C. Mark each door on bottom rail with opening number used on Shop Drawings.

19 **1.8 FIELD CONDITIONS**

- 20 A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and
21 weathertight, wet work in spaces is complete and dry, and HVAC system is operating and
22 maintaining ambient temperature and humidity conditions at occupancy levels during
23 remainder of construction period.

24 **1.9 WARRANTY**

- 25 A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or
26 workmanship within specified warranty period.
- 27 1. Failures include, but are not limited to, the following:
- 28 a. Warping (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch
29 (1067-by-2134-mm) section.
- 30 b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch
31 (0.25 mm in a 76.2-mm) span.

- 1 2. Warranty shall also include installation and finishing that may be required due to repair
- 2 or replacement of defective doors.
- 3 3. Warranty Period for Solid-Core Interior Doors: Life of installation.

4 **PART 2 - PRODUCTS**

5 **2.1 MANUFACTURERS**

- 6 A. Manufacturers: Subject to compliance with requirements, provide products by one of the
- 7 following:

- 8 1. Algoma Hardwoods, Inc.
- 9 2. Eggers Industries
- 10 3. Marshfield Door Systems, Inc.
- 11 4. Mohawk Flush Doors, Inc.; a Masonite company.

- 12 B. Source Limitations: Obtain flush wood doors from single manufacturer.

13 **2.2 FLUSH WOOD DOORS, GENERAL**

- 14 A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and
- 15 WI's "Architectural Woodwork Standards.

- 16 1. Provide AWI Quality Certification Labels indicating that doors comply with requirements
- 17 of grades specified.
- 18 2. Contract Documents contain selections chosen from options in quality standard and
- 19 additional requirements beyond those of quality standard. Comply with those selections
- 20 and requirements in addition to quality standard.

- 21 B. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.

- 22 C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a
- 23 qualified testing agency, for fire-protection ratings indicated, based on testing at positive
- 24 pressure according to NFPA 252 or UL 10.

- 25 1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies,
- 26 provide certification by a qualified testing agency that doors comply with standard
- 27 construction requirements for tested and labeled fire-rated door assemblies except for
- 28 size.
- 29 2. Cores: Provide core specified or mineral core as needed to provide fire-protection rating
- 30 indicated.
- 31 3. Edge Construction: Provide edge construction with intumescent seals concealed by
- 32 outer stile. Comply with specified requirements for exposed edges.
- 33 4. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated
- 34 without formed-steel edges and astragals. Provide stiles with concealed intumescent
- 35 seals. Comply with specified requirements for exposed edges.

- 1 5. Pairs: Provide formed-steel edges and astragals with intumescent seals.
- 2 a. Finish steel edges and astragals to match door hardware (locksets or exit devices).
- 3 D. Particleboard-Core Doors:
- 4 1. Particleboard: ANSI A208.1, Grade LD-2.
- 5 2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate
- 6 through-bolting hardware.
- 7 a. 5-inch (125-mm) top-rail blocking, in doors indicated to have closers.
- 8 b. 5-inch (125-mm) bottom-rail blocking, in exterior doors and doors indicated to
- 9 have kick, mop, or armor plates.
- 10 c. 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.
- 11 3. Provide doors with glued-wood-stave or structural-composite-lumber cores instead of
- 12 particleboard cores for doors indicated to receive exit devices.
- 13 E. Mineral-Core Doors:
- 14 1. Core: Noncombustible mineral product complying with requirements of referenced
- 15 quality standard and testing and inspecting agency for fire-protection rating indicated.
- 16 2. Blocking: Provide composite blocking with improved screw-holding capability approved
- 17 for use in doors of fire-protection ratings indicated as follows:
- 18 a. 5-inch (125-mm) top-rail blocking.
- 19 b. 5-inch (125-mm) bottom-rail blocking, in doors indicated to have protection
- 20 plates.
- 21 c. 5-inch (125-mm) midrail blocking, in doors indicated to have armor plates.
- 22 d. 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.
- 23 3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved
- 24 screw-holding capability and split resistance. Comply with specified requirements for
- 25 exposed edges.
- 26 a. Screw-Holding Capability: 550 lbf (2440 N) per WDMA T.M.-10.

27 **2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH**

- 28 A. Interior Solid-Core Doors:
- 29 1. Grade: Premium, with Grade AA faces.
- 30 2. Species: Select white maple.
- 31 3. Cut: Plain sliced.
- 32 4. Match between Veneer Leaves: Book or Slip match.
- 33 5. Assembly of Veneer Leaves on Door Faces: Center-balance or balance match.

- 1 6. Pair and Set Match: Provide for doors hung in same opening or separated only by
- 2 mullions.
- 3 7. Room Match: Match door faces within each separate room or area of building. Corridor-
- 4 door faces do not need to match where they are separated by 20 feet (6 m) or more.
- 5 8. Transom Match: As indicated.
- 6 9. Exposed Vertical Edges: AWI 1 300J-7 #5 edge. Same species as faces - edge Type A.
- 7 10. Core: Particleboard or mineral core as required by application.
- 8 11. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive
- 9 planed before veneering. Faces are bonded to core using a hot press.
- 10 12. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.

11 2.4 LIGHT FRAMES

- 12 A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads
- 13 unless otherwise indicated.
- 14 1. Wood Species: Same species as door faces.
- 15 2. Profile: Recessed tapered beads.
- 16 3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and
- 17 metal glazing clips approved for such use.
- 18 B. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-
- 19 veneered noncombustible beads matching veneer species of door faces and approved for use
- 20 in doors of fire-protection rating indicated. Include concealed metal glazing clips where
- 21 required for opening size and fire-protection rating indicated.

22 2.5 FABRICATION

- 23 A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of
- 24 referenced quality standard for fitting unless otherwise indicated.
- 25 1. Comply with NFPA 80 requirements for fire-rated doors.
- 26 B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply
- 27 with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-
- 28 156.115-W, and hardware templates.
- 29 1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment
- 30 before factory machining.
- 31 2. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for
- 32 pairs of fire-rated doors.
- 33 C. Openings: Factory cut and trim openings through doors.
- 34 1. Light Openings: Trim openings with moldings of material and profile indicated.
- 35 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with
- 36 applicable requirements in Section 088000 "Glazing."

1 3. Louvers: Factory install louvers in prepared openings.

2 **2.6 FACTORY FINISHING**

3 A. General: Comply with referenced quality standard for factory finishing. Complete fabrication,
4 including fitting doors for openings and machining for hardware that is not surface applied,
5 before finishing.

6 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be
7 omitted on bottom edges, edges of cutouts, and mortises.

8 B. Factory finish doors.

9 C. Use only paints and coatings that comply with the testing and product requirements of the
10 California Department of Health Services' "Standard Practice for the Testing of Volatile Organic
11 Emissions from Various Sources Using Small-Scale Environmental Chambers."

12 D. Transparent Finish:

13 1. Grade: Premium.

14 2. Finish: WDMA TR-6 catalyzed polyurethane.

15 3. Staining: As selected by Architect from manufacturer's full range.

16 4. Effect: Open-grain finish.

17 5. Sheen: Semigloss.

18 **PART 3 - EXECUTION**

19 **3.1 EXAMINATION**

20 A. Examine doors and installed door frames, with Installer present, before hanging doors.

21 1. Verify that installed frames comply with indicated requirements for type, size, location,
22 and swing characteristics and have been installed with level heads and plumb jambs.

23 2. Reject doors with defects.

24 B. Proceed with installation only after unsatisfactory conditions have been corrected.

25 **3.2 INSTALLATION**

26 A. Hardware: For installation, see Section 087100 "Door Hardware."

27 B. Installation Instructions: Install doors to comply with manufacturer's written instructions and
28 referenced quality standard, and as indicated.

29 1. Install fire-rated doors according to NFPA 80.

30 2. Install smoke- and draft-control doors according to NFPA 105.

- 1 C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated
2 below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-
3 rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises
4 after fitting and machining.
- 5 1. Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors.
6 Provide 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or
7 covering unless otherwise indicated. Where threshold is shown or scheduled,
8 provide 1/4 inch (6.4 mm) from bottom of door to top of threshold unless otherwise
9 indicated.
- 10 a. Comply with NFPA 80 for fire-rated doors.
11 b. 2. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and
12 hinge edges.
- 13 2. Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock edge; trim stiles and
14 rails only to extent permitted by labeling agency.
- 15 D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- 16 E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at
17 Project site.
- 18 **3.3 ADJUSTING**
- 19 A. Operation: Rehang or replace doors that do not swing or operate freely.
- 20 B. Finished Doors: Replace doors that are damaged or that do not comply with requirements.
21 Doors may be repaired or refinished if Work complies with requirements and shows no
22 evidence of repair or refinishing.

23 **END OF SECTION 081416**

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1 **SECTION 083613 - SECTIONAL DOORS**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section includes electronically operated sectional doors.

8 **1.3 ACTION SUBMITTALS**

- 9 A. Product Data: For each type and size of sectional door and accessory.

- 10 1. Include construction details, material descriptions, dimensions of individual
11 components, profile door sections, and finishes.

- 12 B. Shop Drawings: For each installation and for special components not dimensioned or detailed
13 in manufacturer's product data.

- 14 1. Include plans, elevations, sections, and mounting details.

- 15 2. Include details of equipment assemblies. Indicate dimensions, required clearances,
16 method of field assembly, components, and location and size of each field connection.

- 17 3. Include points of attachment and their corresponding static and dynamic loads imposed
18 on structure.

- 19 C. Samples for Initial Selection: For units with factory-applied finishes.

- 20 1. Include Samples of accessories involving color selection.

21 **1.4 INFORMATIONAL SUBMITTALS**

- 22 A. Sample Warranties: For special warranties.

23 **1.5 QUALITY ASSURANCE**

- 24 A. Installer Qualifications: An entity that employs installers and supervisors who are trained and
25 approved by manufacturer for both installation and maintenance of units required for this
26 Project.

- 27 B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural &
28 Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC A117.1.

1 **1.6 WARRANTY**

2 A. Special Warranty: Manufacturer agrees to repair or replace components of sectional doors
3 that fail in materials or workmanship within specified warranty period.

4 1. Failures include, but are not limited to, the following:

5 a. Structural failures including, but not limited to, excessive deflection.

6 b. Failure of components or operators before reaching required number of
7 operation cycles.

8 c. Faulty operation of hardware.

9 d. Deterioration of metals, metal finishes, and other materials beyond normal
10 weathering and use; rust through.

11 e. Delamination of exterior or interior facing materials.

12 2. Warranty Period: Five years from date of Substantial Completion.

13 B. Special Finish Warranty: Manufacturer agrees to repair or replace components that show
14 evidence of deterioration of factory-applied finishes within specified warranty period.

15 1. Warranty Period: 10 years from date of Substantial Completion.

16 **PART 2 - PRODUCTS**

17 **2.1 MANUFACTURERS, GENERAL**

18 A. Source Limitations: Obtain sectional doors from single source from single manufacturer.

19 1. Obtain operators and controls from sectional door manufacturer.

20 **2.2 PERFORMANCE REQUIREMENTS**

21 A. General Performance: Sectional doors shall comply with performance requirements specified
22 without failure due to defective manufacture, fabrication, installation, or other defects in
23 construction and without requiring temporary installation of reinforcing components.

24 B. Structural Performance, Exterior Doors: Capable of withstanding the design wind loads.

25 1. Design Wind Load: As indicated on Drawings.

26 2. Testing: According to ASTM E 330 or DASMA 108 for garage doors and complying with
27 the acceptance criteria of DASMA 108.

28 3. Deflection Limits: Design sectional doors to withstand design wind loads without
29 evidencing permanent deformation or disengagement of door components.

30 a. Deflection of door sections in horizontal position (open) shall not exceed 1/120 of
31 the door width.

- 1 b. Deflection of horizontal track assembly shall not exceed 1/240 of the door height.
- 2 4. Operability under Wind Load: Design overhead coiling doors to remain operable under
- 3 design wind load, acting inward and outward.

4 **2.3 DOOR ASSEMBLY**

- 5 A. Steel Sectional Door: Sectional door formed with hinged sections and fabricated according to
- 6 DASMA 102 unless otherwise indicated.

- 7 1. Manufacturers: Subject to compliance with requirements, available manufacturers
- 8 offering products that may be incorporated into the Work include, but are not limited
- 9 to, the following:

- 10 a. C.H.I. Overhead Doors.
- 11 b. Overhead Door Corporation.
- 12 c. Raynor.
- 13 d. Rite-Hite Corporation.

- 14 B. Operation Cycles: Door components and operators capable of operating for not less than
- 15 20,000. One operation cycle is complete when a door is opened from the closed position to
- 16 the fully open position and returned to the closed position.

- 17 C. Air Infiltration: Maximum rate of 0.08 cfm/sq. ft. (0.406 L/s per sq. m) at 15 and 25 mph (24.1
- 18 and 40.2 km/h) when tested according to ASTM E 283 or DASMA 105.

- 19 D. Steel Sections: Zinc-coated (galvanized) steel sheet with G60 (Z180) zinc coating.

- 20 1. Section Thickness: 2 inches (51 mm).
- 21 2. Exterior-Face, Steel Sheet Thickness: 0.064-inch- (1.63-mm-) nominal coated thickness.

- 22 a. Surface: Flat.
- 23 b. Surface: Manufacturer's standard, flush.

- 24 E. Track Configuration: High lift track (to follow rigid from profile).

- 25 F. Roller-Tire Material: Manufacturer's standard.

- 26 G. Locking Devices: Equip door with slide bolt for padlock.

- 27 H. Counterbalance Type: Torsion spring.

- 28 I. Electric Motor Operation: U.L. listed electric operator.

- 29 J. Door Finish:

- 30 1. Baked-Enamel or Powder-Coat Finish: Color and gloss as selected by Architect from
- 31 manufacturer's full range.

- 1 2. Finish of Interior Facing Material: Finish as selected by Architect from manufacturer's
2 full range.

3 **2.4 STEEL DOOR SECTIONS**

- 4 A. Exterior Section Faces and Frames: Zinc-coated (galvanized), cold-rolled, commercial steel (CS)
5 sheet, complying with ASTM A 653/A 653M, with indicated zinc coating and thickness.

- 6 1. Fabricate section faces from single sheets to provide sections not more than 24 inches
7 (610 mm) high and of indicated thickness. Roll horizontal meeting edges to a
8 continuous, interlocking, keyed, rabbeted, shiplap, or tongue-in-groove weather-
9 resistant seal, with a reinforcing flange return.

- 10 2. For insulated doors, provide sections with continuous thermal-break construction,
11 separating the exterior and interior faces of door.

- 12 B. Section Ends and Intermediate Stiles: Enclose open ends of sections with channel end stiles
13 formed from galvanized-steel sheet not less than 0.064-inch- (1.63-mm-) nominal coated
14 thickness and welded to door section. Provide intermediate stiles formed from not less than
15 0.064-inch- (1.63-mm-) thick galvanized-steel sheet, cut to door section profile, and welded in
16 place. Space stiles not more than 48 inches (1219 mm) apart.

- 17 C. Reinforce bottom section with a continuous channel or angle conforming to bottom-section
18 profile.

- 19 D. Reinforce sections with continuous horizontal and diagonal reinforcement, as required to
20 stiffen door and for wind loading. Provide galvanized-steel bars, struts, trusses, or strip steel,
21 formed to depth and bolted or welded in place.

- 22 E. Provide reinforcement for hardware attachment.

- 23 F. Interior Facing Material: Manufacturer's standard material complying with the acceptance
24 criteria of DASMA 107, with indicated thickness.

- 25 G. Fabricate sections so finished door assembly is rigid and aligned, with tight hairline joints and
26 free of warp, twist, and deformation.

27 **2.5 TRACKS, SUPPORTS, AND ACCESSORIES**

- 28 A. Tracks: Manufacturer's standard, galvanized-steel track system of configuration indicated,
29 sized for door size and weight, designed for lift type indicated and clearances indicated on
30 Drawings, Provide complete system including brackets, bracing, and reinforcement to ensure
31 rigid support of ball-bearing roller guides for required door type, size, weight, and loading.

- 32 1. Galvanized Steel: ASTM A 653/A 653M, minimum G60 (Z180) zinc coating.

- 33 2. Slope tracks at an angle from vertical or design tracks to ensure tight closure at jambs
34 when door unit is closed.

- 1 3. Track Reinforcement and Supports: Galvanized-steel members to support track without
2 sag, sway, and vibration during opening and closing of doors. Slot vertical sections of
3 track spaced 2 inches (51 mm) apart for door-drop safety device.
- 4 a. For Vertical Track: Continuous reinforcing angle attached to track and attached
5 to wall with jamb brackets.
- 6 b. For Horizontal Track: Continuous reinforcing angle from curve in track to end of
7 track, attached to track and supported at points by laterally braced attachments
8 to overhead structural members.
- 9 B. Weatherseals: Replaceable, adjustable, continuous, compressible weather-stripping gaskets of
10 flexible vinyl, rubber, or neoprene fitted to bottom and top of sectional door unless otherwise
11 indicated.
- 12 C. Exhaust Port:
- 13 1. Provide and install 4" aluminum exhaust port assembly for each overhead door. Verify
14 location and height with Owner prior to installation.

15 2.6 HARDWARE

- 16 A. General: Heavy-duty, corrosion-resistant hardware, with hot-dip galvanized, stainless-steel, or
17 other corrosion-resistant fasteners, to suit door type.
- 18 B. Hinges: Heavy-duty, galvanized-steel hinges of not less than 0.079-inch- (2.01-mm-) nominal
19 coated thickness at each end stile and at each intermediate stile, according to manufacturer's
20 written recommendations for door size. Attach hinges to door sections through stiles and rails
21 with bolts and lock nuts or lock washers and nuts. Use rivets or self-tapping fasteners where
22 access to nuts is impossible. Provide double-end hinges where required, for doors more than
23 16 feet (4.88 m) wide unless otherwise recommended by door manufacturer.
- 24 C. Rollers: Heavy-duty rollers with steel ball-bearings in case-hardened steel races, mounted with
25 varying projections to suit slope of track. Extend roller shaft through both hinges where
26 double hinges are required. Provide 3-inch- (76-mm-) diameter roller tires for 3-inch- (76-mm-
27) wide track and 2-inch- (51-mm-) diameter roller tires for 2-inch- (51-mm-) wide track.
- 28 D. Push/Pull Handles: Equip each push-up operated or emergency-operated door with
29 galvanized-steel lifting handles on each side of door, finished to match door.

30 2.7 LOCKING DEVICES

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

1 **2.8 COUNTERBALANCE MECHANISM**

2 A. Torsion Spring: Counterbalance mechanism consisting of adjustable-tension torsion springs
3 fabricated from steel-spring wire complying with ASTM A 229/A 229M, mounted on torsion
4 shaft made of steel tube or solid steel. Provide springs designed for number of operation
5 cycles indicated.

6 B. Weight Counterbalance: Counterbalance mechanism consisting of filled pipe weights that
7 move vertically in a galvanized-steel weight pipe. Connect pipe weights with cable to weight-
8 cable drums mounted on torsion shaft made of steel tube or solid steel.

9 C. Cables: Galvanized-steel, multistrand, lifting cables with cable safety factor of at least 5 to 1.

10 D. Cable Safety Device: Include a spring-loaded steel or spring-loaded bronze cam mounted to
11 bottom door roller assembly on each side and designed to automatically stop door if either
12 lifting cable breaks.

13 E. Bracket: Provide anchor support bracket as required to connect stationary end of spring to the
14 wall and to level the shaft and prevent sag.

15 F. Bumper: Provide spring bumper at each horizontal track to cushion door at end of opening
16 operation.

17 **2.9 ELECTRIC MOTOR OPERATION**

18 A. Electric Motor Operation: Provide UL listed electric operator, size and type as recommended
19 by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1
20 foot per second. Operator shall meet UL325/2010 requirements for continuous monitoring of
21 safety devices.

22 1. Entrapment Protection: Required for momentary contact, includes radio control
23 operation.

24 a) Photoelectric Sensors monitored to meet UL 325/2010.

25 2. Operator Controls:

26 a) Key operated control stations with open, close, and stop buttons.

27 b) Surface mounting.

28 c) Interior location.

29 **2.10 GENERAL FINISH REQUIREMENTS**

30 A. Comply with NAAMM/NOMMA's "Metal Finishes Manual for Architectural and Metal Products
31 (AMP 500-06)" for recommendations for applying and designating finishes.

- 1 B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable.
2 Variations in appearance of adjoining components are acceptable if they are within the range
3 of approved Samples and are assembled or installed to minimize contrast.

4 **2.11 STEEL AND GALVANIZED-STEEL FINISHES**

- 5 A. Baked-Enamel or Powder-Coat Finish: Manufacturer's standard baked-on finish consisting of
6 prime coat and thermosetting topcoat. Comply with coating manufacturer's written
7 instructions for cleaning, pretreatment, application, and minimum dry film thickness.

8 **PART 3 - EXECUTION**

9 **3.1 EXAMINATION**

- 10 A. Examine substrates, areas, and conditions, with Installer present, for compliance with
11 requirements for substrate construction and other conditions affecting performance of the
12 Work.
13 B. Examine locations of electrical connections.
14 C. Proceed with installation only after unsatisfactory conditions have been corrected.

15 **3.2 INSTALLATION**

- 16 A. Install sectional doors and operating equipment complete with necessary hardware, anchors,
17 inserts, hangers, and equipment supports; according to manufacturer's written instructions
18 and as specified.
19 B. Tracks:
20 1. Fasten vertical track assembly to opening jambs and framing, spaced not more than 24
21 inches (610 mm) apart.
22 2. Hang horizontal track assembly from structural overhead framing with angles or channel
23 hangers attached to framing by welding or bolting, or both. Provide sway bracing,
24 diagonal bracing, and reinforcement as required for rigid installation of track and door-
25 operating equipment.
26 C. Accessibility: Install sectional doors, switches, and controls along accessible routes in
27 compliance with regulatory requirements for accessibility.

28 **3.3 STARTUP SERVICES**

- 29 A. Engage a factory-authorized service representative to perform startup service.
30 1. Complete installation and startup checks according to manufacturer's written
31 instructions.

- 1 2. Test and adjust controls and safety devices. Replace damaged and malfunctioning
2 controls and equipment.

3 **3.4 ADJUSTING**

- 4 A. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of
5 warp, twist, or distortion.
- 6 B. Lubricate bearings and sliding parts as recommended by manufacturer.
- 7 C. Adjust doors and seals to provide weather-resistant fit around entire perimeter.
- 8 D. Touch-up Painting: Immediately after welding galvanized materials, clean welds and abraded
9 galvanized surfaces and repair galvanizing to comply with ASTM A 780/A 780M.

10 **3.5 DEMONSTRATION**

- 11 A. Engage a factory-authorized service representative to train Owner's maintenance personnel to
12 adjust, operate, and maintain sectional doors.

13 **END OF SECTION 083613**

1 **SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section Includes:

- 8 1. Interior storefront framing.
9 2. Exterior manual-swing entrance doors and door-frame units.

10 **1.3 ACTION SUBMITTALS**

- 11 A. Product Data: For each type of product.

- 12 1. Include construction details, material descriptions, dimensions of individual components
13 and profiles, and finishes.

- 14 B. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations,
15 sections, full-size details, and attachments to other work.

- 16 1. Include details of provisions for assembly expansion and contraction and for draining
17 moisture occurring within the assembly to the exterior.

- 18 2. Include full-size isometric details of each vertical-to-horizontal intersection of
19 aluminum-framed entrances and storefronts, showing the following:

- 20 a. Joinery, including concealed welds.
21 b. Anchorage.
22 c. Expansion provisions.
23 d. Glazing.
24 e. Flashing and drainage.

- 25 3. Show connection to and continuity with adjacent thermal, weather, air, and vapor
26 barriers.

- 27 C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard
28 sizes.
29
30
31

1 **1.4 INFORMATIONAL SUBMITTALS**

2 A. Energy Performance Certificates: For aluminum-framed entrances and storefronts,
3 accessories, and components, from manufacturer.

4 B. Sample Warranties: For special warranties.

5 **1.5 CLOSEOUT SUBMITTALS**

6 A. Maintenance Data: For aluminum-framed entrances and storefronts to include in
7 maintenance manuals.

8 **1.6 QUALITY ASSURANCE**

9 A. Installer Qualifications: An entity that employs installers and supervisors who are trained and
10 approved by manufacturer.

11 B. Product Options: Information on Drawings and in Specifications establishes requirements for
12 aesthetic effects and performance characteristics of assemblies. Aesthetic effects are
13 indicated by dimensions, arrangements, alignment, and profiles of components and
14 assemblies as they relate to sightlines, to one another, and to adjoining construction.

15 1. Do not change intended aesthetic effects, as judged solely by Architect, except with
16 Architect's approval. If changes are proposed, submit comprehensive explanatory data
17 to Architect for review.

18 **1.7 WARRANTY**

19 A. Special Warranty: Installer agrees to repair or replace components of aluminum-framed
20 entrances and storefronts that do not comply with requirements or that fail in materials or
21 workmanship within specified warranty period.

22 1. Failures include, but are not limited to, the following:

- 23 a. Structural failures including, but not limited to, excessive deflection.
24 b. Noise or vibration created by wind and thermal and structural movements.
25 c. Deterioration of metals, metal finishes, and other materials beyond normal
26 weathering.
27 d. Water penetration through fixed glazing and framing areas.
28 e. Failure of operating components.

29 2. Warranty Period: Five years from date of Substantial Completion.

30 B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or
31 replace aluminum that shows evidence of deterioration of factory-applied finishes within
32 specified warranty period.

- 1 1. Deterioration includes, but is not limited to, the following:
 - 2 a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - 3 b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - 4 c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
- 5 2. Warranty Period: 10 years from date of Substantial Completion.

6 **PART 2 - PRODUCTS**

7 **2.1 PERFORMANCE REQUIREMENTS**

- 8 A. General Performance: Comply with performance requirements specified, as determined by
9 testing of aluminum-framed entrances and storefronts representing those indicated for this
10 Project without failure due to defective manufacture, fabrication, installation, or other defects
11 in construction.
 - 12 1. Aluminum-framed entrances and storefronts shall withstand movements of supporting
13 structure including, but not limited to, story drift, twist, column shortening, long-term
14 creep, and deflection from uniformly distributed and concentrated live loads.
 - 15 2. Failure also includes the following:
 - 16 a. Thermal stresses transferring to building structure.
 - 17 b. Glass breakage.
 - 18 c. Noise or vibration created by wind and thermal and structural movements.
 - 19 d. Loosening or weakening of fasteners, attachments, and other components.
 - 20 e. Failure of operating units.
- 21 B. Deflection of Framing Members: At design wind pressure, as follows:
 - 22 1. Deflection Normal to Wall Plane: Limited to [1/175 of clear span for spans up to 13 feet
23 6 inches (4.1 m) and to 1/240 of clear span plus 1/4 inch (6.35 mm) for spans greater
24 than 13 feet 6 inches (4.1 m)] or an amount that restricts edge deflection of individual
25 glazing lites to 3/4 inch (19.1 mm), whichever is less.
 - 26 2. Deflection Parallel to Glazing Plane: Limited to 1/360 of clear span or 1/8 inch (3.2 mm),
27 whichever is smaller.
- 28 C. Structural: Test according to ASTM E 330 as follows:
 - 29 1. When tested at positive and negative wind-load design pressures, assemblies do not
30 evidence deflection exceeding specified limits.
 - 31 2. When tested at 150] percent of positive and negative wind-load design pressures,
32 assemblies, including anchorage, do not evidence material failures, structural distress,
33 or permanent deformation of main framing members exceeding 0.2 percent of span.
 - 34 3. Test Durations: As required by design wind velocity, but not less than 10 seconds.

- 1 D. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
- 2 1. Fixed Framing and Glass Area:
- 3 a. Maximum air leakage of 0.06 cfm/sq. ft. (0.30 L/s per sq. m) at a static-air-
4 pressure differential of 6.24 lbf/sq. ft. (300 Pa).
- 5 2. Entrance Doors:
- 6 a. Single Doors: Maximum air leakage of 0.5 cfm/sq. ft. (2.54 L/s per sq. m) at a
7 static-air-pressure differential of 1.57 lbf/sq. ft. (75 Pa).
- 8 E. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:
- 9 1. No evidence of water penetration through fixed glazing and framing areas when tested
10 according to a minimum static-air-pressure differential of 20 percent of positive wind-
11 load design pressure, but not less than 10 lbf/sq. ft. (480 Pa).
- 12 F. Seismic Performance: Aluminum-framed entrances and storefronts shall withstand the effects
13 of earthquake motions determined according to ASCE/SEI 7.
- 14 1. Seismic Drift Causing Glass Fallout: Complying with criteria for passing based on
15 building occupancy type when tested according to AAMA 501.6 at design
16 displacement and 1.5 times the design displacement.
- 17 G. Energy Performance: Certify and label energy performance according to NFRC as follows:
- 18 1. Thermal Transmittance (U-factor): Fixed glazing and framing areas shall have U-factor
19 of not more than 0.45 Btu/sq. ft. x h x deg F (2.55 W/sq. m x K) as determined according
20 to NFRC 100.
- 21 2. Condensation Resistance: Fixed glazing and framing areas shall have an NFRC-certified
22 condensation resistance rating of no less than [45] as determined according to
23 NFRC 500.
- 24 H. Noise Reduction: Test according to ASTM E 90, with ratings determined by ASTM E 1332, as
25 follows.
- 26 1. Outdoor-Indoor Transmission Class: Minimum 34.
- 27 I. Windborne-Debris Impact Resistance: Pass missile-impact and cyclic-pressure tests when
28 tested according to ASTM E 1886 and testing information in ASTM E 1996 for Wind Zone 2.
- 29 1. Large-Missile Test: For glazed openings located within 30 feet (9.1 m) of grade.
- 30 J. Thermal Movements: Allow for thermal movements resulting from ambient and surface
31 temperature changes:

- 1 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material
- 2 surfaces.
- 3 2. Thermal Cycling: No buckling; stress on glass; sealant failure; excess stress on framing,
- 4 anchors, and fasteners; or reduction of performance when tested according to
- 5 AAMA 501.5.
- 6 a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-
- 7 surface temperature of 180 deg F (82 deg C).
- 8 b. Low Exterior Ambient-Air Temperature: 0 deg F (minus 18 deg C).
- 9 c. Interior Ambient-Air Temperature: 75 deg F (24 deg C).

10 2.2 MANUFACTURERS

- 11 A. Basis-of-Design Product: Subject to compliance with requirements, provide Kawneer, An Alcoa
- 12 Company – Tri Fab UT 451, exterior glazed, reinforcing per manufacturer's recommendations
- 13 or comparable product by one of the following:
- 14
- 15 1. EFCO Corporation.
- 16 2. US Aluminum.
- 17 3. Wausaw Metals.
- 18 4. YKK AP America Inc.
- 19 5. Vistawall Architectural Products.

20 2.3 FRAMING

- 21 A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of
- 22 thickness required and reinforced as required to support imposed loads.
- 23 1. Construction: Thermally broken.
- 24 2. Glazing System: Retained mechanically with gaskets on four sides.
- 25 3. Glazing Plane: Front.
- 26 4. Finish Color anodic finish: Dark Bronze.
- 27 5. Fabrication Method: Field-fabricated stick system.
- 28 B. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not
- 29 integral, where framing abuts adjacent construction.
- 30 C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with
- 31 nonstaining, nonferrous shims for aligning system components.
- 32 D. Materials:
- 33 1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish
- 34 indicated.
- 35 a. Sheet and Plate: ASTM B 209 (ASTM B 209M).
- 36 b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).

- 1 c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
- 2 d. Structural Profiles: ASTM B 308/B 308M.

- 3 2. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer
- 4 complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation
- 5 and pretreatment. Select surface preparation methods according to recommendations
- 6 in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.

- 7 a. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
- 8 b. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
- 9 c. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

10 **2.4 ENTRANCE DOOR SYSTEMS**

- 11 A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.

- 12 1. Door Construction: 1-3/4-inch (44.5-mm) overall thickness, with minimum 0.125-inch-
- 13 (3.2-mm-) thick, extruded-aluminum tubular rail and stile members. Mechanically
- 14 fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or
- 15 that incorporate concealed tie rods.
- 16 2. Door Design: Wide Stile, 5-inch (127-mm) nominal width.

- 17
- 18 a. Accessible Doors: Smooth surfaced for width of door in area within 10 inches
- 19 (255-mm) above floor or ground plane.

- 20
- 21 3. Glazing Stops and Gaskets: Beveled, snap-on, extruded-aluminum stops and preformed
- 22 gaskets.
- 23
- 24 a. Provide nonremovable glazing stops on outside of door.

25 **2.5 ENTRANCE DOOR HARDWARE**

- 26 A. Entrance Door Hardware: Hardware not specified in this Section is specified in Section 087100
- 27 "Door Hardware."

28 **2.6 GLAZING**

- 29 A. Glazing: Comply with Section 088000 "Glazing."

- 30 B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black,
- 31 resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.

- 32 C. Glazing Sealants: As recommended by manufacturer.
- 33

1 **2.7 ACCESSORIES**

2 A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining,
3 nonbleeding fasteners and accessories compatible with adjacent materials.

- 4 1. Use self-locking devices where fasteners are subject to loosening or turning out from
5 thermal and structural movements, wind loads, or vibration.
- 6 2. Reinforce members as required to receive fastener threads.
- 7 3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing
8 system.

9 B. Anchors: Three-way adjustable anchors with minimum adjustment of **1 inch (25.4 mm)** that
10 accommodate fabrication and installation tolerances in material and finish compatible with
11 adjoining materials and recommended by manufacturer.

- 12 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel
13 inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.

14 C. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding
15 flashing compatible with adjacent materials.

16 D. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12
17 requirements except containing no asbestos, formulated for **30-mil (0.762-mm)** thickness per
18 coat.

19 **2.8 FABRICATION**

20 A. Form or extrude aluminum shapes before finishing.

21 B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration
22 of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or
23 grinding.

24 C. Fabricate components that, when assembled, have the following characteristics:

- 25 1. Profiles that are sharp, straight, and free of defects or deformations.
- 26 2. Accurately fitted joints with ends coped or mitered.
- 27 3. Physical and thermal isolation of glazing from framing members.
- 28 4. Accommodations for thermal and mechanical movements of glazing and framing to
29 maintain required glazing edge clearances.
- 30 5. Provisions for field replacement of glazing from exterior.
- 31 6. Fasteners, anchors, and connection devices that are concealed from view to greatest
32 extent possible.

33 D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.

34 E. Storefront Framing: Fabricate components for assembly using screw-spline system.

- 1 F. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and
2 for installing entrance door hardware.
- 3 1. Insulate exterior frames with non-expanding insulating foam equal to Hilti CF812.
- 4 G. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
- 5 H. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest
6 extent possible. Cut, drill, and tap for factory-installed entrance door hardware before
7 applying finishes.
- 8 I. After fabrication, clearly mark components to identify their locations in Project according to
9 Shop Drawings.

10 **2.9 ALUMINUM FINISHES**

- 11 A. Color Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
- 12 1. Color: Dark Bronze.

13 **PART 3 - EXECUTION**

14
15 **3.1 EXAMINATION**

- 16 A. Examine areas, with Installer present, for compliance with requirements for installation
17 tolerances and other conditions affecting performance of the Work.
- 18 B. Proceed with installation only after unsatisfactory conditions have been corrected.

19 **3.2 PREPARATION**

- 20 A. Prepare surfaces that are in contact with structural sealant according to sealant
21 manufacturer's written instructions to ensure compatibility and adhesion. Preparation
22 includes, but is not limited to, cleaning and priming surfaces.

23 **3.3 INSTALLATION**

- 24 A. General:
- 25 1. Comply with manufacturer's written instructions.
- 26 2. Do not install damaged components.
- 27 3. Fit joints to produce hairline joints free of burrs and distortion.
- 28 4. Rigidly secure nonmovement joints.
- 29 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic
30 deterioration and to prevent impeding movement of moving joints.
- 31 6. Seal perimeter and other joints watertight unless otherwise indicated.

- 1 B. Metal Protection:
- 2 1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by
3 painting contact surfaces with materials recommended by manufacturer for this
4 purpose or by installing nonconductive spacers.
- 5 2. Where aluminum is in contact with concrete or masonry, protect against corrosion by
6 painting contact surfaces with bituminous paint.
- 7 C. Set continuous sill members and flashing in full sealant bed as specified in Section 079200
8 "Joint Sealants" to produce weathertight installation.
- 9 D. Install components plumb and true in alignment with established lines and grades.
- 10 E. Install operable units level and plumb, securely anchored, and without distortion. Adjust
11 weather-stripping contact and hardware movement to produce proper operation.
- 12 F. Install glazing as specified in Section 088000 "Glazing."
- 13 G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.
- 14 1. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door
15 hardware according to entrance door hardware manufacturers' written instructions
16 using concealed fasteners to greatest extent possible.
- 17

18 **3.4 ERECTION TOLERANCES**

- 19 A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the
20 following maximum tolerances:
- 21 1. Plumb: 1/8 inch in 10 feet (3.2 mm in 3 m); 1/4 inch in 40 feet (6.35 mm in 12.2 m).
22 2. Level: 1/8 inch in 20 feet (3.2 mm in 6 m); 1/4 inch in 40 feet (6.35 mm in 12.2 m).
23 3. Alignment:
- 24 a. Where surfaces abut in line or are separated by reveal or protruding element up
25 to 1/2 inch (12.7 mm) wide, limit offset from true alignment to 1/16 inch (1.6
26 mm).
- 27 b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch
28 (12.7 to 25.4 mm) wide, limit offset from true alignment to 1/8 inch (3.2 mm).
29 c. Where surfaces are separated by reveal or protruding element of 1 inch (25.4
30 mm) wide or more, limit offset from true alignment to 1/4 inch (6 mm).
- 31 4. Location: Limit variation from plane to 1/8 inch in 12 feet (3.2 mm in 3.6 m); 1/2 inch
32 (12.7 mm) over total length.
33

SECTION 088000 - GLAZING**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

1. Doors.
2. Windows
3. Glazed entrances.
4. Interior borrowed lites.
5. Storefront framing.

1.3 DEFINITIONS

- A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air or a specified gas.
- D. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.
- E. Deterioration of Insulating Glass: Failure of hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1.4 PERFORMANCE REQUIREMENTS

- 1
2
3 A. General: Provide glazing systems capable of withstanding normal thermal movement and
4 wind and impact loads (where applicable) without failure, including loss or glass breakage
5 attributable to the following: defective manufacture, fabrication, and installation; failure of
6 sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or
7 other defects in construction.
8
- 9 B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only.
10 Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass
11 lites in the thickness designations indicated for various size openings, but not less than
12 thicknesses and in strengths (annealed or heat treated) required to meet or exceed the
13 following criteria:
14
- 15 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300,
16 according to the following requirements:
17
- 18 a. Specified Design Wind Loads: 20psf, but not less than wind loads applicable to
19 Project as required by ASCE 7 "Minimum Design Loads for Buildings and Other
20 Structures" : Section 6.0 "Wind Loads."
21 b. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set vertically
22 or not more than 15 degrees off vertical and under wind action.
23
- 24 1) Load Duration: 3 seconds.
25
- 26 c. Maximum Lateral Deflection: For the following types of glass supported on all 4
27 edges, provide thickness required that limits center deflection at design wind
28 pressure to 1/50 times the short side length or 1 inch (25 mm), whichever is less.
29
- 30 1) For monolithic-glass lites heat treated to resist wind loads.
31 2) For insulating glass.
32
- 33 d. Minimum Glass Thickness for Exterior Lites: Not less than 1/4 inches.
34 e. Thickness of Tinted and Heat-Absorbing Glass: Provide the same thickness for
35 each tint color indicated throughout Project.
36
- 37 C. Thermal Movements: Provide glazing that allows for thermal movements resulting from the
38 following maximum change (range) in ambient and surface temperatures acting on glass
39 framing members and glazing components. Base engineering calculation on surface
40 temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
41
- 42 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C),
43 material surfaces.
44

1 D. Thermal and Optical Performance Properties: Provide glass with performance properties
2 specified based on manufacturer's published test data, as determined according to procedures
3 indicated below:

- 4
- 5 1. For insulating-glass units, properties are based on units of thickness indicated for overall
6 unit and for each lite.
 - 7 2. Center-of-Glass Values: Based on using LBL-44789 WINDOW 5.0 computer program for
8 the following methodologies:
 - 9 a. U-Factors: NFRC 100 expressed as Btu/ sq. ft. x h x deg F (W/sq. m x K).
 - 10 b. Solar Heat Gain Coefficient: NFRC 200.
 - 11 c. Solar Optical Properties: NFRC 300.
- 12

13

14 **1.5 SUBMITTALS**

15

16 A. Product Data: For each glass product and glazing material indicated.

17

18 B. Samples: For the following products, in the form of 12-inch- (300-mm-) square Samples for
19 glass and of 12-inch- (300-mm-) long Samples for sealants. Install sealant Samples between
20 two strips of material representative in color of the adjoining framing system.

- 21
- 22 1. Each pattern and color of ceramic-coated vision glass.
 - 23 2. Each type of single pane glass.
 - 24 3. Insulating glass for each designation indicated.
 - 25 4. For each color (except black) of exposed glazing sealant indicated.
- 26

27 C. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in
28 preparing a schedule listing glass types and thicknesses for each size opening and location.

29

30 D. Product Certificates: Signed by manufacturers of glass and glazing products certifying that
31 products furnished comply with requirements.

- 32
- 33 1. For solar-control low-e-coated glass, provide documentation demonstrating that
34 manufacturer of coated glass is certified by coating manufacturer.
- 35

36 E. Qualification Data: For installers.

37

38 F. Preconstruction Adhesion and Compatibility Test Report: From glazing sealant manufacturer
39 indicating glazing sealants were tested for adhesion to glass and glazing channel substrates
40 and for compatibility with glass and other glazing materials.

41

42 G. Warranties: Special warranties specified in this Section.

43

44

1.6 QUALITY ASSURANCE

- 1
2
3 A. Installer Qualifications: An experienced installer who has completed glazing similar in
4 material, design, and extent to that indicated for this Project; whose work has resulted in glass
5 installations with a record of successful in-service performance; and who employs glass
6 installers for this Project who are certified under the National Glass Association's Certified
7 Glass Installer Program.
8
- 9 B. Source Limitations for Glass Sputter-Coated with Solar-Control Low-E Coatings: Where solar-
10 control low-e coatings of a primary glass manufacturer that has established a certified
11 fabricator program is specified, obtain sputter-coated solar-control low-e-coated glass in
12 fabricated units from a manufacturer that is certified by coated-glass manufacturer.
13
- 14 C. Source Limitations for Glazing Accessories: Obtain glazing accessories through one source
15 from a single manufacturer for each product and installation method indicated.
16
- 17 D. Preconstruction Adhesion and Compatibility Testing: Submit to elastomeric glazing sealant
18 manufacturers, for testing indicated below, samples of each glazing material type, tape
19 sealant, gasket, glazing accessory, and glass-framing member that will contact or affect
20 elastomeric glazing sealants:
21
- 22 1. Use ASTM C 1087 to determine whether priming and other specific joint preparation
23 techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass,
24 tape sealants, gaskets, and glazing channel substrates.
 - 25 2. Submit not fewer than eight pieces of each type of material, including joint substrates,
26 shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 27 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 28 4. For materials failing tests, obtain sealant manufacturer's written instructions for
29 corrective measures, including the use of specially formulated primers.
 - 30 5. Testing will not be required if elastomeric glazing sealant manufacturers submit data
31 based on previous testing of current sealant products for adhesion to, and compatibility
32 with, glazing materials matching those submitted.
33
- 34 E. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201 and, for wired
35 glass, ANSI Z97.1.
36
- 37 1. Subject to compliance with requirements, obtain safety glazing products permanently
38 marked with certification label of the Safety Glazing Certification Council or another
39 certification agency or manufacturer acceptable to authorities having jurisdiction.
 - 40 2. Where glazing units, including Kind FT glass and laminated glass, are specified in Part 2
41 articles for glazing lites more than 9 sq. ft. (0.84 sq. m) in exposed surface area of one
42 side, provide glazing products that comply with Category II materials, for lites 9 sq. ft.
43 (0.84 sq. m) or less in exposed surface area of one side, provide glazing products that
44 comply with Category I or II materials, except for hazardous locations where Category II
45 materials are required by 16 CFR 1201 and regulations of authorities having jurisdiction.
46

1 F. Glazing Publications: Comply with published recommendations of glass product
2 manufacturers and organizations below, unless more stringent requirements are indicated.
3 Refer to these publications for glazing terms not otherwise defined in this Section or in
4 referenced standards.

- 5
- 6 1. GANA Publications: GANA's "Glazing Manual."
- 7 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed
8 Insulating Glass Units."
- 9

10 **1.7 DELIVERY, STORAGE, AND HANDLING**

11

12 A. Protect glazing materials according to manufacturer's written instructions and as needed to
13 prevent damage to glass and glazing materials from condensation, temperature changes,
14 direct exposure to sun, or other causes.

15

16 B. For insulating-glass units that will be exposed to substantial altitude changes, comply with
17 insulating-glass manufacturer's written recommendations for venting and sealing to avoid
18 hermetic seal ruptures.

19 **1.8 PROJECT CONDITIONS**

20

21

22 A. Environmental Limitations: Do not proceed with glazing when ambient and substrate
23 temperature conditions are outside limits permitted by glazing material manufacturers and
24 when glazing channel substrates are wet from rain, frost, condensation, or other causes.

- 25
- 26 1. Do not install liquid glazing sealants when ambient and substrate temperature
27 conditions are outside limits permitted by glazing sealant manufacturer or below 40
28 deg F (4.4 deg C).
- 29

30 **1.9 WARRANTY**

31

32 A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form,
33 made out to Owner and signed by coated-glass manufacturer agreeing to replace coated-glass
34 units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to
35 Project site, within specified warranty period indicated below.

- 36
- 37 1. Warranty Period: 10 years from date of Substantial Completion.
- 38

39 B. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form, made
40 out to Owner and signed by insulating-glass manufacturer agreeing to replace insulating-glass
41 units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to
42 Project site, within specified warranty period indicated below.

- 43
- 44 1. Warranty Period: 10 years from date of Substantial Completion.
- 45
- 46

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include:

1. AFT Industries
2. Guardian Industries Corporation
3. Pilkington Libbey-Owens-Ford
4. PPG Industries, Inc. (PPG)
5. Vitro Architectural Glass – *Basis of Design*
6. Old Castle

2.2 GLASS PRODUCTS

A. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent flat glass); Quality-Q3; of class, kind, and condition indicated.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
2. For uncoated glass, comply with requirements for Condition A.
3. Provide Kind FT (fully tempered) where required by code, provide Kind HS (heat-strengthened) where allowed by authorities having jurisdiction.

B. Float Glass: ASTM C 1036, Type I (transparent glass, flat), Quality-Q3 (glazing select); class as indicated in schedules at the end of Part 3.

C. Insulating-Glass Units, General: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units and with requirements specified in this Article and in Part 2 "Insulating-Glass Units" Article.

1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in Part 1 "Performance Requirements" Article.
2. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated for insulating-glass units are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
3. Sealing System: Dual seal, with primary and secondary sealants as follows:
 - a. Manufacturer's standard sealants.
4. Spacer Specifications: Manufacturer's standard spacer material and construction.
5. Provide Kind FT (fully-tempered) glass in place of annealed glass where required by authorities having jurisdiction or where recommended by manufacturer to resist stresses induced by differential shading.

2.3 GLAZING GASKETS

- 1
- 2
- 3 A. Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames
- 4 with molded corner units and zipper lock strips, complying with ASTM C 542, black.
- 5
- 6 B. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below,
- 7 complying with standards referenced with name of elastomer indicated below, and of profile
- 8 and hardness required to maintain watertight seal:
- 9
- 10 1. Neoprene, ASTM C 864.
- 11 2. EPDM, ASTM C 864.
- 12 3. Silicone, ASTM C 1115.
- 13 4. Thermoplastic polyolefin rubber, ASTM C 1115.
- 14 5. Any material indicated above.
- 15
- 16 C. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned gaskets of
- 17 material indicated below; complying with ASTM C 509, Type II, black; and of profile and
- 18 hardness required to maintain watertight seal:
- 19
- 20 1. Neoprene.
- 21 2. EPDM.
- 22 3. Silicone.
- 23 4. Thermoplastic polyolefin rubber.
- 24 5. Any material indicated above.
- 25

2.4 GLAZING SEALANTS

- 26
- 27
- 28 A. General: Provide products of type indicated, complying with the following requirements:
- 29
- 30 1. Compatibility: Select glazing sealants that are compatible with one another and with
- 31 other materials they will contact, including glass products, seals of insulating-glass units,
- 32 and glazing channel substrates, under conditions of service and application, as
- 33 demonstrated by sealant manufacturer based on testing and field experience.
- 34 2. Suitability: Comply with sealant and glass manufacturers' written instructions for
- 35 selecting glazing sealants suitable for applications indicated and for conditions existing
- 36 at time of installation.
- 37 3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full
- 38 range.
- 39
- 40 B. Elastomeric Glazing Sealants: Comply with ASTM C 920 and other requirements indicated for
- 41 each liquid-applied chemically curing sealant specified, including those referencing
- 42 ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint
- 43 substrates.
- 44
- 45 1. Neutral-Curing Silicone Glazing Sealants:
- 46

- a. Type and Grade: S (single component) and NS (nonsag).
- b. Class: 50.
- c. Use Related to Exposure: NT (nontraffic).
- d. Uses Related to Glazing Substrates: M, G, A, and, as applicable to glazing substrates indicated, O.
 - 1) Use O Glazing Substrates: Coated glass, aluminum coated with a high-performance coating, galvanized steel and wood.

2.5 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based elastomeric tape with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
 1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
 1. Type 1, for glazing applications in which tape acts as the primary sealant.
 2. Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.6 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore, Type A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

- 1 E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side
2 walking).
3

4 **2.7 FABRICATION OF GLAZING UNITS**

5

- 6 A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and
7 face clearances, edge and surface conditions, and bite complying with written instructions of
8 product manufacturer and referenced glazing publications, to comply with system
9 performance requirements.
10

11 **2.8 MONOLITHIC FLOAT-GLASS UNITS**

12

- 13 A. Uncoated Clear Float-Glass Units: Class 1 (clear) Kind FT (fully tempered) float glass.
14
15 1. Thickness: 1/4 inches.
16 2. Location: Interior vestibule doors, interior borrowed lites, interior doors.
17

18 **2.9 INSULATING-GLASS UNITS**

19

- 20 A. Passive Solar Low-E Insulating-Glass Units:
21
22 1. Basis-of-Design Product: PPG Industries, Solorban 60 (2) Solarbronze, or a comparable
23 product.
24 2. Overall Unit Thickness and Thickness of Each Lite: 1 inch and 1/4 inch.
25 3. Interspace Content: Air.
26 4. Outdoor Lite: Class 2 (tinted) float glass.
27
28 a. Tint Color: Bronze.
29 b. Kind FT (fully tempered).
30
31 5. Indoor Lite: Class 1 (clear) float glass.
32
33 a. Kind FT (fully tempered).
34
35 6. Low-E Coating: Sputtered on third surface.
36 7. Visible Light Transmittance: 42 percent minimum.
37 8. Winter Nighttime U-Factor: 0.29 maximum.
38 9. Winter Argon: 0.24 maximum.
39 10. Solar Heat Gain Coefficient: 0.28 maximum.
40 11. Light to Solar Gain: 1.50.
41
42

43 **PART 3 - EXECUTION**

44
45

3.1 EXAMINATION

- A. Examine framing glazing, with Installer present, for compliance with the following:
1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 2. Presence and functioning of weep system.
 3. Minimum required face or edge clearances.
 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm) as follows:
1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and

1 glazing tapes are used that have demonstrated ability to maintain required face
2 clearances and to comply with system performance requirements.

- 3 2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to
4 sealant width. With glazing tape, use thickness slightly less than final compressed
5 thickness of tape.
6

- 7 H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways
8 in glazing channel, as recommended in writing by glass manufacturer and according to
9 requirements in referenced glazing publications.
10

- 11 I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
12

- 13 J. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by
14 gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints
15 with sealant recommended by gasket manufacturer.
16

17 3.4 TAPE GLAZING

- 18
19 A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush
20 with or protrude slightly above sightline of stops.

- 21 B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes
22 to make them fit opening.
23

- 24 C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover
25 horizontal framing joints by applying tapes to jambs and then to heads and sills.
26

- 27 D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped.
28 Seal joints in tapes with compatible sealant approved by tape manufacturer.
29

- 30 E. Do not remove release paper from tape until just before each glazing unit is installed.
31

- 32 F. Apply heel bead of elastomeric sealant.
33

- 34 G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense
35 compression gaskets formed and installed to lock in place against faces of removable stops.
36 Start gasket applications at corners and work toward centers of openings.
37

- 38 H. Apply cap bead of elastomeric sealant over exposed edge of tape.
39

40 3.5 GASKET GLAZING (DRY)

- 41
42 A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit
43 openings exactly, with allowance for stretch during installation.
44

- 45 B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place
46 with joints miter cut and bonded together at corners.

- 1 C. Center glass lites in openings on setting blocks and press firmly against soft compression
2 gasket by inserting dense compression gaskets formed and installed to lock in place against
3 faces of removable stops. Start gasket applications at corners and work toward centers of
4 openings. Compress gaskets to produce a weathertight seal without developing bending
5 stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
6

- 7 D. Install gaskets so they protrude past face of glazing stops.
8

9 **3.6 SEALANT GLAZING (WET)**

- 10
11 A. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or
12 bond of sealant to glass and channel surfaces.
13
14 B. Tool exposed surfaces of sealants to provide a substantial wash away from glass.
15

16 **3.7 LOCK-STRIP GASKET GLAZING**

- 17
18 A. Comply with ASTM C 716 and gasket manufacturer's written instructions. Provide
19 supplementary wet seal weep system, unless otherwise indicated.
20

21 **3.8 CLEANING AND PROTECTION**

- 22
23 A. Protect exterior glass from damage immediately after installation by attaching crossed
24 streamers to framing held away from glass. Do not apply markers to glass surface. Remove
25 nonpermanent labels, and clean surfaces.
26 B. Protect glass from contact with contaminating substances resulting from construction
27 operations, including weld splatter. If, despite such protection, contaminating substances do
28 come into contact with glass, remove substances immediately as recommended by glass
29 manufacturer.
30
31 C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at
32 frequent intervals during construction, but not less than once a month, for buildup of dirt,
33 scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
34
35 D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged
36 from natural causes, accidents, and vandalism, during construction period.
37
38 E. Wash glass on both exposed surfaces in each area of Project not more than four days before
39 date scheduled for inspections that establish date of Substantial Completion. Wash glass as
40 recommended in writing by glass manufacturer.

41 **END OF SECTION 088000**

DIVISION 9

1 **SECTION 092216 - NON-STRUCTURAL METAL FRAMING**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section Includes:

- 8 1. Non-load-bearing steel framing systems for interior gypsum board assemblies.
9 2. Suspension systems for interior gypsum ceilings, soffits, and grid systems.

- 10 B. Related Requirements:

- 11 1. Section 054000 "Cold-Formed Metal Framing" for exterior and interior load-bearing and
12 exterior non-load-bearing wall studs; floor joists; roof rafters and ceiling joists; and roof
13 trusses.

14 **1.3 ACTION SUBMITTALS**

- 15 A. Product Data: For each type of product.

16 **PART 2 - PRODUCTS**

17 **2.1 PERFORMANCE REQUIREMENTS**

- 18 A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-
19 load-bearing steel framing, provide materials and construction identical to those tested in
20 assembly indicated, according to ASTM E 119 by an independent testing agency.

21 **2.2 FRAMING SYSTEMS**

- 22 A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

- 23 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless
24 otherwise indicated.
25 2. Protective Coating: ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise
26 indicated.

- 27 B. Studs and Runners: ASTM C 645.

- 1 1. Steel Studs and Runners:
- 2 a. Minimum Base-Metal Thickness: 20 gauge.
- 3 b. Depth: As indicated on Drawings.
- 4 2. Dimpled Steel Studs and Runners:
- 5 a. Minimum Base-Metal Thickness: As indicated on Drawings.
- 6 b. Depth: As indicated on Drawings.
- 7 C. Slip-Type Head Joints: Where indicated, provide one of the following:
- 8 1. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes
- 9 applied to interior partition framing resulting from deflection of structure above; in
- 10 thickness not less than indicated for studs and in width to accommodate depth of studs.
- 11 a. Products: Subject to compliance with requirements, available products that may
- 12 be incorporated into the Work include, but are not limited to, the following:
- 13 1) Dietrich Metal Framing; SLP-TRK Slotted Deflection Track.
- 14 2) MBA Building Supplies; FlatSteel Deflection Track.
- 15 3) Steel Network Inc. (The); VertiClip SLD Series.
- 16 4) Superior Metal Trim; Superior Flex Track System (SFT).
- 17 D. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract
- 18 with movement of the structure while maintaining continuity of fire-resistance-rated assembly
- 19 indicated; in thickness not less than indicated for studs and in width to accommodate depth of
- 20 studs.
- 21 1. Products: Subject to compliance with requirements, available products that may be
- 22 incorporated into the Work include, but are not limited to, the following:
- 23 a. Fire Trak Corp.; Fire Trak System attached to studs with Fire Trak Posi Klip.
- 24 b. Grace Construction Products; FlameSafe FlowTrak System.
- 25 c. Metal-Lite, Inc.; The System.
- 26 E. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width
- 27 indicated.
- 28 1. Minimum Base-Metal Thickness: As indicated on Drawings.
- 29 F. Cold-Rolled Channel Bridging: Steel, 0.053-inch minimum base-metal thickness, with minimum
- 30 1/2-inch- wide flanges.
- 31 1. Depth: As indicated on Drawings.
- 32 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch- thick, galvanized steel.

- 1 G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
- 2 1. Minimum Base-Metal Thickness: As indicated on Drawings.
- 3 2. Depth: As indicated on Drawings.
- 4 H. Resilient Furring Channels: 1/2-inch- deep, steel sheet members designed to reduce sound
- 5 transmission.
- 6 1. Configuration: Asymmetrical or hat shaped.
- 7 I. Cold-Rolled Furring Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-
- 8 wide flanges.
- 9 1. Depth: As indicated on Drawings.
- 10 2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum
- 11 uncoated-steel thickness of 0.033 inch.
- 12 3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter
- 13 wire, or double strand of 0.048-inch- diameter wire.
- 14 J. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall
- 15 attachment flange of 7/8 inch, minimum uncoated-metal thickness of 0.018 inch, and depth
- 16 required to fit insulation thickness indicated.
- 17 **2.3 SUSPENSION SYSTEMS**
- 18 A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or
- 19 double strand of 0.048-inch- diameter wire.
- 20 B. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
- 21 C. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.053
- 22 inch and minimum 1/2-inch- wide flanges.
- 23 1. Depth: As indicated on Drawings.
- 24 D. Furring Channels (Furring Members):
- 25 1. Cold-Rolled Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-
- 26 wide flanges, 3/4 inch deep.
- 27 2. Steel Studs and Runners: ASTM C 645.
- 28 a. Minimum Base-Metal Thickness: As indicated on Drawings.
- 29 b. Depth: As indicated on Drawings.
- 30 3. Dimpled Steel Studs and Runners: ASTM C 645.
- 31 a. Minimum Base-Metal Thickness: As indicated on Drawings.

- 1 b. Depth: As indicated on Drawings.
- 2 4. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.
- 3 a. Minimum Base-Metal Thickness: As indicated on Drawings.
- 4 5. Resilient Furring Channels: 1/2-inch- deep members designed to reduce sound
5 transmission.
- 6 a. Configuration: Asymmetrical or hat shaped.
- 7 E. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system
8 composed of main beams and cross-furring members that interlock.
- 9 1. Products: Subject to compliance with requirements, available products that may be
10 incorporated into the Work include, but are not limited to, the following:
- 11 a. Armstrong World Industries, Inc.; Drywall Grid Systems.
- 12 b. Chicago Metallic Corporation; Drywall Grid System.
- 13 c. USG Corporation; Drywall Suspension System.

14 **2.4 AUXILIARY MATERIALS**

- 15 A. General: Provide auxiliary materials that comply with referenced installation standards.
- 16 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding
17 power, and other properties required to fasten steel members to substrates.
- 18 B. Isolation Strip at Exterior Walls: Provide one of the following:
- 19 1. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener
20 penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

21 **PART 3 - EXECUTION**

22 **3.1 EXAMINATION**

- 23 A. Examine areas and substrates, with Installer present, and including welded hollow-metal
24 frames, cast-in anchors, and structural framing, for compliance with requirements and other
25 conditions affecting performance of the Work.
- 26 B. Proceed with installation only after unsatisfactory conditions have been corrected.

27 **3.2 PREPARATION**

- 28 A. Suspended Assemblies: Coordinate installation of suspension systems with installation of
29 overhead structure to ensure that inserts and other provisions for anchorages to building

1 structure have been installed to receive hangers at spacing required to support the Work and
2 that hangers will develop their full strength.

3 1. Furnish concrete inserts and other devices indicated to other trades for installation in
4 advance of time needed for coordination and construction.

5 B. Coordination with Sprayed Fire-Resistive Materials:

6 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling
7 runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where
8 offset anchor plates are required, provide continuous plates fastened to building
9 structure not more than 24 inches o.c.

10 2. After sprayed fire-resistive materials are applied, remove them only to extent necessary
11 for installation of non-load-bearing steel framing. Do not reduce thickness of fire-
12 resistive materials below that required for fire-resistance ratings indicated. Protect
13 adjacent fire-resistive materials from damage.

14 3.3 INSTALLATION, GENERAL

15 A. Installation Standard: ASTM C 754.

16 1. Gypsum Plaster Assemblies: Also comply with requirements in ASTM C 841 that apply
17 to framing installation.

18 2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063
19 that apply to framing installation.

20 3. Gypsum Veneer Plaster Assemblies: Also comply with requirements in ASTM C 844 that
21 apply to framing installation.

22 4. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to
23 framing installation.

24 B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy
25 trim, grab bars, toilet accessories, furnishings, or similar construction.

26 C. Install bracing at terminations in assemblies.

27 D. Do not bridge building control and expansion joints with non-load-bearing steel framing
28 members. Frame both sides of joints independently.

29 3.4 INSTALLING FRAMED ASSEMBLIES

30 A. Install framing system components according to spacings indicated, but not greater than
31 spacings required by referenced installation standards for assembly types.

32 1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.

33 2. Multilayer Application: 16 inches o.c. unless otherwise indicated.

34 3. Tile Backing Panels: 16 inches o.c. unless otherwise indicated.

- 1 B. Where studs are installed directly against exterior masonry walls or dissimilar metals at
2 exterior walls, install isolation strip between studs and exterior wall.
- 3 C. Install studs so flanges within framing system point in same direction.
- 4 D. Install tracks (runners) at floors and overhead supports. Extend framing full height to
5 structural supports or substrates above suspended ceilings except where partitions are
6 indicated to terminate at suspended ceilings. Continue framing around ducts penetrating
7 partitions above ceiling.
- 8 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install
9 to produce joints at tops of framing systems that prevent axial loading of finished
10 assemblies.
- 11 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames;
12 install runner track section (for cripple studs) at head and secure to jamb studs.
- 13 a. Install two studs at each jamb unless otherwise indicated.
- 14 b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch
15 clearance from jamb stud to allow for installation of control joint in finished
16 assembly.
- 17 c. Extend jamb studs through suspended ceilings and attach to underside of
18 overhead structure.
- 19 3. Other Framed Openings: Frame openings other than door openings the same as
20 required for door openings unless otherwise indicated. Install framing below sills of
21 openings to match framing required above door heads.
- 22 4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated
23 assembly indicated and support closures and to make partitions continuous from floor
24 to underside of solid structure.
- 25 a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-
26 rated assembly indicated.
- 27 5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- 28 6. Curved Partitions:
- 29 a. Bend track to uniform curve and locate straight lengths so they are tangent to
30 arcs.
- 31 b. Begin and end each arc with a stud, and space intermediate studs equally along
32 arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6
33 inches o.c.
- 34 E. Direct Furring:
- 35 1. Screw to wood framing.
- 36 2. Attach to concrete or masonry with stub nails, screws designed for masonry
37 attachment, or powder-driven fasteners spaced 24 inches o.c.

- 1 F. Z-Furring Members:
- 2 1. Erect insulation, specified in Section 072100 "Thermal Insulation," vertically and hold in
3 place with Z-furring members spaced 24 inches o.c.
- 4 2. Except at exterior corners, securely attach narrow flanges of furring members to wall
5 with concrete stub nails, screws designed for masonry attachment, or powder-driven
6 fasteners spaced 24 inches o.c.
- 7 3. At exterior corners, attach wide flange of furring members to wall with short flange
8 extending beyond corner; on adjacent wall surface, screw-attach short flange of furring
9 channel to web of attached channel. At interior corners, space second member no
10 more than 12 inches from corner and cut insulation to fit.

- 11 G. Installation Tolerance: Install each framing member so fastening surfaces vary not more than
12 1/8 inch from the plane formed by faces of adjacent framing.

13 3.5 INSTALLING SUSPENSION SYSTEMS

- 14 A. Install suspension system components according to spacings indicated, but not greater than
15 spacings required by referenced installation standards for assembly types.

- 16 1. Hangers: 48 inches o.c.
- 17 2. Carrying Channels (Main Runners): 48 inches o.c.
- 18 3. Furring Channels (Furring Members): 16 inches o.c.

- 19 B. Isolate suspension systems from building structure where they abut or are penetrated by
20 building structure to prevent transfer of loading imposed by structural movement.

- 21 C. Suspend hangers from building structure as follows:

- 22 1. Install hangers plumb and free from contact with insulation or other objects within
23 ceiling plenum that are not part of supporting structural or suspension system.

- 24 a. Splay hangers only where required to miss obstructions and offset resulting
25 horizontal forces by bracing, countersplaying, or other equally effective means.

- 26 2. Where width of ducts and other construction within ceiling plenum produces hanger
27 spacings that interfere with locations of hangers required to support standard
28 suspension system members, install supplemental suspension members and hangers in
29 the form of trapezes or equivalent devices.

- 30 a. Size supplemental suspension members and hangers to support ceiling loads
31 within performance limits established by referenced installation standards.

- 32 3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to
33 inserts, eye screws, or other devices and fasteners that are secure and appropriate for
34 substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.

- 35 4. Do not attach hangers to steel roof deck.

- 1 5. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts
2 that extend through forms.
- 3 6. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
- 4 7. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- 5 D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
- 6 E. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems
7 meet vertical surfaces. Mechanically join main beam and cross-furring members to each other
8 and butt-cut to fit into wall track.
- 9 F. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet
10 measured lengthwise on each member that will receive finishes and transversely between
11 parallel members that will receive finishes.

12 **END OF SECTION 092216**

SECTION 095113 - ACOUSTICAL PANEL CEILINGS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

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

1.2 SUMMARY

- A. This Section includes acoustical panels and exposed suspension systems for ceilings.
- B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete at ceilings.

1.3 DEFINITIONS

- A. AC: Articulation Class.
- B. CAC: Ceiling Attenuation Class.
- C. LR: Light Reflectance coefficient.
- D. NRC: Noise Reduction Coefficient.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
1. Acoustical Panel: Set of full-size Samples of each type, color, pattern, and texture.
 2. Exposed Suspension System Members, Moldings, and Trim: Set of 12-inch- (300-mm-) long Samples of each type, finish, and color.
- C. Qualification Data: For testing agency.
- D. Field quality-control test reports.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each acoustical panel ceiling.
- F. Maintenance Data: For finishes to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- 1
- 2
- 3 A. Acoustical Testing Agency Qualifications: An independent testing laboratory, or an NVLAP-
- 4 accredited laboratory, with the experience and capability to conduct the testing indicated.
- 5 NVLAP-accredited laboratories must document accreditation, based on a "Certificate of
- 6 Accreditation" and a "Scope of Accreditation" listing the test methods specified.
- 7
- 8 B. Source Limitations:
- 9
- 10 1. Acoustical Ceiling Panel: Obtain each type through one source from a single
- 11 manufacturer.
- 12 2. Suspension System: Obtain each type through one source from a single manufacturer.
- 13
- 14 C. Source Limitations: Obtain each type of acoustical ceiling panel and supporting suspension
- 15 system through one source from a single manufacturer.
- 16
- 17 D. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the
- 18 following requirements:
- 19
- 20 1. Surface-Burning Characteristics: Provide acoustical panels with the following surface-
- 21 burning characteristics complying with ASTM E 1264 for Class A materials as determined
- 22 by testing identical products per ASTM E 84:
- 23
- 24 a. Smoke-Developed Index: 450 or less.
- 25

1.6 DELIVERY, STORAGE, AND HANDLING

- 26
- 27
- 28 A. Deliver acoustical panels, suspension system components, and accessories to Project site in
- 29 original, unopened packages and store them in a fully enclosed, conditioned space where they
- 30 will be protected against damage from moisture, humidity, temperature extremes, direct
- 31 sunlight, surface contamination, and other causes.
- 32
- 33 B. Before installing acoustical panels, permit them to reach room temperature and a stabilized
- 34 moisture content.
- 35
- 36 C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.
- 37

1.7 PROJECT CONDITIONS

- 38
- 39
- 40 A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed
- 41 and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete,
- 42 and ambient temperature and humidity conditions are maintained at the levels indicated for
- 43 Project when occupied for its intended use.
- 44
- 45
- 46

1.8 COORDINATION

- A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.9 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Acoustical Ceiling Panels: Four (4) boxes.
 2. Suspension System Components: Two (2) boxes of each component.
 3. Hold-Down Clips: Two (2) boxes.

PART 2 - PRODUCTS**2.1 ACOUSTICAL PANELS, GENERAL**

- A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.
1. Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches (400 mm) away from test surface per ASTM E 795.
- B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.
- C. Broad Spectrum Antimicrobial Fungicide and Bactericide Treatment: Provide acoustical panels treated with manufacturer's standard antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D 3273 and evaluated according to ASTM D 3274 or ASTM G 21.

2.2 ACOUSTICAL PANELS FOR ACOUSTICAL PANEL CEILING

- A. See Finish Legend in Drawings for product information.

2.3 METAL SUSPENSION SYSTEMS, GENERAL

- A. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.

- 1 B. Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural
2 and Metal Products" for recommendations for applying and designating finishes. Provide
3 manufacturer's standard factory-applied finish for type of system indicated.
4
- 5 C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1,
6 "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
7
- 8 D. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
9
- 10 1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
11 2. Size: Select wire diameter so its stress at 3 times hanger design load (ASTM C 635,
12 Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than
13 0.135-inch- (3.5-mm-) diameter wire.
14
- 15 E. Hold-Down Clips: Within 10' radius of all exterior doors. Provide manufacturer's standard
16 hold-down clips spaced 24 inches (610 mm) o.c. on all cross tees.

17 **2.4 METAL EDGE PERIMETER TRIM**

- 18 A. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not
19 indicated, manufacturer's standard moldings for edges and penetrations that comply with
20 design requirements; formed from sheet metal of same material, finish, and color as that used
21 for exposed flanges of suspension-system runners.
- 22 B. Manufacturers: Subject to compliance with requirements, products indicated in Finish Legend
23 in Drawings.
- 24 1. USG – United States Gypsum. – Compasso, height as indicated on drawings.
25 2. Armstrong World Industries, Inc. – Axiom, height as indicated on drawings.
26

27 **2.5 METAL EDGE MOLDINGS AND TRIM**

- 28
- 29 A. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not
30 indicated, manufacturer's standard moldings for edges and penetrations that comply with
31 seismic design requirements; formed from sheet metal of same material, finish, and color as
32 that used for exposed flanges of suspension system runners.
33
- 34 1. Provide manufacturer's standard edge moldings that fit acoustical panel edge details
35 and suspension systems indicated and that match width and configuration of exposed
36 runners, unless otherwise indicated.
37

38 **PART 3 - EXECUTION**

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION

- A. General: Install acoustical panel ceilings to comply with ASTM C 636 and seismic design requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

1. Fire-Rated Assembly: Install fire-rated ceiling systems according to tested fire-rated design.

- B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
6. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
7. Do not attach hangers to steel deck tabs.
8. Do not attach hangers to steel roof deck. Attach hangers to structural members.

1 9. Space hangers not more than 48 inches (1200 mm) o.c. along each member supported
2 directly from hangers, unless otherwise indicated; provide hangers not more than 8
3 inches (200 mm) from ends of each member.

4 10. Size supplemental suspension members and hangers to support ceiling loads within
5 performance limits established by referenced standards and publications.

6
7 C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four
8 tight turns. Suspend bracing from building's structural members as required for hangers,
9 without attaching to permanent metal forms, steel deck, or steel deck tabs.

10
11 D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and
12 where necessary to conceal edges of acoustical panels.

13
14 1. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c.
15 and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system
16 to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and
17 connect securely.

18 2. Do not use exposed fasteners, including pop rivets, on moldings and trim.

19
20 E. Install suspension system runners so they are square and securely interlocked with one
21 another. Remove and replace dented, bent, or kinked members.

22
23 F. Install acoustical panels with undamaged edges and fit accurately into suspension system
24 runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a
25 neat, precise fit.

26
27 1. For square-edged panels, install panels with edges fully hidden from view by flanges of
28 suspension system runners and moldings.

29 2. For reveal-edged panels on suspension system runners, install panels with bottom of
30 reveal in firm contact with top surface of runner flanges.

31 3. For reveal-edged panels on suspension system members with box-shaped flanges, install
32 panels with reveal surfaces in firm contact with suspension system surfaces and panel
33 faces flush with bottom face of runners.

34 4. Paint cut edges of panel remaining exposed after installation; match color of exposed
35 panel surfaces using coating recommended in writing for this purpose by acoustical
36 panel manufacturer.

37 5. Install hold-down clips in areas indicated, in areas required by authorities having
38 jurisdiction, and for fire-resistance ratings; space as recommended by panel
39 manufacturer's written instructions, unless otherwise indicated.

1 **3.4 CLEANING**

2

- 3 A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and
4 suspension system members. Comply with manufacturer's written instructions for cleaning
5 and touchup of minor finish damage. Remove and replace ceiling components that cannot be
6 successfully cleaned and repaired to permanently eliminate evidence of damage.

7 **END OF SECTION 095113**

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1 **SECTION 096513 - RESILIENT BASE AND ACCESSORIES**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section Includes:

- 8 1. Resilient base.

- 9 B. Related Requirements:

- 10 1. Section 096519 "Resilient Tile Flooring."

11 **1.3 ACTION SUBMITTALS**

- 12 A. Product Data: For each type of product.

- 13 B. Samples: For each product and for each color and texture specified, not less than 2 inches
14 long.

15 **1.4 DELIVERY, STORAGE, AND HANDLING**

- 16 A. Store resilient products and installation materials in dry spaces protected from the weather,
17 with ambient temperatures maintained within range recommended by manufacturer, but not
18 less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C).

19 **1.5 FIELD CONDITIONS**

- 20 A. Maintain ambient temperatures within range recommended by manufacturer, but not less
21 than 70 deg F (21 deg C) or more than 95 deg F (35 deg C), in spaces to receive resilient
22 products during the following time periods:

- 23 1. 48 hours before installation.
24 2. During installation.
25 3. 48 hours after installation.

- 26 B. After installation and until Substantial Completion, maintain ambient temperatures within
27 range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95
28 deg F (35 deg C).

- 1 C. Install resilient products after other finishing operations, including painting, have been
2 completed.

3 **1.6 EXTRA MATERIALS**

- 4 A. Furnish extra materials that match products installed and that are packaged with protective
5 covering for storage and identified with labels describing contents.

- 6 1. Furnish not less than 100 linear feet (30 linear m) of each type, color, pattern, and size
7 of resilient product installed.

8 **PART 2 - PRODUCTS**

9 **2.1 THERMOPLASTIC-RUBBER BASE**

- 10 A. Manufacturers: Subject to compliance with requirements, provide products indicated in Finish
11 Legend in Drawings.

12 **2.2 INSTALLATION MATERIALS**

- 13 A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or
14 blended hydraulic-cement-based formulation provided or approved by resilient-product
15 manufacturer for applications indicated.

- 16 B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient
17 products and substrate conditions indicated.

- 18 1. Adhesives shall have a VOC content of 50 g/L or less.

- 19 C. Special Stir Nosing Adhesives: Utilize Johnsonite #930 Two-Part Epoxy Caulking Compound in
20 the nose of all treads and install with Johnsonite #965 Acrylic Flooring and Tread Adhesive;
21 #996 Two-Part Epoxy Adhesive; or #975 Two-Part Urethane Adhesive.

22 **PART 3 - EXECUTION**

23 **3.1 EXAMINATION**

- 24 A. Examine substrates, with Installer present, for compliance with requirements for maximum
25 moisture content and other conditions affecting performance of the Work.

- 26 1. Verify that finishes of substrates comply with tolerances and other requirements
27 specified in other Sections and that substrates are free of cracks, ridges, depressions,
28 scale, and foreign deposits that might interfere with adhesion of resilient products.

- 29 B. Proceed with installation only after unsatisfactory conditions have been corrected.

1 1. Installation of resilient products indicates acceptance of surfaces and conditions.

2 **3.2 PREPARATION**

3 A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of
4 resilient products.

5 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

6 2. Remove substrate coatings and other substances that are incompatible with adhesives
7 and that contain soap, wax, oil, or silicone, using mechanical methods recommended by
8 manufacturer. Do not use solvents.

9 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
10 Proceed with installation only after substrate alkalinity falls within range on pH scale
11 recommended by manufacturer in writing, but not less than 5 or more than 9 pH.

12 4. Moisture Testing: Proceed with installation only after substrates pass testing according
13 to manufacturer's written recommendations, but not less stringent than the following:

14 a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed
15 with installation only after substrates have maximum moisture-vapor-emission
16 rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.

17 b. Perform relative humidity test using in situ probes according to ASTM F 2170.
18 Proceed with installation only after substrates have maximum 75 percent relative
19 humidity level.

20 B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching
21 compound; remove bumps and ridges to produce a uniform and smooth substrate.

22 C. Do not install resilient products until they are the same temperature as the space where they
23 are to be installed.

24 1. At least 48 hours in advance of installation, move resilient products and installation
25 materials into spaces where they will be installed.

26 D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient
27 products.

28 **3.3 RESILIENT BASE INSTALLATION**

29 A. Comply with manufacturer's written instructions for installing resilient base.

30 B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and
31 other permanent fixtures in rooms and areas where base is required.

32 C. Install resilient base in lengths as long as practical without gaps at seams and with tops of
33 adjacent pieces aligned.

- 1 D. Tightly adhere resilient base to substrate throughout length of each piece, with base in
2 continuous contact with horizontal and vertical substrates. Ensure bottom edge of base is not
3 “tucked in” to gaps in substrate’s surface.
- 4 E. Do not stretch resilient base during installation.
- 5 F. Job-Formed Corners:
- 6 1. Outside Corners: Use straight pieces of maximum lengths possible and form with
7 returns not less than 18 inches from the corner.
- 8 a. Form without producing discoloration (whitening) at bends.
- 9 2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns
10 not less than 18 inches from the corner.

11 **3.4 CLEANING AND PROTECTION**

- 12 A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- 13 B. Perform the following operations immediately after completing resilient-product installation:
- 14 1. Remove adhesive and other blemishes from exposed surfaces.
- 15 C. Protect resilient products from mars, marks, indentations, and other damage from
16 construction operations and placement of equipment and fixtures during remainder of
17 construction period.

18 **3.5 RESILIENT ACCESSORY INSTALLATION**

- 19 A. Comply with manufacturer’s written instructions for installing resilient accessories.
- 20 B. Resilient Stair Accessories:
- 21 1. Tightly adhere to substrates throughout length of each piece using adhesive noted in
22 Section 2 of this specification.
- 23 2. For nosings use one piece per stair. No seams permitted.
- 24 C. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates
25 throughout length of each piece. Install reducer strips at edges of carpet and resilient floor
26 covering that would otherwise be exposed.

27 **END OF SECTION 096513**

1 **SECTION 096519 - RESILIENT TILE FLOORING**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section Includes:

- 8
9 1. Vinyl composition floor tile.

10 **1.3 ACTION SUBMITTALS**

- 11 A. Product Data: For each type of product.

- 12 B. Shop Drawings: For each type of floor tile. Include floor tile layouts, edges, columns, doorways,
13 enclosing partitions, built-in furniture, cabinets, and cutouts.

- 14 1. Show details of special patterns.

- 15 C. Samples: Full-size units of each color and pattern of floor tile required.

- 16 D. Samples for Initial Selection: For each type of floor tile indicated.

- 17 E. Samples for Verification: Full-size units of each color and pattern of floor tile required.

- 18 F. Product Schedule: For floor tile.

19 **1.4 INFORMATIONAL SUBMITTALS**

- 20 A. Qualification Data: For Installer.

21 **1.5 CLOSEOUT SUBMITTALS**

- 22 A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

23 **1.6 MAINTENANCE MATERIAL SUBMITTALS**

- 24 A. Furnish extra materials that match products installed and that are packaged with protective
25 covering for storage and identified with labels describing contents.

- 26 1. Floor Tile: Furnish one box of each type, color, and pattern of floor tile installed.

1 **1.7 QUALITY ASSURANCE**

2 A. Installer Qualifications: A qualified installer who employs workers for this Project who are
3 competent in techniques required by manufacturer for floor tile installation and seaming
4 method indicated.

5 1. Engage an installer who employs workers for this Project who are trained or certified by
6 floor tile manufacturer for installation techniques required.

7 **1.8 DELIVERY, STORAGE, AND HANDLING**

8 A. Store floor tile and installation materials in dry spaces protected from the weather, with
9 ambient temperatures maintained within range recommended by manufacturer, but not less
10 than 65 deg F or more than 95 deg F. Store floor tiles on flat surfaces.

11 **1.9 FIELD CONDITIONS**

12 A. Maintain ambient temperatures within range recommended by manufacturer, but not less
13 than 65 deg F or more than 85 deg F, in spaces to receive floor tile during the following time
14 periods:

15 1. 48 hours before installation.
16 2. During installation.
17 3. 48 hours after installation.

18 B. After installation and until Substantial Completion, maintain ambient temperatures within
19 range recommended by manufacturer, but not less than 65 deg F or more than 95 deg F.

20 C. Close spaces to traffic during floor tile installation.

21 D. Close spaces to traffic for 48 hours after floor tile installation.

22 E. Install floor tile after other finishing operations, including painting, have been completed.

23 **1.10 EXTRA MATERIALS**

24 A. Furnish extra materials that match products installed and that are packaged with protective
25 covering for storage and identified with labels describing contents.

26 1. Furnish not less than 1 box or fraction thereof, of each type, color, pattern, and size of
27 Resilient Tile Flooring product installed.

1 **PART 2 - PRODUCTS**

2 **2.1 PERFORMANCE REQUIREMENTS**

3 A. Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical
4 products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

5 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

6 **2.2 VINYL COMPOSITION FLOOR TILE**

7 A. Products: Subject to compliance with requirements, provide products indicated in Finish
8 Legend on Drawings.

9 **2.3 INSTALLATION MATERIALS**

10 A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or
11 blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer
12 for applications indicated.

13 B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to
14 suit floor tile and substrate conditions indicated.

15 C. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile
16 manufacturer.

17 **PART 3 - EXECUTION**

18 **3.1 EXAMINATION**

19 A. Examine substrates, with Installer present, for compliance with requirements for maximum
20 moisture content and other conditions affecting performance of the Work.

21 1. Verify that finishes of substrates comply with tolerances and other requirements
22 specified in other Sections and that substrates are free of cracks, ridges, depressions,
23 scale, and foreign deposits that might interfere with adhesion of floor tile.

24 B. Proceed with installation only after unsatisfactory conditions have been corrected.

25 **3.2 PREPARATION**

26 A. Prepare substrates according to floor tile manufacturer's written instructions to ensure
27 adhesion of resilient products.

28 B. Concrete Substrates: Prepare according to ASTM F 710.

29 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

- 1 2. Remove substrate coatings and other substances that are incompatible with adhesives
2 and that contain soap, wax, oil, or silicone, using mechanical methods recommended by
3 floor tile manufacturer. Do not use solvents.
- 4 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer.
5 Proceed with installation only after substrate alkalinity falls within range on pH scale
6 recommended by manufacturer in writing, but not less than 7 or more than 9pH.
- 7 4. Moisture Testing: Proceed with installation only after substrates pass testing according
8 to floor tile manufacturer's written recommendations, but not less stringent than the
9 following:
 - 10 a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with
11 installation only after substrates have maximum moisture-vapor-emission rate of
12 5 lbs of water/1000 sq ft in 24 hours.
 - 13 b. Perform relative humidity test using in situ probes according to ASTM F 2170.
14 Proceed with installation only after substrates have a maximum 80 percent
15 relative humidity level.
- 16 C. Access Flooring Panels: Remove protective film of oil or other coating using method
17 recommended by access flooring manufacturer.
- 18 D. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching
19 compound; remove bumps and ridges to produce a uniform and smooth substrate.
- 20 E. Do not install floor tiles until they are the same temperature as the space where they are to be
21 installed.
- 22 1. At least 48 hours in advance of installation, move resilient floor tile and installation
23 materials into spaces where they will be installed.
- 24 F. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient
25 floor tile.

26 **3.3 FLOOR TILE INSTALLATION**

- 27 A. Comply with manufacturer's written instructions for installing floor tile.
- 28 B. Lay out floor tiles from center marks established with principal walls, discounting minor
29 offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid
30 using cut widths that equal less than one-half tile at perimeter.
 - 31 1. Lay tiles per finish plan.
- 32 C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as
33 manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed
34 tiles.
 - 35 1. Lay tiles per finish plan.

- 1 D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent
2 fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- 3 E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles
4 to center of door openings.
- 5 F. Maintain reference markers, holes, and openings that are in place or marked for future cutting
6 by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking
7 device.
- 8 G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers,
9 and similar items in finished floor areas. Maintain overall continuity of color and pattern
10 between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to
11 substrates that abut covers and to cover perimeters.
- 12 H. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to
13 produce a completed installation without open cracks, voids, raising and puckering at joints,
14 telegraphing of adhesive spreader marks, and other surface imperfections.

15 **3.4 CLEANING AND PROTECTION**

- 16 A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
- 17 B. Perform the following operations immediately after completing floor tile installation:
- 18 1. Remove adhesive and other blemishes from exposed surfaces.
19 2. Sweep and vacuum surfaces thoroughly.
20 3. Damp-mop surfaces to remove marks and soil.
- 21 C. Protect floor tile from mars, marks, indentations, and other damage from construction
22 operations and placement of equipment and fixtures during remainder of construction period.
- 23 D. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying
24 liquid floor polish.
- 25 1. Apply coat(s) as recommended in writing by awarded flooring manufacturer.
- 26 E. Joint Sealant: Apply sealant to floor tile perimeter and around columns, at door frames, and at
27 other joints and penetrations.
- 28 F. Cover floor tile until Substantial Completion.

29 **END OF SECTION 096519**

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1 **SECTION 099100 - PAINTING**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. This Section includes surface preparation and field painting of exposed interior and exterior
8 items and surfaces.

- 9 1. Surface preparation, priming, and finish coats specified in this Section are in addition to
10 shop priming and surface treatment specified in other Sections.

- 11 2. Exterior:

- 12 a. Galvanized metal and ferrous metal lintels, doors, frames and bollards.

- 13 3. Interior:

- 14 a. Gypsum Board: Paint the following gypsum board.

- 15 ● All new exposed gypsum board and as indicated on Drawings.
16 ● At areas with ceilings abutting walls paint to 4" above ceiling.
17 ● Bulkheads.
18 ● Ceilings at showers.

- 19 b. Galvanized metal and ferrous metal: Paint the following metal:

- 20 ● New interior handrails and guardrails.
21 ● New doors and frames.
22 ● Counter and bench brackets.
23 ● All new miscellaneous exposed surfaces.

- 24 c. Concrete Masonry Units and Concrete: Paint the following:

- 25 ● All exposed cmu and concrete as indicated on Drawings.

- 26 d. Metal Deck, Joists, Beams, Rigid Frames, Endwall Structural Members,
27 Intermediate frames, Purlins, Girts and Bracing. (all Primary and Secondary
28 Members). Paint the following:
29
30

- 1 ● Paint all exposed surfaces as indicated on Finish Schedule.
- 2
- 3 e. Transparent Interior Wood Finish: Wood wall trim.
- 4
- 5 ● Wood benches and counters.
- 6 B. Paint exposed surfaces, except where these Specifications indicate that the surface or material
- 7 is not to be painted or is to remain natural. If an item or a surface is not specifically
- 8 mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a
- 9 color of finish is not indicated, Architect will select from standard colors and finishes available.
- 10 1. Painting includes field painting of exposed bare and covered pipes and ducts (including
- 11 color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and
- 12 electrical equipment that do not have a factory-applied final finish.
- 13 2. Paint electrical panel covers in corridors and all finished areas.
- 14 C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts,
- 15 and labels.
- 16 1. Prefinished items include the following factory-finished components:
- 17 a. Architectural woodwork.
- 18 b. Acoustical wall panels – unless stated otherwise.
- 19 c. Toilet enclosures.
- 20 d. Metal lockers.
- 21 e. Unit kitchens.
- 22 f. Finished mechanical and electrical equipment.
- 23 g. Light fixtures.
- 24 h. Prefinished masonry diffuser block units and diffuser brick.
- 25 2. Concealed surfaces include walls or ceilings in the following generally inaccessible
- 26 spaces:
- 27 a. Foundation spaces.
- 28 b. Furred areas.
- 29 c. Ceiling plenums, except ceiling plenums identified to be painted.
- 30 d. Pipe spaces.
- 31 e. Duct shafts.
- 32 3. Finished metal surfaces include the following:
- 33 a. Anodized aluminum.
- 34 b. Stainless steel.
- 35 c. Chromium plate.
- 36 d. Copper and copper alloys.
- 37 e. Bronze and brass.

- 1 4. Operating parts include moving parts of operating equipment and the following:
- 2 a. Valve and damper operators.
- 3 b. Linkages.
- 4 c. Sensing devices
- 5 d. Motor and fan shafts.
- 6 5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name,
- 7 identification, performance rating, or nomenclature plates.
- 8 D. Related Sections include the following:
- 9 1. Division 01 Section "Substitution Procedures."
- 10 2. Division 05 Section "Metal Fabrications" for shop priming metal fabrications.
- 11 3. Division 08 Section "Hollow Metal Doors and Frames" for factory priming steel doors
- 12 and frames.

13 **1.3 DEFINITIONS**

- 14 A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
- 15 1. Flat refers to a lusterless or matte finish with a gloss range below 10 when measured at
- 16 a 60-degree meter
- 17 2. Eggshell refers to low-sheen finish with a gloss range between 5 and 20 when measured
- 18 at a 60-degree meter.
- 19 3. Satin – refer to low sheen finish with a gloss range between 15 and 35 when measured
- 20 at a 60 degree meter.
- 21 4. Semigloss refers to medium-sheen finish with a gloss range between 35 and 65 when
- 22 measured at a 60-degree meter.
- 23 5. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at
- 24 a 60-degree meter.

25 **1.4 SUBMITTALS**

- 26 A. Product Data: For each paint system indicated. Include block fillers and primers.
- 27 1. Material List: An inclusive list of required coating materials. Indicate each material and
- 28 cross-reference specific coating, finish system, and application. Identify each material
- 29 by manufacturer's catalog number and general classification.
- 30 2. Manufacturer's Information: Manufacturer's technical information, including label
- 31 analysis and instructions for handling, storing, and applying each coating material.
- 32 B. Samples for Verification: For each color and material to be applied, with texture to simulate
- 33 actual conditions, on representative Samples of the actual substrate.
- 34 1. Provide (3) 4-by-6-inch paper samples for each color and finish.

1 2. Stained or Natural Wood: Provide (3) 4-by-8-inch samples of stained wood finish on
2 representative species of wood to be used.

3 C. Qualification Data: For Applicator.

4 D. Meeting notes from Pre-Construction Meeting.

5 **1.5 QUALITY ASSURANCE**

6 A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings
7 similar in material, design, and extent to those indicated for this Project, whose work has
8 resulted in applications with a record of successful in-service performance.

9 B. Source Limitations: Obtain block fillers and primers for each coating system from the same
10 manufacturer as the finish coats.

11 **1.6 DELIVERY, STORAGE, AND HANDLING**

12 A. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum
13 ambient temperature of 45 deg F (7 deg C). Maintain storage containers in a clean condition,
14 free of foreign materials and residue.

15 1. Maintain containers in clean conditions, free of foreign materials and residue.

16 2. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste
17 daily. If necessary, add heating ventilation, fire protection and other conditions for
18 storage area on site.

19 **1.7 PROJECT CONDITIONS**

20 A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding
21 air are between 50 and 90 deg F (10 and 32 deg C).

22 B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and
23 surrounding air are between 45 and 95 deg F (7 and 35 deg C).

24 C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or
25 at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

26 1. Painting may continue during inclement weather if surfaces and areas to be painted are
27 enclosed and heated within temperature limits specified by manufacturer during
28 application and drying periods.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles. Substitutions for alternative manufacturers or products will be entertained in accordance with Specification Sections 002114 – Instructions to Bidders and 012500 – Substitution Procedures. Substitutions of any manufacturer or product shall include written approval by the Architect.

B. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. **PPG Architectural Coatings. (*Basis of Specification*)**
2. Sherwin-Williams Co. (Sherwin-Williams)

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

C. All mil thickness indicated are for dry film thickness per coat of paint.

D. Colors: As required in Division 01 as indicated on the finish schedule if not scheduled. As selected by Architect.

E. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Dry-Fog Coatings: 400 g/L.
4. Primers, Sealers, and Undercoaters: 200 g/L.
5. Anticorrosive and Antirust Paints Applied to Ferrous Metals 250 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Floor Coatings: 100 g/L.
9. Shellacs, Clear: 730 g/L.
10. Shellacs, Pigmented: 550 g/LK.

1 **2.3 EXTERIOR PRIMER**

2 A. Exterior galvanized and ferrous metals: Provide the following finish or equal over galvanized
3 and ferrous metals.

4 1. PPG 90-12 PITT-TECH plus acrylic DTM primer.

5 **2.4 EXTERIOR INTERMEDIATE COATS**

6 A. Exterior galvanized and ferrous metals: Provide the following finish or equal over galvanized
7 and ferrous metals.

8 1. PPG #90-1210 PITT-TECH Plus Acrylic DTM Semi-Gloss Finish.

9 **2.5 EXTERIOR FINISH COATS**

10 A. Exterior galvanized and ferrous metals: Provide the following finish or equal over galvanized
11 and ferrous metals.

12 1. PPG #90-1210 PITT-TECH Plus Acrylic DTM Semi-Gloss Finish.

13 **2.6 INTERIOR CONCRETE UNIT MASONRY BLOCK FILLERS**

14 A. Concrete Unit Masonry Block Filler: Factory-formulated high-performance latex block fillers.
15 Provide the following finish or equal over interior concrete masonry units.

16 1. PPG #6-7 Speedhide Interior/Exterior Block Filler.

17 **2.7 INTERIOR PRIMERS**

18 A. Interior Gypsum Board Primer: Provide the following finish or equal over interior gypsum
19 board.

20 1. PPG Porter Paints: 867 ProMaster 2000 Drywall Primer.

21 B. Galvanized and Ferrous Metals: Provide the following finish or equal over galvanized or
22 ferrous metals.

23 1. PPG #90-912 PITT-TECH Plus Acrylic DTM Primer.

24 **2.8 INTERIOR INTERMEDIATE COATS**

25 A. Gypsum Board Wall: Provide the following finish or equal over interior gypsum board wall.

26 1. PPG Porter Paints: PP109 Series Hi-Hide Latex Eggshell.

27 B. Galvanized and Ferrous Metals: Provide the following finish or equal over galvanized or
28 ferrous metal.

- 1 1. PPG #90-1210 PITT-TECH Plus Acrylic DTM Semi-gloss Finish.
- 2 C. Concrete Masonry Wall and Existing Painted Concrete: Provide the following finish or equal
3 over interior concrete masonry units and existing painted concrete.
- 4 1. PPG #90-1210 PITT-TECH Plus Acrylic DTM enamel, semigloss.
- 5 **2.9 INTERIOR FINISH COATS**
- 6 A. Gypsum Board Wall: Provide the following finish or equal over interior gypsum board.
- 7 1. PPG Porter Paints: PP109 Series Hi-Hide, Latex Eggshell.
- 8 B Galvanized and Ferrous Metals: Provide the following finish or equal over galvanized of
9 ferrous metals:
- 10 1. PPG #90-1210 PITT-TECH Plus acrylic DTM semi-gloss finish.
- 11 C. Concrete Masonry Wall and Existing Painted Concrete: Provide the following finish or equal
12 over interior concrete masonry units and existing painted concrete.
- 13 1. PPG #90-1210 PITT-TECH Plus Acrylic DTM enamel, semigloss.
- 14 D. Exposed Structural Steel, Roof Deck, Piping and Ductwork: Provide the following finish or
15 equal over interior structural steel and roof deck.
- 16 1. PPG #6-724 XI Super Tech acrylic WB semi-gloss dry fog. (Self-Priming)
- 17 **2.10 INTERIOR WOOD STAINS AND VARNISHES**
- 18 A Clear Sanding Sealer: Factory-formulated fast-drying alkyd-based clear wood sealer applied at
19 spreading rate recommended by manufacturer. Provide the following finish or equal over
20 interior wood.
- 21 1. Pittsburgh Paints; 6-10 SpeedHide Quick-Drying Interior Sanding Wood Sealer and
22 Finish.
- 23 B. Interior Oil Based Stain:
- 24 1. Gemini Craftsman Stain – CC001 Interior oil based stain.
- 25 C. Interior Alkyd- or Polyurethane-Based Clear Satin Varnish: Factory-formulated alkyd- or
26 polyurethane-based clear varnish. Provide the following finish or equal over interior wood.
- 27 1. DEFT, DFT 259 Water based clear polyurethane, satin (2 coats).

PART 3 - EXECUTION**3.1 EXAMINATION**

A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application. Comply with procedures specified in PDCA P4.

1. Maximum moisture content of substrates when measured with an electronic moisture meter as follows:

- a. Concrete: 12 percent.
- b. Masonry (Clay and CMU): 12 percent.
- c. Wood: 15 percent.
- d. Gypsum board: 12 percent.
- e. Plaster: 12 percent.

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes.

3. Begin finish application only after unsatisfactory conditions have been corrected and surfaces are dry.

4. Begin application of finish system constitutes Contractor's acceptance of substrate and conditions.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification manual applicable to substrates indicated.

B. Remove plates, machined surfaces, and similar items already in place that are not to be finished. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.

1. After completing painting operations, reinstall items removed using workers skilled in the trades involved. Remove surface-applied protection if any.

C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

- 1 a. Remove surface dirt, oil, or grease by washing with a detergent solution; rinse
2 thoroughly with clean water and allow to dry. Remove grade stamps and pencil
3 marks by sanding lightly. Remove loose wood fibers by brushing.
- 4 b. Remove mildew by scrubbing with a commercial wash formulated for mildew
5 removal and as recommended by stain manufacturer.
- 6 c. Countersink steel nails, if used, and fill with putty tinted to final color to eliminate
7 rust leach stains.
- 8 d. Scrape and clean small, dry seasoned knots, and apply a thin coat of white shellac
9 or other recommended knot sealer before applying primer. After priming, fill
10 holes and imperfections in finish surfaces with putty or plastic wood filler. Sand
11 smooth when dried.
- 12 e. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges,
13 ends, faces, undersides, and back sides of wood, including cabinets, counters,
14 cases, and paneling.
- 15 f. If transparent finish is required, backprime with spar varnish.
- 16 g. Backprime paneling on interior partitions where masonry, plaster, or other wet
17 wall construction occurs on back side.
- 18 h. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of
19 varnish or sealer immediately on delivery.
- 20 2. Provide barrier coats over incompatible primers or remove and reprime.
- 21 3. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and
22 mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence,
23 chalk, dust, dirt, grease, oils and release agents. Roughen as required to remove glaze.
24 If hardeners or sealers have been used to improve curing, use mechanical methods or
25 surface preparation.
- 26 a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
- 27 b. Determine alkalinity and moisture content of surfaces by performing appropriate
28 tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and
29 burn, correct this condition before application. Do not paint surfaces if moisture
30 content exceeds that permitted in manufacturer's written instructions.
- 31 c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or
32 other etching cleaner. Flush the floor with clean water to remove acid, neutralize
33 with ammonia, rinse, allow to dry, and vacuum before painting.
- 34 D. Material Preparation: Mix and prepare paint materials according to manufacturer's written
35 instructions.
- 36 1. Maintain containers used in mixing and applying paint in a clean condition, free of
37 foreign materials and residue.
- 38 2. Stir material before application to produce a mixture of uniform density. Stir as
39 required during application. Do not stir surface film into material. If necessary, remove
40 surface film and strain material before using.
- 41 3. Use only thinners approved by paint manufacturer and only within recommended limits.

- 1 E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when
2 multiple coats of same material are applied. Tint undercoats to match the color of the finish
3 coat, but provide sufficient differences in shade of undercoats to distinguish each separate
4 coat.

5 3.3 APPLICATION

- 6 A. General: Apply paint according to manufacturer's written instructions. Use applicators and
7 techniques best suited for substrate and type of material being applied.

- 8 1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
- 9 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions
10 detrimental to formation of a durable paint film.
- 11 3. Provide finish coats that are compatible with primers used.
- 12 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures,
13 grilles, convector covers, covers for finned-tube radiation, and similar components are
14 in place. Extend coatings in these areas, as required, to maintain system integrity and
15 provide desired protection.
- 16 5. Paint surfaces behind movable equipment and furniture the same as similar exposed
17 surfaces. Before final installation of equipment, paint surfaces behind permanently
18 fixed equipment or furniture with prime coat only.
- 19 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through
20 registers or grilles.
- 21 7. Paint back sides of access panels and removable or hinged covers to match exposed
22 surfaces.
- 23 8. Sand lightly between each succeeding enamel or varnish coat.

- 24 B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or
25 otherwise prepared for painting as soon as practicable after preparation and before
26 subsequent surface deterioration.

- 27 1. The number of coats and film thickness required are the same regardless of application
28 method. Do not apply succeeding coats until previous coat has cured as recommended
29 by manufacturer. If sanding is required to produce a smooth, even surface according to
30 manufacturer's written instructions, sand between applications.
- 31 2. If undercoats, stains, or other conditions show through final coat of paint, apply
32 additional coats until paint film is of uniform finish, color, and appearance. Give special
33 attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive
34 a dry film thickness equivalent to that of flat surfaces.
- 35 3. Allow sufficient time between successive coats to permit proper drying. Do not recoat
36 surfaces until paint has dried to where it feels firm, and does not deform or feel sticky
37 under moderate thumb pressure, and until application of another coat of paint does not
38 cause undercoat to lift or lose adhesion.

- 39 C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators
40 according to manufacturer's written instructions.

- 1 1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate
2 size for surface or item being painted.
- 3 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by
4 manufacturer for material and texture required.
- 5 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by
6 manufacturer for material and texture required.

- 7 D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's
8 recommended spreading rate to achieve dry film thickness indicated. Provide total dry film
9 thickness of the entire system as recommended by manufacturer.

- 10 E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items
11 exposed in equipment rooms and occupied spaces.

- 12 F. Mechanical items to be painted include, but are not limited to, the following:
 - 13 1. Uninsulated metal piping.
 - 14 2. Uninsulated plastic piping.
 - 15 3. Pipe hangers and supports.
 - 16 4. Tanks that do not have factory-applied final finishes.
 - 17 5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and
18 outlets.
 - 19 6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable
20 jacket material.
 - 21 7. Mechanical equipment that is indicated to have a factory-primed finish for field
22 painting.

- 23 G. Electrical items to be painted include, but are not limited to, the following:
 - 24 1. Panelboards in corridors
 - 25 2. Electrical equipment that is indicated to have a factory-primed finish for field painting.

- 26 H. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete
27 coverage with pores filled.

- 28 I. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by
29 manufacturer, to material that is required to be painted or finished and that has not been
30 prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots
31 or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other
32 defects due to insufficient sealing.

- 33 J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth,
34 opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting,
35 holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be
36 acceptable.

- 1 K. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of
2 even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks,
3 orange peel, nail holes, or other surface imperfections.
- 4 1. Provide satin finish for final coats.
- 5 L. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no
6 evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface
7 imperfections.
- 8 M. Completed Work: Match approved samples for color, texture, and coverage. Remove,
9 refinish, or repaint work not complying with requirements.
- 10 **3.4 FIELD QUALITY CONTROL**
- 11 A. Owner reserves the right to invoke the following test procedure at any time and as often as
12 Owner deems necessary during the period when paint is being applied:
- 13 1. Owner may choose engage a qualified independent testing agency to sample paint
14 material being used. Samples of material delivered to Project will be taken, identified,
15 sealed, and certified in the presence of Contractor.
- 16 2. Testing agency will perform appropriate tests for the following characteristics as
17 required by Owner: Substrate moisture content, dry film thickness, adhesion.
- 18 3. Owner may direct Contractor to stop painting if test results show material being used
19 does not comply with specified requirements. Contractor shall remove noncomplying
20 paint from Project site, pay for testing, and repaint surfaces previously coated with the
21 noncomplying paint. If necessary, Contractor may be required to remove noncomplying
22 paint from previously painted surfaces if, on repainting with specified paint, the two
23 coatings are incompatible.
- 24 B. Painted exterior and interior surfaces shall be considered to lack uniformity and soundness if
25 any of the following effects are apparent to the Painting Inspection Agency inspector:
- 26 1. Brush / roller marks, streaks, laps, runs, sags, drips, heavy stripping, hiding or
27 shadowing by inefficient application methods, skilled or missed areas, and foreign
28 materials in paint coating.
- 29 2. Evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets,
30 corners and reentrant angles.
- 31 3. Damage due to touching before paint is sufficiently dry or any other contributory cause.
- 32 4. Damage due to application on moist surfaces or caused by inadequate protection from
33 the weather.
- 34 5. Damage and/or contamination of paint due to blown contaminants (dust, spray point,
35 etc.).
- 36 C. Painted surfaces shall be considered unacceptable if any of the following are evident under
37 natural lighting source for exterior surfaces and final lighting source (including daylight) for
38 interior surfaces.

- 1 1. Visible defects are evident on vertical surfaces when viewed at normal viewing angles
- 2 from a distance of not less than 39”.
- 3 2. Visible defects are evident on horizontal surfaces when viewed at normal viewing angles
- 4 from a distance of not less than 39”.
- 5 3. Visible defects are evident on ceiling, soffit and other overhead surfaces when viewed at
- 6 normal viewing angles.
- 7 4. When the final coat on any surface exhibits a lack of uniformity of color, sheen, texture,
- 8 and hiding across full surface area.

9 D. Painted surfaces rejected by the inspector shall be made good at the expense of the
10 Contractor. Small affected areas may be touched up; large affected areas or areas without
11 sufficient dry film thickness of paint shall be repainted. Runs, sags of damaged paint shall be
12 removed by scraper or by sanding prior to application of paint.

- 13 1. Use finish coat to respective new surface paint system for minor repair or existing
- 14 finishes. Use system primer where existing finishes are damaged down to bare surface.

15 3.5 CLEANING

16 A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded
17 paint materials from Project site.

- 18 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered
- 19 paint by washing and scraping without scratching or damaging adjacent finished
- 20 surfaces.

21 3.6 PROTECTION

22 A. Protect work of other trades, whether being painted or not, against damage from painting.
23 Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

24 B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting
25 operations, remove temporary protective wrappings provided by others to protect their work.

- 26 1. After work of other trades is complete, touch up and restore damaged or defaced
- 27 painted surfaces. Comply with procedures specified in PDCA P1.

28 **END OF SECTION 099100**

29

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DIVISION 10

1 **SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES**
2
3

4 **PART 1 - GENERAL**
5

6 **1.1 RELATED DOCUMENTS**
7

- 8 A. Drawings and general provisions of the Contract, including General and Supplementary
9 Conditions and Division 01 Specification Sections, apply to this Section.
10

11 **1.2 SUMMARY**
12

- 13 A. This Section includes the following:
14

- 15 1. Public-use washroom accessories.
16 2. Public-use shower room accessories.
17

- 18 B. Owner-Furnished Material: See Schedule on Sheet A2.20
19

- 20 C. Related Sections include the following:
21

- 22 1. Division 06 Section "Rough Carpentry" for blocking associated with Toilet and Bath
23 Accessories.
24 2. Division 26 Section "Electrical".
25

26 **1.3 SUBMITTALS**
27

- 28 A. Product Data: For each type of product indicated. Include the following:
29

- 30 1. Construction details and dimensions.
31 2. Anchoring and mounting requirements, including requirements for cutouts in other
32 work and substrate preparation.
33 3. Material and finish descriptions.
34 4. Features that will be included for Project.
35 5. Manufacturer's warranty.
36

- 37 B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of
38 each accessory required.
39

- 40 1. Identify locations using room designations indicated on Drawings.
41 2. Identify products using designations indicated on Drawings.
42

- 43 C. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.
44
45
46

1.4 QUALITY ASSURANCE

- A. Source Limitations: For products listed together in the same articles in Part 2, provide products of same manufacturer unless otherwise approved by Architect.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.5 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.6 WARRANTY

- A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.
1. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Stainless Steel: ASTM A 666, Type 304, 0.0312-inch (0.8-mm) minimum nominal thickness, unless otherwise indicated.
- B. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.0359-inch (0.9-mm) minimum nominal thickness.
- C. Galvanized Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.
- D. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, 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 H. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

2 **2.2 MANUFACTURERS**

3 A. Manufacturers: Subject to compliance with requirements, provide accessories by one of the
4 following:

5 1. Toilet and Bath Accessories:

- 6 a. American Specialties, Inc. **(Basis of Specification)**
- 7 b. Bobrick Washroom Equipment, Inc.
- 8 c. Bradley Corporation.

9 B. Products: Subject to compliance with requirements, provide one of the products indicated for
10 each designation in the Toilet Accessory Schedule on drawing sheet A4.0.

11
12 **2.4 FABRICATION**

13
14 A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors
15 and access panels with full-length, continuous hinges. Equip units for concealed anchorage
16 and with corrosion-resistant backing plates.

17
18 B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying.
19 Provide minimum of six keys to Owner's representative.

20
21
22 **PART 3 - EXECUTION**

23
24 **3.1 INSTALLATION**

25
26 A. Install accessories according to manufacturers' written instructions, using fasteners
27 appropriate to substrate indicated and recommended by unit manufacturer. Install units level,
28 plumb, and firmly anchored in locations and at heights indicated.

29
30 B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested
31 according to method in ASTM F 446.

32
33 **3.2 ADJUSTING AND CLEANING**

34
35 A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective
36 items.

37
38 B. Remove temporary labels and protective coatings.

39
40

- 1 C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

- 2 **END OF SECTION 102800**

1 **SECTION 104413 - FIRE PROTECTION CABINETS**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section Includes:

- 8 1. Fire-protection cabinets for the following:

- 9 a. Portable fire extinguishers.

- 10 B. Related Requirements:

- 11 1. Section 104416 "Fire Extinguishers."

- 12 2. Section 211100 "Facility Fire-Suppression Water-Service Piping" for sizes, types, and
13 finishes for hoses, hose valves, hose couplings, nozzles, and hose racks.

14 **1.3 ACTION SUBMITTALS**

- 15 A. Shop Drawings: For fire-protection cabinets. Include plans, elevations, sections, details, and
16 attachments to other work.

17 **1.4 CLOSEOUT SUBMITTALS**

- 18 A. Maintenance Data: For fire-protection cabinets to include in maintenance manuals.

19 **1.5 COORDINATION**

- 20 A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire
21 extinguishers indicated are accommodated.

- 22 B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

23 **1.6 SEQUENCING**

- 24 A. Apply decals or vinyl lettering on field-painted fire-protection cabinets after painting is
25 complete.

1 **PART 2 - PRODUCTS**

2 **2.1 FIRE-PROTECTION CABINET**

- 3 A. Cabinet Type: Suitable for fire extinguisher.
- 4 B. Cabinet Construction: Nonrated.
- 5 C. Cabinet Material: Cold-rolled steel sheet.
- 6 D. Recessed Cabinet:
- 7 1. Exposed Flat Trim: One-piece combination trim and perimeter door frame overlapping
- 8 surrounding wall surface with exposed trim face and wall return at outer edge
- 9 (backbend).
- 10 E. Semirecessed Cabinet: One-piece combination trim and perimeter door frame overlapping
- 11 surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
- 12 1. Rolled-Edge Trim: 2-1/2-inch backbend depth.
- 13 F. Surface-Mounted Cabinet: Cabinet box fully exposed and mounted directly on wall with no
- 14 trim.
- 15 G. Cabinet Trim Material: Steel sheet.
- 16 H. Door Material: Aluminum sheet.
- 17 I. Door Style: Fully glazed panel with frame.
- 18 J. Door Glazing: Tempered float glass (clear).
- 19 K. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet
- 20 type, trim style, and door material and style indicated.
- 21 1. Provide manufacturer's standard.
- 22 2. Provide continuous hinge, of same material and finish as trim, permitting door to open
- 23 180 degrees.
- 24 L. Accessories:
- 25 1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher
- 26 to fire-protection cabinet, of sizes required for types and capacities of fire extinguishers
- 27 indicated, with plated or baked-enamel finish.
- 28 2. Identification: Lettering complying with authorities having jurisdiction for letter style,
- 29 size, spacing, and location. Locate as directed by Architect.

1 a. Identify fire extinguisher in fire-protection cabinet with the words "FIRE
2 EXTINGUISHER."

- 3 1) Location: Applied to cabinet door.
- 4 2) Application Process: Silk-screened or Pressure-sensitive vinyl letters.
- 5 3) Lettering Color: Red.
- 6 4) Orientation: Vertical.

7 M. Materials:

8 1. Cold-Rolled Steel: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.

- 9 a. Finish: Baked enamel or powder coat.
- 10 b. Color: Manufacturer's standard.

11 2. Aluminum: ASTM B 221, with strength and durability characteristics of not less than
12 Alloy 6063-T5 for aluminum sheet. ASTM B 221 for extruded shapes.

- 13 a. Finish: Baked enamel or powder coat.

14 3. Tempered Float Glass: ASTM C 1048, Kind FT, Condition A, Type I, Quality q3, 3 mm
15 thick, Class 1 (clear).

16 2.2 FABRICATION

17 A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door,
18 and hardware to suit cabinet type, trim style, and door style indicated.

- 19 1. Weld joints and grind smooth.
- 20 2. Provide factory-drilled mounting holes.
- 21 3. Prepare doors and frames to receive locks.
- 22 4. Install door locks at factory.

23 B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials
24 indicated and coordinated with cabinet types and trim styles.

- 25 1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum
26 1/2 inch thick.
- 27 2. Fabricate door frames of one-piece construction with edges flanged.
- 28 3. Miter and weld perimeter door frames.

29 C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground
30 smooth.

1 **2.3 GENERAL FINISH REQUIREMENTS**

- 2 A. Comply with NAAMM's AMP 500, "Metal Finishes Manual for Architectural and Metal
3 Products," for recommendations for applying and designating finishes.
- 4 B. Protect mechanical finishes on exposed surfaces of fire-protection cabinets from damage by
5 applying a strippable, temporary protective covering before shipping.
- 6 C. Finish fire-protection cabinets after assembly.
- 7 D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable.
8 Variations in appearance of adjoining components are acceptable if they are within the range
9 of approved Samples and are assembled or installed to minimize contrast.

10 **PART 3 - EXECUTION**

11 **3.1 EXAMINATION**

- 12 A. Examine walls and partitions for suitable framing depth and blocking where recessed and
13 semirecessed cabinets will be installed.
- 14 B. Proceed with installation only after unsatisfactory conditions have been corrected.

15 **3.2 PREPARATION**

- 16 A. Prepare recesses for recessed and semirecessed fire-protection cabinets as required by type
17 and size of cabinet and trim style.

18 **3.3 INSTALLATION**

- 19 A. General: Install fire-protection cabinets in locations and at mounting heights indicated or, if
20 not indicated, at heights acceptable to authorities having jurisdiction.
- 21 B. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
- 22 1. Unless otherwise indicated, provide recessed fire-protection cabinets. If wall thickness is
23 inadequate for recessed cabinets, provide semirecessed fire-protection cabinets.
- 24 2. Provide inside latch and lock for break-glass panels.
- 25 3. Fasten mounting brackets to inside surface of fire-protection cabinets, square and
26 plumb.
- 27 C. Identification: Apply vinyl lettering at locations indicated.

1 **3.4 ADJUSTING AND CLEANING**

2 A. Remove temporary protective coverings and strippable films, if any, as fire-protection cabinets
3 are installed unless otherwise indicated in manufacturer's written installation instructions.

4 B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral
5 locking devices operate properly.

6 C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as
7 recommended by manufacturer.

8 D. Touch up marred finishes, or replace fire-protection cabinets that cannot be restored to
9 factory-finished appearance. Use only materials and procedures recommended or furnished by
10 fire-protection cabinet and mounting bracket manufacturers.

11 E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond
12 successful repair by finish touchup or similar minor repair procedures.

13 **END OF SECTION 104413**

14

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1 **SECTION 104416 - FIRE EXTINGUISHERS**

2 **PART 1 - GENERAL**

3 **1.1 RELATED DOCUMENTS**

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

6 **1.2 SUMMARY**

- 7 A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire
8 extinguishers.

- 9 B. Related Requirements:

- 10 1. Section 104413 "Fire Protection Cabinets."

11 **1.3 ACTION SUBMITTALS**

- 12 A. Product Data: For each type of product. Include rating and classification, material descriptions,
13 dimensions of individual components and profiles, and finishes for fire extinguisher and
14 mounting brackets.

- 15 B. Product Schedule: For fire extinguishers. Coordinate final fire-extinguisher schedule with fire-
16 protection cabinet schedule to ensure proper fit and function. Use same designations
17 indicated on Drawings.

18 **1.4 INFORMATIONAL SUBMITTALS**

- 19 A. Warranty: Sample of special warranty.

20 **1.5 CLOSEOUT SUBMITTALS**

- 21 A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

22 **1.6 COORDINATION**

- 23 A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit
24 and function.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

- a. Failure of hydrostatic test according to NFPA 10.
- b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS**2.1 PERFORMANCE REQUIREMENTS**

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

1. Provide fire extinguishers approved, listed, and labeled by FM Global.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each fire-protection cabinet and mounting bracket indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. J.L. Industries, Inc. a division of Activar Construction Products Group.
- b. Larsen's Manufacturing Company
- c. Potter Roemer LLC

2. Valves: Manufacturer's standard.

3. Handles and Levers: Manufacturer's standard.

4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B, and bar coding for documenting fire-extinguisher location, inspections, maintenance, and recharging.

B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 4-A: 60-BC, 10-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container and visual pressure gauge.

2.3 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or black baked-enamel finish.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.

1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.

a. Orientation: Horizontal.

PART 3 - EXECUTION**3.1 EXAMINATION**

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

1. Mounting Brackets: 54 inches above finished floor to top of fire extinguisher.

B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 104416

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2

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DIVISION 12

1 **SECTION 123200 - MANUFACTURED WOOD CASEWORK**

2
3
4 **PART 1 - GENERAL**

5 **1.1 RELATED DOCUMENTS**

- 6
7 A. Drawings and general provisions of the Contract, including General and Supplementary
8 Conditions and Division 01 Specification Sections, apply to this Section.
9

10 **1.2 SUMMARY**

11
12 A. Section Includes:

- 13
14 1. Plastic-laminate-faced wood cabinets of stock design.
15 2. Plastic-laminate and solid surface countertops installed with cabinets of stock design.
16 3. Custom casework.
17 4. Adjustable wall shelving and brackets.
18 5. Caulking of countertops.
19

20 B. Related Sections:

- 21
22 1. Division 06 Section "Miscellaneous Rough Carpentry" for wood blocking for anchoring
23 manufactured wood casework.
24 2. Division 09 Section "Non-Structural Metal Framing" for reinforcements in metal-framed
25 partitions for anchoring manufactured wood casework.
26 3. Division 09 Section "Resilient Base and Accessories" for resilient base applied to
27 manufactured wood casework.
28

29 **1.3 DEFINITIONS**

- 30
31 A. Exposed Portions of Cabinets: Surfaces visible when doors and drawers are closed, including
32 bottoms of cabinets more than 48 inches above floor, and surfaces visible in open cabinets.
33
34 B. Semiexposed Portions of Cabinets: Surfaces behind opaque doors, such as interiors of
35 cabinets, shelves, dividers, interiors and sides of drawers, and interior faces of doors. Tops of
36 cases 78 inches or more above floor are defined as semiexposed.
37
38 C. Concealed Portions of Cabinets: Surfaces not usually visible after installation, including
39 sleepers, web frames, dust panels, and ends and backs that are placed directly against walls or
40 other cabinets.
41
42 D. Hardwood Plywood: A panel product composed of layers or plies of veneer, or of veneers in
43 combination with lumber core, hardboard core, MDF core, or particleboard core, joined with
44 adhesive, and faced both front and back with hardwood veneers.

1.4 SUBMITTALS

- 1
- 2
- 3 A. Product Data: For each type of product indicated. Include manufacturer's current catalog of
- 4 model numbers.
- 5 B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- 6 Show fabrication details, including types and locations of hardware. Show installation details,
- 7 including field joints and filler panels. Indicate manufacturer's catalog numbers for casework
- 8 and same plastic laminate designations used in Drawings. Shop Drawings not complying with
- 9 these requirements will be rejected.
- 10 C. Samples for verification: Plastic laminate and solid surface materials.
- 11
- 12 D. Samples for Initial Selection: For PVC cabinet edge finishes submit chain set of full offering of
- 13 color samples.
- 14
- 15 E. Qualification Data: For qualified Installer.
- 16 F. Warranty: Sample of special warranty.
- 17

1.5 QUALITY ASSURANCE

- 18
- 19
- 20 A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by
- 21 an FSC-accredited certification body.
- 22
- 23 B. Installer Qualifications: Manufacturer's authorized representative who is trained and
- 24 approved for installation of units required for this Project.
- 25
- 26 C. Source Limitations: Obtain manufactured wood casework from single source from single
- 27 manufacturer.
- 28
- 29 D. Quality Standard: Unless otherwise indicated, comply with requirements for modular cabinets
- 30 in AWI's "Architectural Woodwork Quality Standards."
- 31
- 32 E. Quality Standard: Unless otherwise indicated, comply with WI's "Manual of Millwork" for
- 33 Premium grade.
- 34
- 35 1. Product Designations: Drawings indicate manufactured wood casework configurations
- 36 by referencing WI design series numbering system as defined in WI's "Manual of
- 37 Millwork."
- 38
- 39 F. Product Designations: Drawings indicate sizes, configurations, and finish material of
- 40 manufactured wood casework by referencing designated manufacturer's catalog numbers.
- 41 Other manufacturers' casework of similar sizes and door and drawer configurations, of same
- 42 finish material, and complying with the Specifications may be considered. Refer to Division 01
- 43 Section "Product Requirements."

1.6 DELIVERY, STORAGE, AND HANDLING

- 1
2
3 A. Deliver manufactured wood casework only after painting, utility roughing-in, and similar
4 operations that could damage, soil, or deteriorate casework have been completed in
5 installation areas. If casework must be stored in other than installation areas, store only in
6 areas where environmental conditions meet requirements specified in "Project Conditions"
7 Article.
8
9 B. Keep finished surfaces covered with polyethylene film or other protective covering during
10 handling and installation.
11

1.7 PROJECT CONDITIONS

- 12
13
14 A. Environmental Limitations: Do not deliver or install manufactured wood casework until spaces
15 are enclosed and weathertight, wet work in spaces is complete and dry, work above ceilings is
16 complete, and temporary HVAC system is operating and maintaining ambient temperature and
17 humidity conditions at occupancy levels during the remainder of the construction period.
18
19 B. Field Measurements: Verify actual dimensions of construction contiguous with manufactured
20 wood casework by field measurements before fabrication.
21

1.8 COORDINATION

- 22
23
24 A. Coordinate layout and installation of framing and reinforcements in walls and partitions for
25 support of manufactured wood casework.
26

1.9 WARRANTY

- 27
28
29 A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or
30 replace components of manufactured wood casework that fail in materials or workmanship for
31 a period of three years.
32
33 1. Failures include, but are not limited to, the following:
34
35 a. Delamination of components or other failures of glue bond.
36 b. Warping of components.
37 c. Failure of operating hardware.
38 d. Deterioration of finishes.

1.10 EXTRA MATERIALS

- 39
40
41 A. Furnish complete touchup kit for each type and finish of manufactured wood casework
42 provided. Include scratch fillers, stains, finishes, and other materials necessary to perform
43 permanent repairs to damaged casework finish.
44
45 1. Deliver touch up kit to Owner.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide product indicated or drawn on Drawings or comparable product by one of the following:
1. Plastic-Laminate-Faced Manufactured Casework:
 - a. LSI Casework.
 - b. Stevens Advantage.
 - c. TMI Systems Corporation.
 - d. Advanced Cabinet Systems.
 - e. Custom Casework that meets or exceed all specifications is acceptable.
 2. Model numbers listed on drawings are basis of design products. Obtain casework from single source and single manufacturer.

2.2 CORE MATERIALS

- A. Cabinet components shall be industrial grade particleboard core 55 lb. materials meeting ANSI A208.1 1993 standards as tested in accordance with ASTM D 1037-91A Standards.
- B. Industrial grade particleboard core 55 lb. materials meeting ANSI A208.1 1973 shall be used in all drawer components and as tested in accordance with ASTM D 1037-91A standards.

2.3 SURFACE MATERIALS

- A. Exposed exteriors shall be:
1. High pressure decorative plastic laminate, thermoset to core using catalyzed PVA glue with a minimum average pressure of 90 PSI and average 180 degree F. temperature. High pressure decorative plastic laminate shall meet NEMALD 3-1995, VGS.028 specification standards.
- B. Exposed doors and drawer fronts shall be:
1. High pressure decorative plastic laminate, thermoset to core using catalyzed PVA glue with a minimum average pressure of 90 PSI and average 180 degree F. temperature. High pressure decorative plastic laminate shall meet NEMALD 3-1995, VGS.028 specification standards.
- C. Unless otherwise noted, exposed interiors shall be permanently thermofused melamine laminate, fused to core using a minimum average pressure of 320 PSI and average 320 degree F. temperature. Thermofused melamine laminate shall be tested against the high pressure

1 laminate NEMA LD 3-1995, VGS.028 specification standards (Warranted for life against
2 delamination).

3 D. Semi-exposed and concealed surfaces shall be prementally thermofused melamine laminate or
4 high pressure decorative plastic laminate cabinet liner, 0.020" thickness for balanced
5 construction. Thermofused melamine laminate shall be tested against the high pressure
6 laminate NEMA LD 3-1995, VGS0.28 specification standards
7

8 E. Exposed backs shall be:

9 1. High pressure decorative plastic laminate as indicated in Drawings, thermoset to core
10 using catalyzed PV glue with a minimum average pressure of 90 PSI and average 180
11 degree F. temperature. High pressure decorative plastic laminate shall meet NEMALD 3-
12 1995, VGS.028 specification standards.

13 2.4 EDGINGS

14
15 A. Exposed exterior cabinet front edge shall be banded with a contrasting or matching Flat Edge
16 rigid 1 mm PVC extrusions resistant to chip, crack and high impact for additional durability.
17 Edging shall have a finish to match cabinet faces. Edgebanding shall be applied with hot melt
18 adhesive.

19 B. Door and drawer front edge shall be:

20 1. Edge with a contrasting or matching ridged PVC extrusion, 3MM (1/8") in thickness,
21 resistant to chip, crack and high impact for additional durability. Edging shall have a satin
22 finish. The 3MM thick edging shall be applied with hot melt adhesive and shaped to
23 provide radiused edges and radiused corners. Colors as selected from manufacturers full
24 range.

25 C. Adjustable shelves shall be banded with PVC extrusion, resistant to chip, crack and high impact
26 for additional durability. Edging shall have a satin finish. Edging shall be applied with hot melt
27 adhesive.

28 1. Flat Edge PVC edging shall be applied to four (4) edges of adjustable shelf.

29 D. All other interior components, including drawer, shall be banded with a Flat Edge PVC
30 extrusion, resistant to chip, crack and high impact for additional durability. Edging shall have a
31 satin finish. Edging to be machine applied with hot melt adhesive.
32

33 2.5 COLOR SELECTIONS

34
35 A. Exposed cabinet exteriors shall be:

36 1. High pressure decorative plastic laminate selections as indicated in Drawings.
37

38 B. Exposed doors and drawer fronts shall be:

1 1. High pressure decorative plastic laminate selections as indicated in Drawings.

2
3 C. Semi-exposed and concealed surfaces, including drawer box components, shall be finished in
4 either pearl or grey or frosty white, as selected from casework manufacturer's standard
5 interior color selections.

6
7 D. Exposed interior components, including both faces of shelves and interior face of backs:

8 1. To be pearl or grey or frosty white unless noted otherwise in Drawings.

9 E. Door and drawer front edge shall be:

10 1. 3MM thick PVC in contrasting or matching colors as selected by Architect.

11 F. Exposed front edge of cabinets, including exposed interior edges in Flat Edge PVC in
12 contrasting or matching colors as described in manufacturer's color guide, or commercial
13 match to selected exposed exterior color, based on availability.

14 G. Semi-exposed edges of cabinet components, including drawers, shall be either pearl or grey or
15 frosty white Flat Edge PVC.

16 H. Five knuckle hinges shall be available with brushed chrome finish.

17 I. Solid metal bent wire pulls shall be available in brushed chrome.

18
19 **2.6 HARDWARE**

20
21 A. Hinges shall be:

22 1. Heavy duty five knuckle style, with interlaying leaves capable of 270 degree swing.
23 Hinge shall be constructed of 0.090" minimum thickness steel with brushed chrome
24 epoxy finish, with non-removable pin. Doors less than 48" in height shall have two (2)
25 hinges per door. Doors exceeding 48" in height shall have three (3) hinges per door.

26
27 B. Door Catches: Heavy duty spring loaded nylon roller catch. Catches must be compatible or
28 adjustable to meet ADA compliance of 5 lbs. pull. Each door shall have a single catch mounted
29 at the top. Doors over 48" high shall have a catch at both the top and bottom of the door.

30
31 C. Pulls shall be:

32 1. Impact resistant injection molded bent wire, 4" length, available per color selection in
33 article 2.04.1.

34
35 D. Drawers and slide out shelves shall be suspended with bottom mount, side and bottom
36 attached nylon roller epoxy coated steel slides to ensure quiet, smooth operation, Lateral
37 stability is achieved through a special formed captive profile. Slides shall have 100 lb. load

1 rating, with both in and out drawer stop, 3" self-close feature and a side adjustable cam
2 allowing 3MM side to side alignment.

3
4 1. Provide full extension glides where noted in Drawings.

5
6 E. Drawers specially noted for file shall be full extension and file shall be suspended with bottom
7 mount, side and bottom attached nylon roller epoxy coated steel slides to ensure quiet,
8 smooth operation. Lateral stability is achieved through a special formed captive profile. Slides
9 shall have 150 lb. load, rating, with both in and out drawer stop, and 3" self-close feature. File
10 drawer shall include extruded top mounted molded side rails to accept standard hanging file
11 folders.

12
13 F. Shelf support clips shall be injection molded clear polycarbonate. Support clips shall
14 incorporate integral molded lock tabs to retain shelf from tipping or inadvertently being lifted
15 out. Support clip shall have 5MM diameter double pin engagement into precision bored hole
16 pattern in cabinet vertical members. Clips shall have a molded ridge which provides pressure
17 against edge of shelving to maintain positive pin engagement. Clip shall be designed in such a
18 manner to provide means for permanent attachment to shelf. Static test load must exceed 200
19 lb. per clip.

20
21 G. Locks shall be cylinder type cast with 5 disc tumbler mechanism. Each lock shall be provided
22 with milled brass key and keying as specified below. Locks shall be provided as shown in
23 casework elevations in Drawings. Provide keys to Owner.

24 1. The locks shall be provided by the casework manufacturer and shall be their top of the
25 line.

26 2. Each cabinet in each area or room shall be keyed alike, each area or room shall be keyed
27 differently and with 4 master key for casework locks.

28 29 **2.7 COMPONENT DETAILS**

30 A. Adjustable Shelves: Shelves shall be 1" thick with leading edge of PVC. All shelves shall be of
31 #47 density particleboard core with surfaces as described in this section.

32 1. Adjustable mailbox shelves: 3/4" thick.

33 B. Number of adjustable shelves provided, unless indicated otherwise in the Drawings.

34 1. Base and Tall Cabinets:

35 a. 4 up to 72"

36 b. 1 up to 36"

37 c. 5 up to 84"

38 d. 3 up to 60"

39 2. Wall Hung Cabinets:

- 1 a. 2 up to 24"
- 2 b. 2 up to 30" and 36"
- 3 c. 3 up to 40"
- 4 C. Doors
- 5 1. Solid hinged doors shall be 3/4" thick material of balanced construction with surfaces as
- 6 described in this section. Doors 48" and less in length shall have two (2) hinges per
- 7 door. Doors over 48" in length shall have three (3) hinges per door.
- 8 D. Ends:
- 9 1. Cabinet ends shall be 3/4" thick panels of balanced construction. Exposed ends shall be
- 10 surfaced in accordance with "Exterior Surfaces," this section. Unexposed ends shall be
- 11 surfaced with plastic laminate material to provide stable and balanced panels.
- 12 E. Bottoms and Tops:
- 13 1. Base and tall cabinet bottoms and tops shall be 3/4" thick panels splined doweled of
- 14 balanced construction.
- 15 2. Wall cabinet bottoms and tops shall be full 1" thick panels of spline doweled of balanced
- 16 construction.
- 17 F. Backs:
- 18 1. Fixed cabinets, in applications where the back is unexposed, shall have 3/8" thick back
- 19 panels, with mounting rail concealed behind back. Back panels shall be set 3/4" from
- 20 rear edge of cabinet to allow for hang rails glued to back side and mechanically fastened
- 21 to end panels and scribing to walls. Interior back shall be surfaced as specified in
- 22 "Interior Surfaces," this section, with unexposed back surfaced to provide a balanced
- 23 panel.
- 24 2. Exposed backs of fixed cabinets shall be 3/4" thick panels of balanced construction,
- 25 grooved to receive bottom and top panels, doweled to cabinet ends. Angle clips shall be
- 26 used inside cabinets.
- 27 G. Toe Kicks shall be 3/4" thick material and 4" high separate, water resistant exterior grade
- 28 plywood, no cabinet body components shall extend directly to floor, and set back 3" from
- 29 front edge of cabinet.
- 30
- 31 1. Toe kick shall be mechanically fastened to the cabinet bottom and ends, to become an
- 32 integral part of the cabinet structure.
- 33 H. Drawers:
- 34 1. Fronts, 3/4" thick industrial grade 55 lb. particle board with high pressure plastic
- 35 laminate on exposed faces. Unexposed faces shall be laminated with thermofused
- 36 resin.

- 1 2. Body, 1/2" thick Formica Pearl #934 colored hardboard for sides and back.
2
3 a. Corner joints shall be dadoed to receive front and back, glued and pinned
4 together.
5
6 3. Bottom, 1/4" thick Formica Pearl #934 colored polyester laminated hardboard
7

8 **2.8 CONSTRUCTION**

9

- 10 A. Cabinet parts shall be accurately machined and bored for premium grade quality joinery
11 construction utilizing automatic machinery to ensure consistent sizing of modular
12 components. Interior tops, interior bottoms and internal cabinet components, such as fixed
13 horizontals and rails, shall be joined using 8MM diameter industrial grade hardwood dowels.
14 These parts are glued and clamped under pressure during assembly to secure joints and
15 ensure cabinet squareness.
16
17 B. Cabinet ends shall be bored to receive 8MM industrial grade hardwood, laterally fluted
18 dowels, with chamfered ends. Cabinet ends shall be prepared to receive adjustable shelf
19 hardware at 32MM (approximately 1 1/4") centers. Door hinges and drawer slides shall be
20 machine drilled to maintain vertical and horizontal alignment of components. Inset grooving
21 with chamfer shall be machined 3/4" from edge to accept the 1/4" back. Base and tall units
22 shall have one-piece end panels continuous to floor for added load capabilities.
23
24 C. Tops and bottoms shall be joined to cabinet ends using a minimum of six (6) dowels at each
25 joint for twenty-four (24) inch deep cabinets and a minimum of four (4) dowels at each joint
26 for twelve (12) inch deep cabinets. All dowels to be industrial grade hardwood, laterally fluted,
27 with chamfered ends and 8MM in diameter. Top of base cabinets will be full depth. Inset
28 grooving with chamfer shall be machined 3/4" from rear edge to accept the 1/4" back.
29
30 D. Vertical dividers shall be bored to receive adjustable shelf hardware at 32MM (approximately
31 1 1/4") centers. Dividers shall be joined to tops and bottoms with 8MM diameter hardwood
32 dowels.
33
34 E. Frame rails shall be joined to ends with 8MM diameter hardwood dowels.
35
36 F. Mounting rails shall be fully concealed behind backs. Rails shall be 3/4" thick and fastened to
37 cabinet ends with 8MM hardwood dowels. Wall and tall cabinets shall incorporate two
38 mounting rails. Wall cabinets shall have rails positioned at top and bottom. Tall cabinets shall
39 have rails positioned at top and intermediate locations. Base units shall have one rail
 positioned in the upper back area
40
41 G. Back shall be glued and continuously trapped in top, bottom and ends of cabinets.
42
43 H. Drawer corner joints shall be interlocking dowel pin design. Hardwood dowel pins 8MM
44 diameter shall be inserted into drawer fronts and backs to fit into machined hole patterns in

1 drawer sides. Bottoms shall be trapped into grooves on all four sides, glued and mechanically
2 fastened. Drawers shall be suspended on slides as described in article 2.05.E

3 **2.9 WORK SURFACES**

4 A. Plastic Laminate Countertops shall be surfaces with general purpose horizontal grade laminate
5 meeting requirements NEMA standard LD3-1991. Cores of 46# density particle board. All
6 exposed edges to be covered with same laminate as top surface. Overall top shall be uniform
7 thickness to be 1-1/4" thick minimum.

8 1. Tops shall contain a full radius (bullnose) leading edge and integrally coved backsplash.

9 B. Back and end splashes shall be surfaces with same laminate as top. Core shall be #47 density
10 particle board providing 3/4" finished risers. Backsplashes shall be 4" unless indicated
11 otherwise.

12 1. Fixed cabinet bases when installed in a run of cabinets shall have a continuous top.
13 Continuous tops when requiring splice joints shall be jointed with a combination of
14 splines or dowels for alignment and tight-joint fasteners as required to make a uniform
15 and gapless joint.

16 **2.10 WALL SHELVING, BRACKETS AND STANDARDS**

17 A. Plastic Laminate Faced Shelving: Shop bonded to both sides of particleboard. Sand surfaces to
18 which plastic laminate is to be bonded.

19 1. Shelf Thickness: 3/4 inch.

20 2. Edge Treatment: 1 mm PVC on all 4 sides to match top and bottom face.

21 B. Adjustable Shelf Supports: Heavy duty grade zinc-plated steel standards and shelf brackets.

22 C. Provide in depths and lengths indicated in Drawings.
23
24

25 **PART 3 - EXECUTION**

27 **3.1 CASEWORK INSTALLATION**

28
29 A. Fabricate casework to dimensions, profiles, and details indicated on drawings.
30

31 1. Cut openings in countertops for sinks, unless as indicated on plumbing drawings, or
32 other items required. Cut to size from template furnished by supplier of items.
33

34 B. Assemble units in shop in as large components as practicable to minimize field cutting and
35 jointing.
36

- 1 C. Protect casework during transit, delivery, storage and handling to prevent damage, soiling and
2 deterioration.
- 3 D. Deliver casework, when painting, wet work, grinding and similar operations which could
4 damage, soil or deteriorate casework have been completed. If casework must be stored, store
5 only in areas meeting requirements specified for installation areas.
6
- 7 E. Installation: Installer shall be experienced in this type of work and capable of the highest
8 quality of workmanship. Field applied laminate fascias shall not be permitted unless approved
9 by Owner/Architect.
10
- 11 F. Conditioning: Install casework when required temperature and relative humidity have been
12 stabilized and will be maintained in installation areas.
13
- 14 G. Install plumb, level, true and straight with no distortions. Shim as required using concealed
15 shims. Where casework abuts other finished work, scribe and cut for accurate fit. Before
16 making cutouts, drill pilot holes at corners.
17
- 18 H. Anchor casework securely in place with concealed (when doors and drawers are closed)
19 fasteners, anchored into structural support members of wall construction. Comply with
20 manufacturer's instructions for support of units.
21
- 22 I. Attach countertops securely to base units. Spline and glue joints in countertops; provide
23 concealed mechanical clamping of joint. Provide cutouts for fixtures and appliances as
24 indicated; smooth cut edges and coat with waterproof coating or adhesive.
25
- 26 J. Caulking of tops backsplashes and sidesplashes to be by installer of casework. Care should be
27 taken to remove excess caulk from adjoining surfaces and shall be of approved color.
28
- 29 K. Complete hardware installation and adjust doors and drawers for proper operation.
- 30 1. End cabinets placed against corners where they tee into other cabinets or obstacles
31 shall be provided with chain or bracket stops on the inside of the doors to prevent the
32 door or door handles from hitting the obstruction.
33
- 34 L. Repair or remove and replace defective work as directed upon completion of installation.
35
- 36 M. Adjust all door catches, drawer slides, etc. after installation to provide proper operation.
37
- 38 N. Clean exposed and semi-exposed surface, touch-up as required and remove and refinish
39 damaged or soiled areas.
40
- 41 O. Protection: Protect and maintain conditions necessary to ensure that work will be without
42 damage or deterioration at time of acceptance.
43

- 1 **3.2 CLEANING AND PROTECTING**
2
3 A. Repair or remove and replace defective work as directed on completion of installation.
4
5 B. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas
6 to match original factory finish, as approved by Architect.
7
8 C. Protection: Provide 6-mil plastic or other suitable water-resistant covering over countertop
9 surfaces. Tape to underside of countertop at a minimum of 48 inches o.c. Remove protection
10 at Substantial Completion.
- 11 **END OF SECTION 123200**