

Project Manual

Shawnee Mission School District

2021 Roof Improvements

- Broadmoor Junior High School
- Broken Arrow Elementary School
- Shawnee Mission West High School

Prepared For:
Shawnee Mission School District
SMSD Center for Academic Achievement
8200 W. 71st Street
Shawnee Mission, Kansas 66204

SMSD Bid No: #21-002
HM Project No: 20121
Issue Date: January 29, 2021

Contents:

Introductory Information, Bidding and Contracting Requirements, and Technical Specifications.



SECTION 000101 - PROJECT TEAM DIRECTORY

PART 1 - GENERAL

1.1 PROJECT TEAM INFORMATION

A. PROJECT:

1. Name: SMSD 2021 Roof Improvements
2. Locations:
 - a. Broadmoor Technical Center 6701 W 83rd St, Shawnee Mission, KS 66204
 - b. Broken Arrow Elementary School 5901 Alden St., Shawnee KS 66216
 - c. Shawnee Mission West High School 8800 W 85th St, Overland Park, KS 66212
3. Hollis and Miller Project No: 20121
4. SMSD Bid No: 21-002

B. OWNER:

1. Name: Shawnee Mission School District
2. Address: 8200 W. 71st Street, Shawnee Mission, Kansas 66204
3. Contact: Tyler Clubb
4. Email: tylerclubb@smsd.org
5. Phone: 913.993.6200

C. ARCHITECT:

1. Name: Hollis + Miller Architects, Inc.
2. Address: 1828 Walnut Street, Suite 922, Kansas City, MO 64108.
3. Contact: Justin Durham
4. Email: jdurham@hollisandmiller.com
5. Phone: 816.442.7700 / Fax: 816.599.2545

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 000105 - CERTIFICATIONS PAGE

ARCHITECT

I HEREBY STATE, THAT THE SPECIFICATIONS INTENDED TO BE AUTHENTICATED BY MY SEAL ARE LIMITED TO SPECIFICATION SECTIONS LISTED BELOW:

DIVISION 1 SECTIONS	
DIVISION 3 SECTIONS	
DIVISION 4 SECTIONS	
DIVISION 5 SECTIONS	
DIVISION 6 SECTIONS	
DIVISION 7 SECTIONS	
DIVISION 9 SECTIONS	

I HEREBY DISCLAIM ANY RESPONSIBILITY FOR ALL OTHER SPECIFICATIONS, DRAWINGS ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE ARCHITECTURAL OR ENGINEERING PROJECT OR SURVEY.

KIRK C. HORNER JANUARY 27, 2021

ARCHITECT

DATE



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Project Name: SMSD 2022 Roof Improvements

Project No.: 20122

SMSD Bid No. 21-002

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		Current Issue	Original Issue
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SECTION 001100 - INVITATION TO BID

PART 1 - GENERAL

1.1 PROJECT INFORMATION

- A. Notice to Bidders: Prequalified bidders are hereby invited to submit bids for the SMSD 2021 Roof Improvements project. Bids shall be fully executed, signed and sealed in envelopes as described in this Document according to the Instructions to Bidders and as amended by the Supplementary Instructions to Bidders.
- B. Project Identification:
 - 1. Hollis and Miller Project No: 20121
 - 2. SMSD Bid No: 21-002
 - 3. Project Address:
 - a. Broadmoor Technical Center 6701 W 83rd St, Shawnee Mission, KS 66204
 - b. Broken Arrow Elementary School 5901 Alden St., Shawnee KS 66216
 - c. Overland Park Elementary School 8150 Santa Fe Dr., Overland Park, Kansas 66204
 - d. Shawnee Mission West High School 8800 W 85th St., Overland Park, KS 66212
- C. Owner: **Shawnee Mission School District**
 - 1. Owner's Address: 8200 W. 71st Street , Shawnee Mission, Kansas 66204
 - 2. Owner's Representative: Tyler Clubb
- D. Architect:
 - 1. Architect's Address: Hollis + Miller Architects, Inc., 1828 Walnut Street, Suite 922, Kansas City, MO 64108
 - 2. Architect's Representative: Justin Durham
- E. Project Description: Work of Project is defined by the Contract Documents and consists of the following: RTU Improvements at multiple project locations.
- F. Construction Contract: Bids will be received for the following Work:
 - 1. General Contract (all trades).

1.2 BID SUBMITTAL AND OPENING

- A. Owner will receive sealed bids until the bid time and date at the location indicated below. Owner will consider bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows:
 - 1. Bid Date: February 18, 2021.
 - 2. Bid Time: 2:30 p.m local time.
 - 3. Location: Shawnee Mission Unified School District No. 512, SMSD Center for Academic Achievement, 8200 West 71st Street, Shawnee Mission, Kansas 66204.
- B. Bid Opening: Bids will be thereafter publicly opened and read aloud virtually. Bids received after the bid time listed above will be returned to the Bidder unopened.
 - 1. Zoom Meeting:
 - a. Meeting ID: 931 0359 0566

- b. Passcode: 885967
- C. Bids shall not contain any recapitulation of the work to be done. No oral, telegraphic or telephonic proposals for modifications will be considered.

1.3 BID SECURITY

- A. Bid security shall be submitted with each bid of \$15,000 or greater in the amount of 5 percent of the bid amount, including all additive alternates and made payable to the Owner. No bids may be withdrawn for a period of 60 days after opening of bids.
 - 1. Owner reserves the right to reject any and all bids and to waive informalities and irregularities.
- B. All Bid Securities will be retained by the Owner until an Agreement is signed and a satisfactory Performance and Payment Bond is received by the Owner.

1.4 PREBID CONFERENCE

- A. A Virtual Prebid Conference for all bidders will be held on February 11, 2021 at 3:00 p.m., local time. Prospective bidders are required to attend virtually.
- B. Zoom Meeting:
 - 1. Meeting ID: 984 1661 5236
 - 2. Passcode: 12345

1.5 DOCUMENT PROCUREMENT

- A. Printed Procurement and Contracting Documents: Obtain after January 29, 2021 by contacting Drexel Technologies, (913) 371-4430, www.drexeltech.com.
 - 1. All contractors may purchase printed sets of bidding documents at cost by contacting Drexel Technologies, Inc.
 - 2. Copies of plans and specifications can be seen or purchased for a Non-Refundable fee on-line at www.drexeltech.com in their eDistribution plan room, additional assistance is available at distribution@drexeltech.com. Information regarding this project can be found in the "Private Jobs" link on the website. Contractors desiring the Contract Documents for use in preparing bids may also obtain a set of such documents from Drexel Technologies; 10840 West 86th Street, Lenexa, KS 66214, telephone number is 913-371-4430. Bidding documents will be shipped only if the requesting party assumes responsibility for all related charges. Corporate, certified, or cashier's checks shall be made payable to Drexel Technologies, Inc.
 - a. Only complete sets of documents will be issued.
- B. Online Procurement and Contracting Documents: Obtain access after January 29, 2021 by contacting Drexel Technologies, (913) 371-4430, www.drexeltech.com. Online access will be provided to prime bidders, and to all registered bidders and material suppliers.

- C. Examination of the Bidding Documents: Bidding documents will be on file at Drexel Technologies, Inc. for bidder's review and examination, during normal business hours. Bidding documents may also be viewed on-line at www.drexeltech.com, in accordance with the Instructions to Bidders.

1.6 TIME OF COMPLETION AND LIQUIDATED DAMAGES

- A. Time is of the essence for this Project. Bidders shall begin the Work on receipt of the Notice to Proceed and shall achieve Substantial Completion as set forth: must be completed by the dates indicated below:
1. Start Date: June 15, 2021.
 2. Substantial Completion: July 27, 2021.
 3. Final Completion: August 3, 2021.
- B. Liquidated Damages for substantial completion will be assessed if the general contractor has not achieved adequate progress to permit school district personnel occupancy and use of all noted areas of the building and/or site in accordance with the dates for substantial completion noted above. Damages will accrue and will be based on the unavailability of the building space(s) and/or site for their intended purposes as determined by the school district. Liquidated damages noted are tiered and are based on the intended use of the building and/or site in accordance with the school schedules proposed or established.
1. Final completion of construction related activities including the satisfactory completion of all punchlist corrections shall be completed in accordance with the timeframe noted above for each building and/or area. Liquidated damages associated with final completion shall be assessed based on any actual cost incurred by the school district due to the restricted use of the facility; and for costs that may be associated with inconvenience, lack of efficiency, and/or district personnel costs associated with providing exclusive access for the general contractor to complete punchlist corrections after normal school day operation and/or on weekends or holidays. Similarly, any actual costs incurred by the school district for extended or additional architect/engineer services made necessary as a result of the general contractor's inability to meet final completion will be assessed as liquidated damages to the general contractor.
- C. Bidders shall begin the Work on receipt of the Notice to Proceed and shall complete the Work within the Contract Time. Work is subject to liquidated damages in the amount of **\$1000 per day** if project is delayed beyond the contracted completion date.

1.7 BIDDER'S QUALIFICATIONS

- A. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work. A Performance Bond, a separate Labor and Material Payment Bond,

and Insurance in a form acceptable to Owner will be required of the successful Bidder.

- B. Each Contractor desiring to Bid this work must have a minimum of seven (7) years continuous experience under the current company name and must submit the "Contractor's Qualification Statement", AIA Document A305 along with Bid. This Qualification Statement is available at the Office of the American Institute of Architects (AIA) at 1801 McGee Street, Kansas City, Missouri 64108, telephone: (816) 221-3485. The Architect will review the Qualification Statement with the Owner. The Owner has the right to take such steps as he deems necessary, to determine the ability of the Contractor to perform the work. The Contractor shall furnish to the Owner such additional information and data for this purpose as he may request. The right is reserved to reject any Bid, or Bidder, after an investigation or consideration of the information submitted by such Contractor. Refer to Document 004513.
- C. Owner reserves the right to reject any Contractor and Contractor's Proposal where investigation or consideration of the information submitted by the Contractors does not satisfy the Owner that the Bidder has previous experience in performing similar or comparable work, sufficient business and technical organization, financial resources and plant available to perform the Work.

1.8 SUPPLEMENTAL REQUIREMENTS

- A. The selected Bidder shall, within fifteen (15) days after Award of the Contract, submit the following Post-Bid information:
 - 1. A statement of costs of the major portions of the work included in the Bid and any specific item of cost requested.
 - 2. A designation of the Work to be performed by the Bidder with his own forces.
- B. The selected Bidder shall, submit the following with the Bid:
 - 1. A list of names of the Subcontractors, manufacturers, fabricators, and material suppliers or other persons or organizations proposed for each principal portion of the Work as may be designed by the Architect. The Bidder will be required to establish to the satisfaction of the Owner and Architect the reliability and responsibility of the proposed persons or entities to furnish and perform their Work. Prior to the contract, if the Owner or Architect has a reasonable and substantial objection to any person or entity on such list, and refused in writing to accept such person or entity, the bidder may, at his option, withdraw his Bid without forfeiture of Bid Security. If the Bidder submits an acceptable substitute with any increase in his Bid price to cover the difference in cost occasioned by such substitution, the Owner may, at his discretion, accept the increased Bid price or he may disqualify the Bidder. Subcontractors and other persons and entities proposed by the bidders and accepted by the Owner and Architect must be used on the work for which they were proposed and accepted and shall not be changed except with the written approval of the Owner and the Architect.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF DOCUMENT 01100

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SECTION 002100 - INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.1 DOCUMENTS

- A. A copy of the American Institute of Architects Document A701, Instructions to Bidders 1997 Edition, is bound hereinafter as amended by Document 002200 – Supplementary Instruction to Bidders. This Document is included for information only and may not be duplicated.
- B. Additional copies of the Instructions to Bidders may be obtained, at cost, from the Local Chapter, of the American Institute of Architects, at the address listed below:
 - 1. AIA Springfield
 - a. Address: 1717 E. Republic Rd, Ste. A, Springfield, Missouri 65804.
 - b. Telephone: (417) 886-8606.
 - c. Website: www.aiaspringfield.org
 - 2. AIA Kansas City
 - a. Address: 1801 McGee, Suite 100, Kansas City, Missouri 64108
 - b. Telephone: (816) 221-3485.
 - c. Website: www.aiakc.org
 - 3. AIA Mid Missouri
 - a. Address: P. O. Box 1622, Columbia, Missouri 65205
 - b. Website: www.aiamid-missouri.com
 - 4. AIA St. Louis
 - a. Address: 911 Washington Street, #100, Louis, Missouri 63101
 - b. Telephone: (314) 621-3484
 - c. Website: www.aia-stlouis.org
 - 5. AIA Missouri
 - a. Address: 204 East High Street, Jefferson City, Missouri 65101
 - b. Telephone: (573) 635-8555
 - c. Website: www.aiamo.org
 - 6. AIA Kansas
 - a. Address: 700 SW Jackson, Suite 209, Topeka, KS 66603
 - b. Telephone: (785) 357-5308
 - c. Website: www.aiaks.org
- C. Additional copies of the Instructions to Bidders may also be obtained, at cost, from the website of the American Institute of Architects, at the internet address listed below:
 - 1. Website: <http://www.aia.org/contractdocs/index.htm>

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 004200 - BID PROPOSAL - BROADMOOR TECHNICAL CENTER

PART 1- GENERAL

1.1 DECLARATION OF BID PROPOSAL

- A. Proposal of _____ (hereinafter called "Bidder"), organized and existing under the laws of the State of _____, doing business as (a corporation) / (a partnership) / (an individual) (circle one) to the Board of Education, Shawnee Mission School District of Shawnee Mission, Kansas (hereinafter called "Owner").

1.2 BID PROPOSAL

- A. In compliance with your Advertisement for Bids, Bidder hereby proposes to perform all work for the SMSD 2021 Roof Improvements in strict accordance with the Contract Documents, within the time set forth herein and at the prices stated below. Bidder should propose on individual base bids for specific project locations as noted below. Owner will award contract per individual base bid.
- B. The Bidder hereby understands that time is of the essence on this project and is aware of the following critical completion dates:

	SUBSTANTIAL COMPLETION	FINAL COMPLETION
ALL work for Broadmoor Technical Center completed	27 July 2021	
ALL Punch List work completed		03 August 2021

- C. The Bidder hereby understands that Liquidated Damages for the delay in completions shall be **\$1000.00** per calendar day.
- D. By submission of this Bid, each Bidder certifies, and in the case of a joint Bid each party thereto certifies as to its own organization, that this Bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this Bid with any other Bidder or with any competitor.
- E. Bidder acknowledges receipt of the following ADDENDA: _____.
- F. The undersigned, having familiarized itself with local conditions affecting the cost of the work at the place where the work is to be done and with all Bidding Documents, including the Instructions to Bidders, Plans and Specifications, General and Supplementary Conditions, the Standard Form of Agreement and the other Contract Documents, and having examined the location of the proposed work and considered the availability of labor and materials, hereby proposes and agrees to perform everything required to be performed, and to provide and furnish any and all labor, materials, supervision, necessary tools, equipment, and all utility and transportation service necessary to perform and complete in a workmanlike and timely manner all of the work required for the project, all in strict conformance with the Instructions to Bidders and other Contract Documents (including Addenda noted above, the receipt of which is hereby acknowledged), for the lump sums hereinafter specified.

1.3 BASE BID **BROADMOOR TECHNICAL CENTER:**

- A. Bidder agrees to perform all the work described in the Contract Documents for SMSD 2021 Roof Improvements for **Broadmoor Technical Center** for the lump sum total of:
- B. _____ Dollars and _____ cents.
- C. \$ _____.

1.4 AMOUNTS FOR ALLOWANCES - CONTINGENCY:

- A. Bidder agrees to include in the Base Bid amount the following contingency allowances, as called for by the above documents.

Allowance 01: Broadmoor Technical Center	\$20,000.00
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1.5 AMOUNTS FOR UNIT PRICES:

- A. Bidder propose to base adjustments in the Contract Sum, if ordered by Architect during the Contract Time, on the unit prices listed below. These prices constitute full compensation or credit for the complete provision and installation for each item listed based solely on Work in place. The Unit Prices as stated include all necessary appurtenances and connections required to complete the Work in place, insurance, overhead, profit, and superintendence.

Unit Price 01: Metal Deck Replacement	\$ _____ / (SF)
Unit Price 02: Tectum Deck Replacement	\$ _____ / (SF)
Unit Price 03: LWIC Deck Replacement	\$ _____ / (SF)

1.6 COMPLETION OF THE WORK

- A. If we are notified of the acceptance of the Base Bid of this Proposal within **ninety (90) days** after the above date, we agree to execute a Contract for the above Work, for the above stated compensation in the form of the Standard Agreement Between Owner and Contractor, AIA Document A101-2017, of the American Institute of Architects, as modified by Owner.

1.7 TAX EXEMPTION:

- A. This project shall be considered Tax Exempt. Federal, State and local taxes shall not be included with the Bid. Subsequent to the award of the construction contract, the School District will obtain from the State of Kansas , a sales tax exemption certificate number. The sales tax exemption certificate will permit the Contractor to purchase materials for incorporation into this project without paying sales tax, provided that the Contractor furnishes the certificate number to the material supplier.

1.8 CHANGES IN THE WORK:

- A. Changes in the Work shall be as established in the Contract Documents. The Undersigned agrees that his net fees shall set forth below, include Overhead, Profit, and General Requirements (including but not limited to; insurance and bonds.) The following fees shall be used for Lump Sum pricing and actual cost pricing of additions

and deletions to that work included in the Bid, namely:

	Profit & Overhead	Not To Exceed
To Contractor for work performed by his/her own forces.	%	10%
To Contractor for work performed by other than his/her own forces.	%	5%
To Subcontractor for work performed by his/her own forces.	%	10%
To Subcontractor for work performed other than his/her own forces.	%	5%

1.9 SUBCONTRACTORS

- A. The bidder hereby certifies that the following subcontractors will be used in the performance of the work on each or both projects. ALL General Contractors MUST furnish a copy of their proposed Sub-Contractor List by 4:00 PM CDT on bid day to be considered as valid. If not submitted at the time of Bidding, the list may be delivered, emailed Justin Durham (jdurham@hollisandmiller.com) to the A/E offices, but must be received by no later than the time listed above.

1.10 BID SECURITY

- A. Bidders whose Bid includes both labor and materials and whose Base Bid amount is \$5,000.00 or greater, agrees to and has attached hereto a Bid Bond for the amount of five percent (5%) of the amount of the Bid submitted.
- B. This Bid Security is to be left in escrow with the Architect. If the Undersigned defaults in executing the Agreement within three (3) days of written notification of the award of the Contract to him, or in furnishing the Performance Bond within fourteen (14) days thereafter, the Bid Security will become the property of the Owner and will be delivered to him by the Architect. If the Undersigned executes and delivers the Agreement and Bond within the time specified, or if the Base Bid of this Proposal is not accepted within sixty (60) days of the time set for submission of Bids, the Bid Security shall be returned to the Contractor upon delivery of a receipt therefore.
- C. If the Undersigned defaults in executing and delivering the above-named Agreement and the required performance Bond, the Owner would sustain liquidated damages for five percent (5%) of the amount of the Bid submitted, the measure of which is the amount of the accompanying Bid Bond, Certified Check, or Cashier's Check, payable to "Shawnee Mission School District".

1.11 ACKNOWLEDGEMENTS

- A. The undersigned further acknowledges that the he has familiarized himself with local conditions affecting the cost of the work at each place where the work is to be done.
- B. In submitting this bid, the undersigned agrees:
1. To furnish all material, labor, tools, expendable equipment, and all utility and transportation services necessary to perform and complete, in a workmanlike manner, all the work required in accord with the bid documents.

2. To hold this bid open for **ninety (90) days** after the receipt of bids and to accept the provisions of the instructions to bidders regarding disposition of bid security.
 3. To commence the work upon receipt of Notice to Proceed, and to substantially complete the work not later than the dates set forth on the Invitation to Bid. (see specifications)
 4. To accept the assessment of liquidated damages as noted for each calendar day following the substantial completion dates listed above. (see specifications)
 5. All materials to be non-proprietary, as specified, or approved equal as noted in specifications.
- C. In submitting this bid, the undersigned further agrees:
1. In the execution of the Agreement, no person shall on the grounds of race, color, religion, sex, disability, or national origin be excluded from full employment rights, be denied the benefits of, or otherwise subject to discrimination under any program, service, or activity under the provisions of any and all applicable Federal and state laws against discrimination. Bidder shall furnish all information and reports required by the rules, regulations, and order of the Secretary of Labor for purposes of investigating to determine compliance with such laws.
 2. Bidder shall observe the provisions of the Kansas Acts Against Discrimination and shall not discriminate against any person in the performance of work under the Agreement because of race, religion, color, sex, physical handicap unrelated to such person's ability to engage in the particular work, national origin or ancestry.
 3. In all solicitations or advertisements for employees, Bidder shall include the phrase, "equal opportunity employer", or similar phrase approved by the Owner.
 4. If bidder fails to comply with the provisions of K.S.A. 441031, bidder shall be deemed to have breached the Agreement and it may be canceled, terminated, or suspended in whole or in part, by Owner.
 5. If bidder is found guilty of a violation of the Kansas Acts Against Discrimination under a decision or order of Owner that has become final, bidder shall be deemed to have breached the present Agreement and it may be canceled, terminated, or suspended in whole or in part, by Owner.
 6. Bidder shall include the provisions of paragraphs A through E above in every subcontract or purchase order so that such provisions shall be binding upon all subcontractors and vendors
- D. In submitting this bid, it is understood that the right to reject any and all bids and to waive irregularities in this bidding has been reserved by the Owner.

1.12 SIGNATURES

A. Signature: _____

B. Printed Name: _____

C. Title: _____

- D. Company Name: _____
- E. Address: _____
- F. Phone: _____
- G. Email: _____
- H. Seal: - (if BID is by a corporation)

SUBCONTRACTOR LIST

[illegible]

END OF SECTION

SECTION 004200 - BID PROPOSAL - BROKEN ARROW ELEMENTARY SCHOOL

PART 1- GENERAL

1.1 DECLARATION OF BID PROPOSAL

- A. Proposal of _____ (hereinafter called "Bidder"), organized and existing under the laws of the State of _____, doing business as (a corporation) / (a partnership) / (an individual) (circle one) to the Board of Education, Shawnee Mission School District of Shawnee Mission, Kansas (hereinafter called "Owner").

1.2 BID PROPOSAL

- A. In compliance with your Advertisement for Bids, Bidder hereby proposes to perform all work for the SMSD 2021 Roof Improvements in strict accordance with the Contract Documents, within the time set forth herein and at the prices stated below. Bidder should propose on individual base bids for specific project locations as noted below. Owner will award contract per individual base bid.
- B. The Bidder hereby understands that time is of the essence on this project and is aware of the following critical completion dates:

	SUBSTANTIAL COMPLETION	FINAL COMPLETION
ALL work for Broken Arrow Elementary School completed	27 July 2021	
ALL Punch List work completed		03 August 2021

- C. The Bidder hereby understands that Liquidated Damages for the delay in completions shall be **\$1000.00** per calendar day.
- D. By submission of this Bid, each Bidder certifies, and in the case of a joint Bid each party thereto certifies as to its own organization, that this Bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this Bid with any other Bidder or with any competitor.
- E. Bidder acknowledges receipt of the following ADDENDA: _____.
- F. The undersigned, having familiarized itself with local conditions affecting the cost of the work at the place where the work is to be done and with all Bidding Documents, including the Instructions to Bidders, Plans and Specifications, General and Supplementary Conditions, the Standard Form of Agreement and the other Contract Documents, and having examined the location of the proposed work and considered the availability of labor and materials, hereby proposes and agrees to perform everything required to be performed, and to provide and furnish any and all labor, materials, supervision, necessary tools, equipment, and all utility and transportation service necessary to perform and complete in a workmanlike and timely manner all of the work required for the project, all in strict conformance with the Instructions to Bidders and other Contract Documents (including Addenda noted above, the receipt of which is hereby acknowledged), for the lump sums hereinafter specified.

1.3 BASE BID **BROKEN ARROW ELEMENTARY SCHOOL:**

- A. Bidder agrees to perform all the work described in the Contract Documents for SMSD 2021 Roof Improvements for **Broken Arrow Elementary School** for the lump sum total of:
- B. _____ Dollars and _____ cents.
- C. \$ _____.

1.4 AMOUNTS FOR ALLOWANCES - CONTINGENCY:

- A. Bidder agrees to include in the Base Bid amount the following contingency allowances, as called for by the above documents.

Allowance 02: Broken Arrow Elementary School	\$20,000.00
---	-------------

1.5 AMOUNTS FOR UNIT PRICES:

- A. Bidder propose to base adjustments in the Contract Sum, if ordered by Architect during the Contract Time, on the unit prices listed below. These prices constitute full compensation or credit for the complete provision and installation for each item listed based solely on Work in place. The Unit Prices as stated include all necessary appurtenances and connections required to complete the Work in place, insurance, overhead, profit, and superintendence.

Unit Price 01: Metal Deck Replacement	\$ _____ / (SF)
Unit Price 02: Tectum Deck Replacement	\$ _____ / (SF)
Unit Price 03: LWIC Deck Replacement	\$ _____ / (SF)

1.6 COMPLETION OF THE WORK

- A. If we are notified of the acceptance of the Base Bid of this Proposal within **ninety (90) days** after the above date, we agree to execute a Contract for the above Work, for the above stated compensation in the form of the Standard Agreement Between Owner and Contractor, AIA Document A101-2017, of the American Institute of Architects, as modified by Owner.

1.7 TAX EXEMPTION:

- A. This project shall be considered Tax Exempt. Federal, State and local taxes shall not be included with the Bid. Subsequent to the award of the construction contract, the School District will obtain from the State of Kansas , a sales tax exemption certificate number. The sales tax exemption certificate will permit the Contractor to purchase materials for incorporation into this project without paying sales tax, provided that the Contractor furnishes the certificate number to the material supplier.

1.8 CHANGES IN THE WORK:

- A. Changes in the Work shall be as established in the Contract Documents. The Undersigned agrees that his net fees shall set forth below, include Overhead, Profit, and General Requirements (including but not limited to; insurance and bonds.) The following fees shall be used for Lump Sum pricing and actual cost pricing of additions

and deletions to that work included in the Bid, namely:

	Profit & Overhead	Not To Exceed
To Contractor for work performed by his/her own forces.	%	10%
To Contractor for work performed by other than his/her own forces.	%	5%
To Subcontractor for work performed by his/her own forces.	%	10%
To Subcontractor for work performed other than his/her own forces.	%	5%

1.9 SUBCONTRACTORS

- A. The bidder hereby certifies that the following subcontractors will be used in the performance of the work on each or both projects. ALL General Contractors MUST furnish a copy of their proposed Sub-Contractor List by 4:00 PM CDT on bid day to be considered as valid. If not submitted at the time of Bidding, the list may be delivered, emailed Justin Durham (jdurham@hollisandmiller.com) to the A/E offices, but must be received by no later than the time listed above.

1.10 BID SECURITY

- A. Bidders whose Bid includes both labor and materials and whose Base Bid amount is \$5,000.00 or greater, agrees to and has attached hereto a Bid Bond for the amount of five percent (5%) of the amount of the Bid submitted.
- B. This Bid Security is to be left in escrow with the Architect. If the Undersigned defaults in executing the Agreement within three (3) days of written notification of the award of the Contract to him, or in furnishing the Performance Bond within fourteen (14) days thereafter, the Bid Security will become the property of the Owner and will be delivered to him by the Architect. If the Undersigned executes and delivers the Agreement and Bond within the time specified, or if the Base Bid of this Proposal is not accepted within sixty (60) days of the time set for submission of Bids, the Bid Security shall be returned to the Contractor upon delivery of a receipt therefore.
- C. If the Undersigned defaults in executing and delivering the above-named Agreement and the required performance Bond, the Owner would sustain liquidated damages for five percent (5%) of the amount of the Bid submitted, the measure of which is the amount of the accompanying Bid Bond, Certified Check, or Cashier's Check, payable to "Shawnee Mission School District".

1.11 ACKNOWLEDGEMENTS

- A. The undersigned further acknowledges that the he has familiarized himself with local conditions affecting the cost of the work at each place where the work is to be done.
- B. In submitting this bid, the undersigned agrees:
1. To furnish all material, labor, tools, expendable equipment, and all utility and transportation services necessary to perform and complete, in a workmanlike manner, all the work required in accord with the bid documents.

2. To hold this bid open for **ninety (90) days** after the receipt of bids and to accept the provisions of the instructions to bidders regarding disposition of bid security.
 3. To commence the work upon receipt of Notice to Proceed, and to substantially complete the work not later than the dates set forth on the Invitation to Bid. (see specifications)
 4. To accept the assessment of liquidated damages as noted for each calendar day following the substantial completion dates listed above. (see specifications)
 5. All materials to be non-proprietary, as specified, or approved equal as noted in specifications.
- C. In submitting this bid, the undersigned further agrees:
1. In the execution of the Agreement, no person shall on the grounds of race, color, religion, sex, disability, or national origin be excluded from full employment rights, be denied the benefits of, or otherwise subject to discrimination under any program, service, or activity under the provisions of any and all applicable Federal and state laws against discrimination. Bidder shall furnish all information and reports required by the rules, regulations, and order of the Secretary of Labor for purposes of investigating to determine compliance with such laws.
 2. Bidder shall observe the provisions of the Kansas Acts Against Discrimination and shall not discriminate against any person in the performance of work under the Agreement because of race, religion, color, sex, physical handicap unrelated to such person's ability to engage in the particular work, national origin or ancestry.
 3. In all solicitations or advertisements for employees, Bidder shall include the phrase, "equal opportunity employer", or similar phrase approved by the Owner.
 4. If bidder fails to comply with the provisions of K.S.A. 441031, bidder shall be deemed to have breached the Agreement and it may be canceled, terminated, or suspended in whole or in part, by Owner.
 5. If bidder is found guilty of a violation of the Kansas Acts Against Discrimination under a decision or order of Owner that has become final, bidder shall be deemed to have breached the present Agreement and it may be canceled, terminated, or suspended in whole or in part, by Owner.
 6. Bidder shall include the provisions of paragraphs A through E above in every subcontract or purchase order so that such provisions shall be binding upon all subcontractors and vendors
- D. In submitting this bid, it is understood that the right to reject any and all bids and to waive irregularities in this bidding has been reserved by the Owner.

1.12 SIGNATURES

- A. Signature: _____
- B. Printed Name: _____
- C. Title: _____

- D. Company Name: _____
- E. Address: _____
- F. Phone: _____
- G. Email: _____
- H. Seal: - (if BID is by a corporation)

SUBCONTRACTOR LIST

[illegible]

END OF SECTION

SECTION 004200 - BID PROPOSAL - SHAWNEE MISSION WEST HIGH SCHOOL

PART 1- GENERAL

1.1 DECLARATION OF BID PROPOSAL

- A. Proposal of _____ (hereinafter called "Bidder"), organized and existing under the laws of the State of _____, doing business as (a corporation) / (a partnership) / (an individual) (circle one) to the Board of Education, Shawnee Mission School District of Shawnee Mission, Kansas (hereinafter called "Owner").

1.2 BID PROPOSAL

- A. In compliance with your Advertisement for Bids, Bidder hereby proposes to perform all work for the SMSD 2021 Roof Improvements in strict accordance with the Contract Documents, within the time set forth herein and at the prices stated below. Bidder should propose on individual base bids for specific project locations as noted below. Owner will award contract per individual base bid.
- B. The Bidder hereby understands that time is of the essence on this project and is aware of the following critical completion dates:

	SUBSTANTIAL COMPLETION	FINAL COMPLETION
ALL work for Shawnee Mission West High School completed	27 July 2021	
ALL Punch List work completed		03 August 2021

- C. The Bidder hereby understands that Liquidated Damages for the delay in completions shall be **\$1000.00** per calendar day.
- D. By submission of this Bid, each Bidder certifies, and in the case of a joint Bid each party thereto certifies as to its own organization, that this Bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this Bid with any other Bidder or with any competitor.
- E. Bidder acknowledges receipt of the following ADDENDA: _____.
- F. The undersigned, having familiarized itself with local conditions affecting the cost of the work at the place where the work is to be done and with all Bidding Documents, including the Instructions to Bidders, Plans and Specifications, General and Supplementary Conditions, the Standard Form of Agreement and the other Contract Documents, and having examined the location of the proposed work and considered the availability of labor and materials, hereby proposes and agrees to perform everything required to be performed, and to provide and furnish any and all labor, materials, supervision, necessary tools, equipment, and all utility and transportation service necessary to perform and complete in a workmanlike and timely manner all of the work required for the project, all in strict conformance with the Instructions to Bidders and other Contract Documents (including Addenda noted above, the receipt of which is hereby acknowledged), for the lump sums hereinafter specified.

1.3 BASE BID **SHAWNEE MISSION WEST HIGH SCHOOL:**

- A. Bidder agrees to perform all the work described in the Contract Documents for SMSD 2021 Roof Improvements for **Shawnee Mission West High School** for the lump sum total of:
- B. _____ Dollars and _____ cents.
- C. \$ _____.

1.4 AMOUNTS FOR ALLOWANCES - CONTINGENCY:

- A. Bidder agrees to include in the Base Bid amount the following contingency allowances, as called for by the above documents.

Allowance 03: Shawnee Mission West High School	\$20,000.00
---	-------------

1.5 AMOUNTS FOR UNIT PRICES:

- A. Bidder propose to base adjustments in the Contract Sum, if ordered by Architect during the Contract Time, on the unit prices listed below. These prices constitute full compensation or credit for the complete provision and installation for each item listed based solely on Work in place. The Unit Prices as stated include all necessary appurtenances and connections required to complete the Work in place, insurance, overhead, profit, and superintendence.

Unit Price 01: Metal Deck Replacement	\$ _____ / (SF)
Unit Price 02: Tectum Deck Replacement	\$ _____ / (SF)
Unit Price 03: LWIC Deck Replacement	\$ _____ / (SF)

1.6 COMPLETION OF THE WORK

- A. If we are notified of the acceptance of the Base Bid of this Proposal within **ninety (90) days** after the above date, we agree to execute a Contract for the above Work, for the above stated compensation in the form of the Standard Agreement Between Owner and Contractor, AIA Document A101-2017, of the American Institute of Architects, as modified by Owner.

1.7 TAX EXEMPTION:

- A. This project shall be considered Tax Exempt. Federal, State and local taxes shall not be included with the Bid. Subsequent to the award of the construction contract, the School District will obtain from the State of Kansas, a sales tax exemption certificate number. The sales tax exemption certificate will permit the Contractor to purchase materials for incorporation into this project without paying sales tax, provided that the Contractor furnishes the certificate number to the material supplier.

1.8 CHANGES IN THE WORK:

- A. Changes in the Work shall be as established in the Contract Documents. The Undersigned agrees that his net fees shall set forth below, include Overhead, Profit, and General Requirements (including but not limited to; insurance and bonds.) The following fees shall be used for Lump Sum pricing and actual cost pricing of additions

and deletions to that work included in the Bid, namely:

	Profit & Overhead	Not To Exceed
To Contractor for work performed by his/her own forces.	%	10%
To Contractor for work performed by other than his/her own forces.	%	5%
To Subcontractor for work performed by his/her own forces.	%	10%
To Subcontractor for work performed other than his/her own forces.	%	5%

1.9 SUBCONTRACTORS

- A. The bidder hereby certifies that the following subcontractors will be used in the performance of the work on each or both projects. ALL General Contractors MUST furnish a copy of their proposed Sub-Contractor List by 4:00 PM CDT on bid day to be considered as valid. If not submitted at the time of Bidding, the list may be delivered, emailed Justin Durham (jdurham@hollisandmiller.com) to the A/E offices, but must be received by no later than the time listed above.

1.10 BID SECURITY

- A. Bidders whose Bid includes both labor and materials and whose Base Bid amount is \$5,000.00 or greater, agrees to and has attached hereto a Bid Bond for the amount of five percent (5%) of the amount of the Bid submitted.
- B. This Bid Security is to be left in escrow with the Architect. If the Undersigned defaults in executing the Agreement within three (3) days of written notification of the award of the Contract to him, or in furnishing the Performance Bond within fourteen (14) days thereafter, the Bid Security will become the property of the Owner and will be delivered to him by the Architect. If the Undersigned executes and delivers the Agreement and Bond within the time specified, or if the Base Bid of this Proposal is not accepted within sixty (60) days of the time set for submission of Bids, the Bid Security shall be returned to the Contractor upon delivery of a receipt therefore.
- C. If the Undersigned defaults in executing and delivering the above-named Agreement and the required performance Bond, the Owner would sustain liquidated damages for five percent (5%) of the amount of the Bid submitted, the measure of which is the amount of the accompanying Bid Bond, Certified Check, or Cashier's Check, payable to "Shawnee Mission School District".

1.11 ACKNOWLEDGEMENTS

- A. The undersigned further acknowledges that the he has familiarized himself with local conditions affecting the cost of the work at each place where the work is to be done.
- B. In submitting this bid, the undersigned agrees:
1. To furnish all material, labor, tools, expendable equipment, and all utility and transportation services necessary to perform and complete, in a workmanlike manner, all the work required in accord with the bid documents.

2. To hold this bid open for **ninety (90) days** after the receipt of bids and to accept the provisions of the instructions to bidders regarding disposition of bid security.
 3. To commence the work upon receipt of Notice to Proceed, and to substantially complete the work not later than the dates set forth on the Invitation to Bid. (see specifications)
 4. To accept the assessment of liquidated damages as noted for each calendar day following the substantial completion dates listed above. (see specifications)
 5. All materials to be non-proprietary, as specified, or approved equal as noted in specifications.
- C. In submitting this bid, the undersigned further agrees:
1. In the execution of the Agreement, no person shall on the grounds of race, color, religion, sex, disability, or national origin be excluded from full employment rights, be denied the benefits of, or otherwise subject to discrimination under any program, service, or activity under the provisions of any and all applicable Federal and state laws against discrimination. Bidder shall furnish all information and reports required by the rules, regulations, and order of the Secretary of Labor for purposes of investigating to determine compliance with such laws.
 2. Bidder shall observe the provisions of the Kansas Acts Against Discrimination and shall not discriminate against any person in the performance of work under the Agreement because of race, religion, color, sex, physical handicap unrelated to such person's ability to engage in the particular work, national origin or ancestry.
 3. In all solicitations or advertisements for employees, Bidder shall include the phrase, "equal opportunity employer", or similar phrase approved by the Owner.
 4. If bidder fails to comply with the provisions of K.S.A. 441031, bidder shall be deemed to have breached the Agreement and it may be canceled, terminated, or suspended in whole or in part, by Owner.
 5. If bidder is found guilty of a violation of the Kansas Acts Against Discrimination under a decision or order of Owner that has become final, bidder shall be deemed to have breached the present Agreement and it may be canceled, terminated, or suspended in whole or in part, by Owner.
 6. Bidder shall include the provisions of paragraphs A through E above in every subcontract or purchase order so that such provisions shall be binding upon all subcontractors and vendors
- D. In submitting this bid, it is understood that the right to reject any and all bids and to waive irregularities in this bidding has been reserved by the Owner.

1.12 SIGNATURES

- A. Signature: _____
- B. Printed Name: _____
- C. Title: _____

- D. Company Name: _____
- E. Address: _____
- F. Phone: _____
- G. Email: _____
- H. Seal: - (if BID is by a corporation)

SUBCONTRACTOR LIST

[illegible]

END OF SECTION

SECTION 004200 - BID PROPOSAL - COMBO

PART 1- GENERAL

1.1 DECLARATION OF BID PROPOSAL

- A. Proposal of _____ (hereinafter called "Bidder"), organized and existing under the laws of the State of _____, doing business as (a corporation) / (a partnership) / (an individual) (circle one) to the Board of Education, Shawnee Mission School District of Shawnee Mission, Kansas (hereinafter called "Owner").

1.2 BID PROPOSAL

- A. In compliance with your Advertisement for Bids, Bidder hereby proposes to perform all work for the SMSD 2021 Roof Improvements in strict accordance with the Contract Documents, within the time set forth herein and at the prices stated below. Bidder should propose on individual base bids for specific project locations as noted below. Owner will award contract per individual base bid.
- B. The Bidder hereby understands that time is of the essence on this project and is aware of the following critical completion dates:

	SUBSTANTIAL COMPLETION	FINAL COMPLETION
Broadmoor Technical Center	27 July 2021	03 August 2021
Broken Arrow Elementary School	27 July 2021	03 August 2021
Shawnee Mission West High School	27 July 2021	03 August 2021

- C. The Bidder hereby understands that Liquidated Damages for the delay in completions shall be **\$1000.00** per calendar day.
- D. By submission of this Bid, each Bidder certifies, and in the case of a joint Bid each party thereto certifies as to its own organization, that this Bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this Bid with any other Bidder or with any competitor.
- E. Bidder acknowledges receipt of the following ADDENDA: _____.
- F. The undersigned, having familiarized itself with local conditions affecting the cost of the work at the place where the work is to be done and with all Bidding Documents, including the Instructions to Bidders, Plans and Specifications, General and Supplementary Conditions, the Standard Form of Agreement and the other Contract Documents, and having examined the location of the proposed work and considered the availability of labor and materials, hereby proposes and agrees to perform everything required to be performed, and to provide and furnish any and all labor, materials, supervision, necessary tools, equipment, and all utility and transportation service necessary to perform and complete in a workmanlike and timely manner all of the work required for the project, all in strict conformance with the Instructions to Bidders and other Contract Documents (including Addenda noted above, the receipt of which is hereby acknowledged), for the lump sums hereinafter specified.

1.3 VOLUNTARY COMBINATION BID: **2021 ROOF IMPROVEMENTS - ALL PROJECTS:**

- A. Bidder agrees to perform all the work described in the Contract Documents for **Broadmoor Technical Center, Broken Arrow Elementary School, and Shawnee Mission West High School** for the SMSD 2021 Roof Improvements for the lump sum total of:

B. _____ Dollars and _____ cents.

C. \$ _____.

1.4 AMOUNTS FOR ALLOWANCES - CONTINGENCY:

- A. Bidder agrees to include in the Base Bid amount the following contingency allowances, as called for by the above documents.

Allowance 01: Broadmoor Technical Center	\$20,000.00
Allowance 02: Broken Arrow Elementary School	\$20,000.00
Allowance 03: Shawnee Mission West High School	\$20,000.00

1.5 AMOUNTS FOR UNIT PRICES:

- A. Bidder propose to base adjustments in the Contract Sum, if ordered by Architect during the Contract Time, on the unit prices listed below. These prices constitute full compensation or credit for the complete provision and installation for each item listed based solely on Work in place. The Unit Prices as stated include all necessary appurtenances and connections required to complete the Work in place, insurance, overhead, profit, and superintendence.

Unit Price 01: Metal Deck Replacement	\$ _____ / (SF)
Unit Price 02: Tectum Deck Replacement	\$ _____ / (SF)
Unit Price 03: LWIC Deck Replacement	\$ _____ / (SF)

1.6 COMPLETION OF THE WORK

- A. If we are notified of the acceptance of the Base Bid of this Proposal within **ninety (90) days** after the above date, we agree to execute a Contract for the above Work, for the above stated compensation in the form of the Standard Agreement Between Owner and Contractor, AIA Document A101-2017, of the American Institute of Architects, as modified by Owner.

1.7 TAX EXEMPTION:

- A. This project shall be considered Tax Exempt. Federal, State and local taxes shall not be included with the Bid. Subsequent to the award of the construction contract, the School District will obtain from the State of Kansas, a sales tax exemption certificate number. The sales tax exemption certificate will permit the Contractor to purchase materials for incorporation into this project without paying sales tax, provided that the Contractor furnishes the certificate number to the material supplier.

1.8 CHANGES IN THE WORK:

- A. Changes in the Work shall be as established in the Contract Documents. The Undersigned agrees that his net fees shall set forth below, include Overhead, Profit, and General Requirements (including but not limited to; insurance and bonds.) The following fees shall be used for Lump Sum pricing and actual cost pricing of additions and deletions to that work included in the Bid, namely:

	Profit & Overhead	Not To Exceed
To Contractor for work performed by his/her own forces.	%	10%
To Contractor for work performed by other than his/her own forces.	%	5%
To Subcontractor for work performed by his/her own forces.	%	10%
To Subcontractor for work performed other than his/her own forces.	%	5%

1.9 SUBCONTRACTORS

- A. The bidder hereby certifies that the following subcontractors will be used in the performance of the work on each or both projects. ALL General Contractors MUST furnish a copy of their proposed Sub-Contractor List by 4:00 PM CDT on bid day to be considered as valid. If not submitted at the time of Bidding, the list may be delivered, emailed Justin Durham (jdurham@hollisandmiller.com) to the A/E offices, but must be received by no later than the time listed above.

1.10 BID SECURITY

- A. Bidders whose Bid includes both labor and materials and whose Base Bid amount is \$5,000.00 or greater, agrees to and has attached hereto a Bid Bond for the amount of five percent (5%) of the amount of the Bid submitted.
- B. This Bid Security is to be left in escrow with the Architect. If the Undersigned defaults in executing the Agreement within three (3) days of written notification of the award of the Contract to him, or in furnishing the Performance Bond within fourteen (14) days thereafter, the Bid Security will become the property of the Owner and will be delivered to him by the Architect. If the Undersigned executes and delivers the Agreement and Bond within the time specified, or if the Base Bid of this Proposal is not accepted within sixty (60) days of the time set for submission of Bids, the Bid Security shall be returned to the Contractor upon delivery of a receipt therefore.
- C. If the Undersigned defaults in executing and delivering the above-named Agreement and the required performance Bond, the Owner would sustain liquidated damages for five percent (5%) of the amount of the Bid submitted, the measure of which is the amount of the accompanying Bid Bond, Certified Check, or Cashier's Check, payable to "Shawnee Mission School District".

1.11 ACKNOWLEDGEMENTS

- A. The undersigned further acknowledges that the he has familiarized himself with local conditions affecting the cost of the work at each place where the work is to be done.
- B. In submitting this bid, the undersigned agrees:

1. To furnish all material, labor, tools, expendable equipment, and all utility and transportation services necessary to perform and complete, in a workmanlike manner, all the work required in accord with the bid documents.
 2. To hold this bid open for **ninety (90) days** after the receipt of bids and to accept the provisions of the instructions to bidders regarding disposition of bid security.
 3. To commence the work upon receipt of Notice to Proceed, and to substantially complete the work not later than the dates set forth on the Invitation to Bid. (see specifications)
 4. To accept the assessment of liquidated damages as noted for each calendar day following the substantial completion dates listed above. (see specifications)
 5. All materials to be non-proprietary, as specified, or approved equal as noted in specifications.
- C. In submitting this bid, the undersigned further agrees:
1. In the execution of the Agreement, no person shall on the grounds of race, color, religion, sex, disability, or national origin be excluded from full employment rights, be denied the benefits of, or otherwise subject to discrimination under any program, service, or activity under the provisions of any and all applicable Federal and state laws against discrimination. Bidder shall furnish all information and reports required by the rules, regulations, and order of the Secretary of Labor for purposes of investigating to determine compliance with such laws.
 2. Bidder shall observe the provisions of the Kansas Acts Against Discrimination and shall not discriminate against any person in the performance of work under the Agreement because of race, religion, color, sex, physical handicap unrelated to such person's ability to engage in the particular work, national origin or ancestry.
 3. In all solicitations or advertisements for employees, Bidder shall include the phrase, "equal opportunity employer", or similar phrase approved by the Owner.
 4. If bidder fails to comply with the provisions of K.S.A. 441031, bidder shall be deemed to have breached the Agreement and it may be canceled, terminated, or suspended in whole or in part, by Owner.
 5. If bidder is found guilty of a violation of the Kansas Acts Against Discrimination under a decision or order of Owner that has become final, bidder shall be deemed to have breached the present Agreement and it may be canceled, terminated, or suspended in whole or in part, by Owner.
 6. Bidder shall include the provisions of paragraphs A through E above in every subcontract or purchase order so that such provisions shall be binding upon all subcontractors and vendors
- D. In submitting this bid, it is understood that the right to reject any and all bids and to waive irregularities in this bidding has been reserved by the Owner.

1.12 SIGNATURES

- A. Signature: _____
- B. Printed Name: _____
- C. Title: _____
- D. Company Name: _____
- E. Address: _____
- F. Phone: _____
- G. Email: _____
- H. Seal: - (if BID is by a corporation)

SUBCONTRACTOR LIST

[illegible]

END OF SECTION

SECTION 004313 - BID SECURITY FORM

PART 1 - GENERAL

1.1 PROPOSAL FORM SUPPLEMENT

- A. A completed bid bond form is required to be attached to the Proposal Form.

1.2 BID BOND FORM

- A. The Form of the bid security shall be American Institute of Architects (AIA), Document A310 – 2010 “Bid Bond”. A copy of the Bid Bond form is bound hereinafter for information only and may not be duplicated.
- B. Additional copies of the Bid Bond may be obtained, at cost, from the Local Chapter, of the American Institute of Architects, at the address listed below:
1. AIA Springfield
 - a. Address: 1717 E. Republic Rd, Ste. A, Springfield, Missouri 65804.
 - b. Telephone: (417) 886-8606.
 - c. Website: www.aiaspringfield.org
 2. AIA Kansas City
 - a. Address: 1801 McGee, Suite 100, Kansas City, Missouri 64108
 - b. Telephone: (816) 221-3485.
 - c. Website: www.aiakc.org
 3. AIA Mid Missouri
 - a. Address: P. O. Box 1622, Columbia, Missouri 65205
 - b. Website: www.aiamid-missouri.com
 4. AIA St. Louis
 - a. Address: 911 Washington Street, #100, Louis, Missouri 63101
 - b. Telephone: (314) 621-3484
 - c. Website: www.aia-stlouis.org
 5. AIA Missouri
 - a. Address: 204 East High Street, Jefferson City, Missouri 65101
 - b. Telephone: (573) 635-8555
 - c. Website: www.aiamo.org
 6. AIA Kansas
 - a. Address: 700 SW Jackson, Suite 209, Topeka, KS 66603
 - b. Telephone: (785) 357-5308
 - c. Website: www.aiaks.org
- C. Additional copies of the Bid Bond may also be obtained, at cost, from the website of the American Institute of Architects, at the internet address listed below:
1. Website: <http://www.aia.org/contractdocs/index.htm>

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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AIA® Document A305™ – 1986

Contractor's Qualification Statement

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

SUBMITTED TO:

ADDRESS:

SUBMITTED BY:

NAME:

ADDRESS:

PRINCIPAL OFFICE:

- ☐ Corporation
- ☐ Partnership
- ☐ Individual
- ☐ Joint Venture
- ☐ Other

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

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

TYPE OF WORK: *(file separate form for each Classification of Work)*

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

§ 1 ORGANIZATION

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

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

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

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

§ 1.3.1 Date of incorporation:

§ 1.3.2 State of incorporation:

§ 1.3.3 President's name:

§ 1.3.4 Vice-president's name(s)

§ 1.3.5 Secretary's name:

§ 1.3.6 Treasurer's name:

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

§ 1.4.1 Date of organization:

§ 1.4.2 Type of partnership (if applicable):

§ 1.4.3 Name(s) of general partner(s)

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

§ 1.5.1 Date of organization:

§ 1.5.2 Name of owner:

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

§ 2 LICENSING

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

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

§ 3 EXPERIENCE

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

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

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

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

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

§ 3.3 Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, please attach details.)

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

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

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

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

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

§ 4 REFERENCES

§ 4.1 Trade References:

§ 4.2 Bank References:

§ 4.3 Surety:

§ 4.3.1 Name of bonding company:

§ 4.3.2 Name and address of agent:

§ 5 FINANCING

§ 5.1 Financial Statement.

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

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

Net Fixed Assets;

Other Assets;

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

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

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

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

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

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

§ 6 SIGNATURE

§ 6.1 Dated at this day of

Name of Organization:

By:

Title:

§ 6.2

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

Subscribed and sworn before me this day of

Notary Public:

My Commission Expires:

SECTION 004513 - CONTRACTOR'S QUALIFICATION STATEMENT

PART 1 - GENERAL

1.1 CONTRACTOR'S QUALIFICATION STATEMENT

- A. The form of the Contractor's Qualifications shall be American Institute of Architects (AIA) Document A305 – 1986 "Contractor's Qualification Statement". A copy of the Contractor's Qualification Statement is bound hereinafter for information only and may not be duplicated.
1. Contractors are to provide a minimum of three references of major projects completed within the past five years. Refer to paragraph 3.5 of AIA Document A305.
- B. Additional copies of the Contractor's Qualification Statement may be obtained, at cost, from the Local Chapter, of the American Institute of Architects, at the address listed below:
1. AIA Springfield
 - a. Address: 1717 E. Republic Rd, Ste. A, Springfield, Missouri 65804.
 - b. Telephone: (417) 886-8606.
 - c. Website: www.aiaspringfield.org
 2. AIA Kansas City
 - a. Address: 1801 McGee, Suite 100, Kansas City, Missouri 64108
 - b. Telephone: (816) 221-3485.
 - c. Website: www.aiakc.org
 3. AIA Mid Missouri
 - a. Address: P. O. Box 1622, Columbia, Missouri 65205
 - b. Website: www.aiamid-missouri.com
 4. AIA St. Louis
 - a. Address: 911 Washington Street, #100, Louis, Missouri 63101
 - b. Telephone: (314) 621-3484
 - c. Website: www.aia-stlouis.org
 5. AIA Missouri
 - a. Address: 204 East High Street, Jefferson City, Missouri 65101
 - b. Telephone: (573) 635-8555
 - c. Website: www.aiamo.org
 6. AIA Kansas
 - a. Address: 700 SW Jackson, Suite 209, Topeka, KS 66603
 - b. Telephone: (785) 357-5308
 - c. Website: www.aiaks.org
- C. Additional copies of the Contractor's Qualification Statement may also be obtained, at cost, from the website of the American Institute of Architects, at the internet address listed below:
1. Website: <http://www.aia.org/contractdocs/index.htm>

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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AIA[®] Document A101[™] – 2007

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, address and other information)

Shawnee Mission Unified School District No. 512
8200 West 71st Street
Shawnee Mission, Kansas 66204

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

TBD

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

The Architect:
(Name, address and other information)

TBD

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

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

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

AIA Document A201[™]–2007, 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.

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
10	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, Bid Instructions and Bid Form issued prior to execution of this Agreement, Contractual Provisions Attachment (Form DA-146a, Rev. 1-01 and other documents listed in this Article 9 of 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 the date to be fixed in the issuance of the Purchase Order or Notice to Proceed for this Agreement unless otherwise noted. The Work shall not commence until all Bonds as required by the Contract are executed and filed with appropriate authorities and Contractor has provided the required Certificates of Insurance.

(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

(Paragraphs deleted)

§ 3.2 The Contract Time shall be measured from the date of commencement, unless the Contract Documents for the Project specifically identify dates of Substantial and Final Completion.

§ 3.3 The Contractor shall achieve Substantial and Final Completion of the entire Work not later than the date(s) stipulated in Section 01020 of the specifications or as otherwise specified by the Owner at the time of the execution of the Agreement

(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

(Table deleted)

, subject to adjustments of this Contract Time as provided in the Contract Documents.

Init.

(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

In the event the Contractor has not substantially and/or fully completed the Work or each segment of the Work within the time stated, the Contractor agrees to pay the Owner, or to deduct from the Contract Sum, not as a penalty but as liquidated damage, the amount stipulated for each and every calendar day the Work or each segment of the Work remains substantially and/or finally incomplete after the dates stipulated for Substantial and/or Final Completion in Section 01020 of the specifications (or as otherwise specified in the Contract Documents by the Owner). This provision shall be applied and the daily liquidated damage amount(s) shall be calculated.

Further, the Contractor agrees that, in the event Contractor does not carry out such work at such rates of progress as required by the Construction schedule, the Owner may, at its option and without Contractor receiving any additional compensation therefor, require Contractor to increase the number of qualified supervisory personnel and/or workers and the amount of equipment employed in the performance of the Work to such extent as Owner may deem necessary or desirable. In addition, Owner, at its option, may supplement Contractor's manpower by entering into contracts with other contractors to perform the Work. All costs that are incurred by Owner, in this regard, including reasonable attorneys fees, shall be deducted from any sums due Contractor or Owner may make demand on Contractor for reimbursement of such costs.

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 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 4.3 Unit prices, if any:

(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price Per Unit
------	-----------------------	----------------

§ 4.4 Allowances included in the Contract Sum, if any:

(Identify allowance and state exclusions, if any, from the allowance price.)

Item	Price
------	-------

In connection with allowances stated in the Agreement or Contract Documents, the Contractor agrees that it may not incur or expend any monies in excess of the allowance amount(s), without express written approval issued in advance by Owner. Failure to obtain prior authorization from Owner shall be deemed a waiver of any claim by Contractor to increase the Contract Sum or seek additional compensation related to such increase in the subject allowance amount(s).

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 (1) calendar month. Contractor's Application for Payment shall be submitted to Owner and Architect in accordance with Article 9.3 of General Conditions, AIA A201 (2007 Edition), as modified.

§ 5.1.3 The Owner shall make payment to the Contractor within 30 days after the Owner receives a timely, properly completed undisputed request for payment according to the terms of this Agreement, unless extenuating circumstances exist (if so, no later than 45 days) and in accordance with the Kansas Fairness in Public Construction Contract Act.

The Contractor shall pay its Subcontractors within seven (7) calendar days of receipt of payment from the Owner.

(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, unless objected to by the Architect, 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 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage as specified in Subparagraph 9.6.1 of the General Conditions;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage specified in Subparagraph 9.6.1 of the General Conditions.;
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Architect and/or Owner has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201-2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts described in Subparagraph 9.6.1 of the General Conditions, subject to the Owner's discretion; and
(Section 9.8.5 of AIA Document A201-2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201-2007.

§ 5.1.8 Reduction if any, shall be as specified in Subparagraph 9.6.1 of the General Conditions

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

§ 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.

§ 5.1.10 Contractor acknowledges that, as a condition precedent to the Architect's Certification of Substantial Completion, among others, the Contractor shall provide Owner with:

- .1 Keys, if applicable to the Project

§ 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 Contractor has satisfied the following conditions precedent:

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201–2007, and to satisfy other requirements, if any, which extend beyond final payment;
- .2 a final Certificate for Payment has been issued by the Architect.
- .3 furnished copies of all written warranties and O&M manuals, as applicable;
- .4 furnished copies of all final releases executed by Contractor and its subcontractors and major suppliers;
- .5 furnished executed Final Consent to Payment by Surety;
- .6 furnished spare parts and maintenance materials to the extent required by Contract Documents;
- .7 furnished completed punch list, as approved by Architect and Owner; and .
- .8 furnished complete as-built documentation, if required by the Contract Documents.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than thirty (30) calendar days after the issuance of the Architect's final Certificate for Payment and complete satisfaction of the conditions precedent in Section 5.2.1 above.

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 INITIAL DECISION MAKER

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document *(Paragraphs deleted)*

A201–2007. As stated in greater detail in Section 15 of the General Conditions, the Architect will approve or reject Claims by written decision and shall notify the Claimant of any change in the Contract Sum or Contract Time, or both. The Architect's approval or rejection of the Claim shall be final and binding on the Claimant, subject to litigation.

§ 6.2 BINDING DISPUTE RESOLUTION

Subsequent to the decision of the Architect, as referenced in Section 6.1 above, the method of binding dispute resolution shall be as follows:

(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, 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.)

☐ Arbitration pursuant to Section 15.4 of AIA Document A201–2007

☒ Litigation in a court of competent jurisdiction

☐ Other *(Specify)*

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 A201-2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201-2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201-2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 In the event that undisputed amounts are not paid by Owner to Contractor within 30 days after Owner receives a timely, properly completed undisputed request for payment, the Owner shall pay interest computed at the rate of 18% per annum on the undisputed amount, which shall begin to accrue on the eighth day after Architect receives an undisputed request for payment from Contractor. Owner agrees that all obligations regarding payment are subject to the Kansas Fairness in Public Construction Contract Act, K.S.A. §16-1901, et seq.

§ 8.3 The Owner's representative:
(Name, address and other information)

Operations & Maintenance
Shawnee Mission School District
11475 West 93rd Street
Shawnee Mission, KS 66214
913-993-8500
913-993-8599 fax

§ 8.4 The Contractor's representative:
(Name, address and other information)
TBD

§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101-2007, Standard Form of Agreement Between Owner and Contractor, as amended

§ 9.1.2 The General Conditions are AIA Document A201-2007, General Conditions of the Contract for Construction, as amended and contained in the Project Manual.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
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Init.

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User Notes:

(1349998968)

§ 9.1.4 The Specifications:

(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

As stated in the Project Manual

(Table deleted)

§ 9.1.5 The Drawings are:

(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

As stated in the Project Manual

(Table deleted)

§ 9.1.6 The Addenda, if any:

Number

Date

Pages

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

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

.1 All other conditions and sections of the Project Manual, including, but not limited to, Bidding Invitations, Instructions, Contract and Bond Forms, and all other sample forms found within the Project manual, and any Addenda, Amendments or supplement thereto.

.2 Other documents, if any, listed below:

The Provisions found in Contractual Provisions Attachment (Form DA-146a, Rev. 1-01, which is attached to AIA Document A201-2007, General Conditions of the Contract for Construction, as amended, and contained in the Project Manual, are hereby incorporated in this contract and made a part thereof.

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201-2007, as amended.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201-2007.)

Type of insurance or bond

Limit of liability or bond amount (\$ 0.00)

This Agreement entered into as of the day and year first written above and is executed in at least three original copies, of which one is to be delivered to the Contractor, one to the Architect for use in the administration of the Contract, and the remainder to the Owner.

SHAWNEE MISSION U.S.D. NO. 512

OWNER (Signature)

CONTRACTOR (Signature)

(Printed name and title)

(Printed name and title)

President, Board of Education
Shawnee Mission U.S.D. No. 512

Init.

Additions and Deletions Report for AIA[®] Document A101[™] – 2007

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 15:16:16 on 01/02/2014.

PAGE 1

(In words, indicate day, month and ~~year~~ year)

...

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

Shawnee Mission U.S.D. No. 512
7235 Antioch
Shawnee Mission, KS 66204

...

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

TBD

...

(Name, ~~location~~ location, and detailed description)

Shawnee Mission School District 2007 Template for Contracts

...

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

TBD

PAGE 2

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, ~~Addenda~~ Addenda, Bid Instructions and Bid Form issued prior to execution of this Agreement, Contractual Provisions Attachment (Form DA-146a, Rev. 1-01) and other documents listed in this Article 9 of 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.

...

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner to be fixed in the issuance of the Purchase Order or Notice to Proceed for this Agreement unless otherwise noted. The Work shall not commence until all Bonds as required by the Contract are executed and filed with appropriate authorities and Contractor has provided the required Certificates of Insurance.

(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

§ 3.2 The Contract Time shall be measured from the date of ~~commencement~~ commencement, unless the Contract Documents for the Project specifically identify dates of Substantial and Final Completion.

§ 3.3 The Contractor shall achieve Substantial and Final Completion of the entire Work not later than ~~(—) days from the date of commencement, or as follows:~~ the date(s) stipulated in Section 01020 of the specifications or as otherwise specified by the Owner at the time of the execution of the Agreement

...

Portion of Work

Substantial Completion Date

(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

In the event the Contractor has not substantially and/or fully completed the Work or each segment of the Work within the time stated, the Contractor agrees to pay the Owner, or to deduct from the Contract Sum, not as a penalty but as liquidated damage, the amount stipulated for each and every calendar day the Work or each segment of the Work remains substantially and/or finally incomplete after the dates stipulated for Substantial and/or Final Completion in Section 01020 of the specifications (or as otherwise specified in the Contract Documents by the Owner). This provision shall be applied and the daily liquidated damage amount(s) shall be calculated.

Further, the Contractor agrees that, in the event Contractor does not carry out such work at such rates of progress as required by the Construction schedule, the Owner may, at its option and without Contractor receiving any additional compensation therefor, require Contractor to increase the number of qualified supervisory personnel and/or workers and the amount of equipment employed in the performance of the Work to such extent as Owner may deem necessary or desirable. In addition, Owner, at its option, may supplement Contractor's manpower by entering into contracts with other contractors to perform the Work. All costs that are incurred by Owner, in this regard, including reasonable attorneys fees, shall be deducted from any sums due Contractor or Owner may make demand on Contractor for reimbursement of such costs.

PAGE 3

Item

Units and Limitations

Price Per Unit(\$0.00)

...

In connection with allowances stated in the Agreement or Contract Documents, the Contractor agrees that it may not incur or expend any monies in excess of the allowance amount(s), without express written approval issued in advance by Owner. Failure to obtain prior authorization from Owner shall be deemed a waiver of any claim by Contractor to increase the Contract Sum or seek additional compensation related to such increase in the subject allowance amount(s).

PAGE 4

§ 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:

(1) calendar month. Contractor's Application for Payment shall be submitted to Owner and Architect in accordance with Article 9.3 of General Conditions, AIA A201 (2007 Edition), as modified.

§ 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 certified amount 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 shall be made by the Owner not later than () days after the Architect receives the Application for Payment. The Owner shall make payment to the Contractor within 30 days after the Owner receives a timely, properly completed undisputed request for payment according to the terms of this Agreement, unless extenuating circumstances exist (if so, no later than 45 days) and in accordance with the Kansas Fairness in Public Construction Contract Act.

The Contractor shall pay its Subcontractors within seven (7) calendar days of receipt of payment from the Owner.

...

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of percent (—%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™ 2007, General Conditions of the Contract for Construction; as specified in Subparagraph 9.6.1 of the General Conditions;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of percent (—%); specified in Subparagraph 9.6.1 of the General Conditions;

...

- .4 Subtract amounts, if any, for which the Architect and/or Owner has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201–2007.

...

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; described in Subparagraph 9.6.1 of the General Conditions, subject to the Owner's discretion; and

...

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows: specified in Subparagraph 9.6.1 of the General Conditions

...

§ 5.1.10 Contractor acknowledges that, as a condition precedent to the Architect's Certification of Substantial Completion, among others, the Contractor shall provide Owner with:

- .1 Keys, if applicable to the Project

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when Contractor has satisfied the following conditions precedent:

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201-2007, 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.
- .3 furnished copies of all written warranties and O&M manuals, as applicable;
- .4 furnished copies of all final releases executed by Contractor and its subcontractors and major suppliers;
- .5 furnished executed Final Consent to Payment by Surety;
- .6 furnished spare parts and maintenance materials to the extent required by Contract Documents;
- .7 furnished completed punch list, as approved by Architect and Owner; and
- .8 furnished complete as-built documentation, if required by the Contract Documents.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than ~~30~~ thirty (30) calendar days after the issuance of the Architect's final Certificate for ~~Payment, or as follows:~~ Payment and complete satisfaction of the conditions precedent in Section 5.2.1 above.

PAGE 5

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201-2007, ~~unless the parties appoint below another individual, not a party to this Agreement, to serve as 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.)~~

A201-2007. As stated in greater detail in Section 15 of the General Conditions, the Architect will approve or reject Claims by written decision and shall notify the Claimant of any change in the Contract Sum or Contract Time, or both. The Architect's approval or rejection of the Claim shall be final and binding on the Claimant, subject to litigation.

...

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201-2007, Subsequent to the decision of the Architect, as referenced in Section 6.1 above, the method of binding dispute resolution shall be as follows:

...

☒ [X] Litigation in a court of competent jurisdiction

PAGE 6

§ 8.2 ~~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. In the event that undisputed amounts are not paid by Owner to Contractor within 30 days after Owner receives a timely, properly completed undisputed request for payment, the Owner shall pay interest computed at the rate of 18% per annum on the undisputed amount, which shall begin to accrue on the eighth day after Architect receives an undisputed request for payment from Contractor. Owner agrees that all obligations regarding payment are subject to the Kansas Fairness in Public Construction Contract Act, K.S.A. §16-1901, et seq. (Insert rate of interest agreed upon, if any.)~~

%

...

Operations & Maintenance
Shawnee Mission School District
11475 West 93rd Street
Shawnee Mission, KS 66214
913-993-8500
913-993-8599 fax

...

TBD

...

§ 9.1.1 The Agreement is this executed AIA Document A101–2007, Standard Form of Agreement Between Owner and Contractor, as amended

§ 9.1.2 The General Conditions are AIA Document A201–2007, General Conditions of the Contract for Construction, as amended and contained in the Project Manual.

PAGE 7

As stated in the Project Manual

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

§ 9.1.5 The Drawings: Drawings are:

...

As stated in the Project Manual

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

...

- .1 AIA Document E201™ 2007, Digital Data Protocol Exhibit, if completed by the parties, or the following: All other conditions and sections of the Project Manual, including, but not limited to, Bidding Invitations, Instructions, Contract and Bond Forms, and all other sample forms found within the Project manual, and any Addenda, Amendments or supplement thereto.

...

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201–2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

The Provisions found in Contractual Provisions Attachment (Form DA-146a, Rev. 1-01, which is attached to AIA Document A201–2007, General Conditions of the Contract for Construction, as amended, and contained in the Project Manual, are hereby incorporated in this contract and made a part thereof.

...

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201-2007, A201-2007, as amended.

...

Type of insurance or bond

Limit of liability or bond amount ~~(\$0.00)~~(\$ 0.00)

This Agreement entered into as of the day and year first written ~~above~~ above and is executed in at least three original copies, of which one is to be delivered to the Contractor, one to the Architect for use in the administration of the Contract, and the remainder to the Owner.

SHAWNEE MISSION U.S.D. NO. 512

...

President, Board of Education
Shawnee Mission U.S.D. No. 512

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, Sherman A. Botts, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 15:16:16 on 01/02/2014 under Order No. 3789126235_1 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A101™ – 2007, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

(Signed)

(Title)

(Dated)

CONTRACTUAL PROVISIONS ATTACHMENT

Important: This form contains mandatory contract provisions and must be attached to or incorporated in all copies of any contractual agreement. If it is attached to the vendor/contractor's standard contract form, then that form must be altered to contain the following provision:

"The Provisions found in Contractual Provisions Attachment (Form DA-146a, Rev. 06-12), which is attached hereto, are hereby incorporated in this contract and made a part thereof."

The parties agree that the following provisions are hereby incorporated into the contract to which it is attached and made a part thereof, said contract being the _____ day of _____, 20_____.

1. **Terms Herein Controlling Provisions:** It is expressly agreed that the terms of each and every provision in this attachment shall prevail and control over the terms of any other conflicting provision in any other document relating to and a part of the contract in which this attachment is incorporated. Any terms that conflict or could be interpreted to conflict with this attachment are nullified.
2. **Kansas Law and Venue:** This contract shall be subject to, governed by, and construed according to the laws of the State of Kansas, and jurisdiction and venue of any suit in connection with this contract shall reside only in courts located in the State of Kansas.
3. **Termination Due To Lack Of Funding Appropriation:** If, in the judgment of the Director of Accounts and Reports, Department of Administration, sufficient funds are not appropriated to continue the function performed in this agreement and for the payment of the charges-hereunder, State may terminate this agreement at the end of its current fiscal year. State agrees to give written notice of termination to contractor at least 30 days prior to the end of its current fiscal year, and shall give such notice for a greater period prior to the end of such fiscal year as may be provided in this contract, except that such notice shall not be required prior to 90 days before the end of such fiscal year. Contractor shall have the right, at the end of such fiscal year, to take possession of any equipment provided State under the contract. State will pay to the contractor all regular contractual payments incurred through the end of such fiscal year, plus contractual charges incidental to the return of any such equipment. Upon termination of the agreement by State, title to any such equipment shall revert to contractor at the end of the State's current fiscal year. The termination of the contract pursuant to this paragraph shall not cause any penalty to be charged to the agency or the contractor.
4. **Disclaimer Of Liability:** No provision of this contract will be given effect that attempts to require the State of Kansas or its agencies to defend, hold harmless, or indemnify any contractor or third party for any acts or omissions. The liability of the State of Kansas is defined under the Kansas Tort Claims Act (K.S.A. 75-6101 et seq.).
5. **Anti-Discrimination Clause:** The contractor agrees: (a) to comply with the Kansas Act Against Discrimination (K.S.A. 44-1001 et seq.) and the Kansas Age Discrimination in Employment Act (K.S.A. 44-1111 et seq.) and the applicable provisions of the Americans With Disabilities Act (42 U.S.C. 12101 et seq.) (ADA) and to not discriminate against any person because of race, religion, color, sex, disability, national origin or ancestry, or age in the admission or access to, or treatment or employment in, its programs or activities; (b) to include in all solicitations or advertisements for employees, the phrase "equal opportunity employer"; (c) to comply with the reporting requirements set out at K.S.A. 44-1031 and K.S.A. 44-1116; (d) to include those provisions in every subcontract or purchase order so that they are binding upon such subcontractor or vendor; (e) that a failure to comply with the reporting requirements of (c) above or if the contractor is found guilty of any violation of such acts by the Kansas Human Rights Commission, such violation shall constitute a breach of contract and the contract may be cancelled, terminated or suspended, in whole or in part, by the contracting state agency or the Kansas Department of Administration; (f) if it is determined that the contractor has violated applicable provisions of ADA, such violation shall constitute a breach of contract and the contract may be cancelled, terminated or suspended, in whole or in part, by the contracting state agency or the Kansas Department of Administration.

Contractor agrees to comply with all applicable state and federal anti-discrimination laws.

The provisions of this paragraph number 5 (with the exception of those provisions relating to the ADA) are not applicable to a contractor who employs fewer than four employees during the term of such contract or whose contracts with the contracting State agency cumulatively total \$5,000 or less during the fiscal year of such agency.
6. **Acceptance Of Contract:** This contract shall not be considered accepted, approved or otherwise effective until the statutorily required approvals and certifications have been given.
7. **Arbitration, Damages, Warranties:** Notwithstanding any language to the contrary, no interpretation of this contract shall find that the State or its agencies have agreed to binding arbitration, or the payment of damages or penalties. Further, the State of Kansas and its agencies do not agree to pay attorney fees, costs, or late payment charges beyond those available under the Kansas Prompt Payment Act (K.S.A. 75-6403), and no provision will be given effect that attempts to exclude, modify, disclaim or otherwise attempt to limit any damages available to the State of Kansas or its agencies at law, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.
8. **Representative's Authority To Contract:** By signing this contract, the representative of the contractor thereby represents that such person is duly authorized by the contractor to execute this contract on behalf of the contractor and that the contractor agrees to be bound by the provisions thereof.
9. **Responsibility For Taxes:** The State of Kansas and its agencies shall not be responsible for, nor indemnify a contractor for, any federal, state or local taxes which may be imposed or levied upon the subject matter of this contract.
10. **Insurance:** The State of Kansas and its agencies shall not be required to purchase any insurance against loss or damage to property or any other subject matter relating to this contract, nor shall this contract require them to establish a "self-insurance" fund to protect against any such loss or damage. Subject to the provisions of the Kansas Tort Claims Act (K.S.A. 75-6101 et seq.), the contractor shall bear the risk of any loss or damage to any property in which the contractor holds title.
11. **Information:** No provision of this contract shall be construed as limiting the Legislative Division of Post Audit from having access to information pursuant to K.S.A. 46-1101 et seq.
12. **The Eleventh Amendment:** "The Eleventh Amendment is an inherent and incumbent protection with the State of Kansas and need not be reserved, but prudence requires the State to reiterate that nothing related to this contract shall be deemed a waiver of the Eleventh Amendment."
13. **Campaign Contributions / Lobbying:** Funds provided through a grant award or contract shall not be given or received in exchange for the making of a campaign contribution. No part of the funds provided through this contract shall be used to influence or attempt to influence an officer or employee of any State of Kansas agency or a member of the Legislature regarding any pending legislation or the awarding, extension, continuation, renewal, amendment or modification of any government contract, grant, loan, or cooperative agreement.

SECTION 005200 - AGREEMENT FORM

PART 1 - GENERAL

1.1 OWNER AND CONTRACTOR AGREEMENT

- A. The form of the agreement shall be American Institute of Architects (AIA) Document A101 – 2017, “Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum”. The “agreement” is included by reference.
- B. A copy of AIA Document A101 – 2017 may be obtained, at cost, from the Local Chapter, of the American Institute of Architects, at the address listed below:
1. AIA Springfield
 - a. Address: 1717 E. Republic Rd, Ste. A, Springfield, Missouri 65804.
 - b. Telephone: (417) 886-8606.
 - c. Website: www.aiaspringfield.org
 2. AIA Kansas City
 - a. Address: 1801 McGee, Suite 100, Kansas City, Missouri 64108
 - b. Telephone: (816) 221-3485.
 - c. Website: www.aiakc.org
 3. AIA Mid Missouri
 - a. Address: P. O. Box 1622, Columbia, Missouri 65205
 - b. Website: www.aiamid-missouri.com
 4. AIA St. Louis
 - a. Address: 911 Washington Street, #100, Louis, Missouri 63101
 - b. Telephone: (314) 621-3484
 - c. Website: www.aia-stlouis.org
 5. AIA Missouri
 - a. Address: 204 East High Street, Jefferson City, Missouri 65101
 - b. Telephone: (573) 635-8555
 - c. Website: www.aiamo.org
 6. AIA Kansas
 - a. Address: 700 SW Jackson, Suite 209, Topeka, KS 66603
 - b. Telephone: (785) 357-5308
 - c. Website: www.aiaks.org
- C. Copies of AIA Document A101 – 2017 may also be obtained, at cost, from the website of the American Institute of Architects, at the internet address listed below:
1. Website: <http://www.aia.org/contractdocs/index.htm>
- D. Attachments to the Section:
1. Draft of AIA A101-2017.
 2. Draft of AIA A101-2017 Exhibit A.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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AIA® Document A312™ – 2010

Payment Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

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

CONSTRUCTION CONTRACT

Date:

Amount: \$

Description:

(Name and location)

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

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond:

None

See Section 18

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

Signature:

SURETY

Company: *(Corporate Seal)*

Signature:

Name and _____

Title:

Name and _____

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:)

§ 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: _____
Signature: _____
(Corporate Seal)

SURETY

Company: _____
Signature: _____
(Corporate Seal)

Name and Title: _____
Address: _____

Name and Title: _____
Address: _____

AIA® Document A312™ – 2010

Performance Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

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

CONSTRUCTION CONTRACT

Date:

Amount: \$

Description:

(Name and location)

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

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond:

None

See Section 16

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

Signature:

SURETY

Company: *(Corporate Seal)*

Signature:

Name and _____

Title:

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:)

§ 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: _____
Signature: _____
(Corporate Seal)

Name and Title: _____
Address: _____

SURETY

Company: _____
Signature: _____
(Corporate Seal)

Name and Title: _____
Address: _____

SECTION 006113 - PERFORMANCE AND PAYMENT BOND

PART 1 - GENERAL

1.1 PERFORMANCE BOND AND PAYMENT BOND

- A. The forms for the bonds shall be American Institute of Architects (AIA) Document A312 - 2010, "Performance Bond and Payment Bond". A copy of each of the bonds is bound hereinafter for information only and may not be duplicated.
- B. Additional copies of the performance bond and payment bond may be obtained, at cost, from the Local Chapter, of the American Institute of Architects, at the address listed below:
 - 1. AIA Springfield
 - a. Address: 1717 E. Republic Rd, Ste. A, Springfield, Missouri 65804.
 - b. Telephone: (417) 886-8606.
 - c. Website: www.iaspringfield.org
 - 2. AIA Kansas City
 - a. Address: 1801 McGee, Suite 100, Kansas City, Missouri 64108
 - b. Telephone: (816) 221-3485.
 - c. Website: www.aiakc.org
 - 3. AIA Mid Missouri
 - a. Address: P. O. Box 1622, Columbia, Missouri 65205
 - b. Website: www.aiamid-missouri.com
 - 4. AIA St. Louis
 - a. Address: 911 Washington Street, #100, Louis, Missouri 63101
 - b. Telephone: (314) 621-3484
 - c. Website: www.aia-stlouis.org
 - 5. AIA Missouri
 - a. Address: 204 East High Street, Jefferson City, Missouri 65101
 - b. Telephone: (573) 635-8555
 - c. Website: www.aiamo.org
 - 6. AIA Kansas
 - a. Address: 700 SW Jackson, Suite 209, Topeka, KS 66603
 - b. Telephone: (785) 357-5308
 - c. Website: www.aiaks.org
- C. Additional copies of the performance bond and payment bond may also be obtained, at cost, from the website of the American Institute of Architects, at the internet address listed below:
 - 1. Website: <http://www.aia.org/contractdocs/index.htm>

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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Application and Certificate for Payment

TO OWNER:

PROJECT:

FROM CONTRACTOR:

VIA ARCHITECT:

APPLICATION NO: 002

PERIOD TO:

CONTRACT FOR:

CONTRACT DATE:

PROJECT NOS: / /

Distribution to:

OWNER: ☐

ARCHITECT: ☐

CONTRACTOR: ☐

FIELD: ☐

OTHER: ☐

CONTRACTOR'S APPLICATION FOR PAYMENT

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

Total Retainage (Lines 5a + 5b or Total in Column I of G703)

\$0.00

6. TOTAL EARNED LESS RETAINAGE

(Line 4 Less Line 5 Total)

\$0.00

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT

(Line 6 from prior Certificate)

\$0.00

8. CURRENT PAYMENT DUE

\$0.00

9. BALANCE TO FINISH, INCLUDING RETAINAGE

(Line 3 less Line 6)

\$0.00

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

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:

By:

Date:

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.)

ARCHITECT:

By:

Date:

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.



AIA Document, G702™-1992, Application and Certification for Payment, or G736™-2009, Project Application and Project Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.

In tabulations below, amounts are in US dollars.

Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:	002
APPLICATION DATE:	
PERIOD TO:	
ARCHITECT'S PROJECT NO:	

SECTION 006273 - APPLICATION AND CERTIFICATION FOR PAYMENT

PART 1 - GENERAL

1.1 APPLICATION AND CERTIFICATION FOR PAYMENT

- A. The Form of the Application and Certificate for Payment shall be AIA Document G702 – 1992 “Application and Certification for Payment” and G703 – 1992 “Continuation Sheet. A copy of each form is bound hereinafter for information only and may not be duplicated.
- B. Additional copies of AIA Document G702 and AIA Document G703 may be obtained, at cost, from the Local Chapter, of the American Institute of Architects, at the address listed below:
1. AIA Springfield
 - a. Address: 1717 E. Republic Rd, Ste. A, Springfield, Missouri 65804.
 - b. Telephone: (417) 886-8606.
 - c. Website: www.iaspringfield.org
 2. AIA Kansas City
 - a. Address: 1801 McGee, Suite 100, Kansas City, Missouri 64108
 - b. Telephone: (816) 221-3485.
 - c. Website: www.aiakc.org
 3. AIA Mid Missouri
 - a. Address: P. O. Box 1622, Columbia, Missouri 65205
 - b. Website: www.aiamid-missouri.com
 4. AIA St. Louis
 - a. Address: 911 Washington Street, #100, Louis, Missouri 63101
 - b. Telephone: (314) 621-3484
 - c. Website: www.aia-stlouis.org
 5. AIA Missouri
 - a. Address: 204 East High Street, Jefferson City, Missouri 65101
 - b. Telephone: (573) 635-8555
 - c. Website: www.aiamo.org
 6. AIA Kansas
 - a. Address: 700 SW Jackson, Suite 209, Topeka, KS 66603
 - b. Telephone: (785) 357-5308
 - c. Website: www.aiaks.org
- C. Additional copies of AIA Document G702 and AIA Document G703 may also be obtained, at cost, from the website of the American Institute of Architects, at the internet address listed below:
1. Website: <http://www.aia.org/contractdocs/index.htm>

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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AIA[®] Document A201[™] – 2007

General Conditions of the Contract for Construction

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

THE OWNER:

(Name and address)

Shawnee Mission Unified School District No. 512
8200 West 71st Street
Shawnee Mission, Kansas 66204

THE ARCHITECT:

(Name and address)

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ADDITIONS AND DELETIONS:

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

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

Init.

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14.3.1, 15.1.2



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) an Emergency Change Order Authorization or (4) a written order for a minor change in the Work issued by the Architect. The Contract Documents also include the bidding requirements (including: invitation to bid, Instructions to Bidders, bid form, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid and proposal, or portions of Addenda relating to bidding requirements. In addition, the Provisions found in Contractual Provision Attachment (Form DA-146a), which is hereto attached are hereby incorporated in this contract and made a part thereof.

§ 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.

§ 1.1.3 THE WORK

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

§ 1.1.4 THE PROJECT

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

§ 1.1.5 THE DRAWINGS

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

§ 1.1.6 THE SPECIFICATIONS

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

§ 1.1.7 INSTRUMENTS OF SERVICE

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

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the Architect identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 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.

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

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

§ 1.3 CAPITALIZATION

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

§ 1.4 INTERPRETATION

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

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

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

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

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

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

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.

(Paragraph deleted)

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 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.

§ 2.2.2 The Owner shall furnish, where reasonably necessary, all surveys describing physical characteristics, legal descriptions, if requested and utility locations for the site of the Project, and a legal description of the site to the extent any such information exists. The Contractor shall be entitled to rely on the accuracy of information furnished by the

Owner but shall exercise proper precautions relate to the safe performance of the Work. However, Contractor shall immediately notify Owner and Architect, in writing, in the event Contractor observes any discrepancies in such information.

§ 2.2.3 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.

(Paragraph deleted)

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

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

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

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

§ 2.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a three-day period after receipt of written 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 deficiencies. In such case, an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor 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 payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

§ 2.4.2 Further, the Contractor agrees that, in the event Contractor does not carry out such Work at such rates of progress as required by the Construction Schedule, the Owner may, upon three (3) days' written notice to Contractor, at Owner's option and without Contractor receiving any additional compensation therefor, require Contractor to increase the number of qualified supervisory personnel and/or workers and the amount of equipment employed in the performance of the Work to such extent as Owner may deem necessary or desirable. In addition, Owner, at its option, may supplement Contractor's manpower by entering into contracts with other contractors to perform the Work. All costs that are incurred by Owner, in this regard, including reasonable attorney's fees, shall be deducted from any sums due Contractor or Owner may make demand on Contractor for reimbursement of such costs.

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 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 2.2.3, 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 make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. 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, unless the Contract Documents give other specific instructions concerning these matters. The Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures.

§ 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 authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Emergency Change Order Authorization.

§ 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. Use of profanity by Contractor or its employees, subcontractors, suppliers or other persons in the control of Contractor in the presence of School staff or students will not be tolerated. Smoking and excessively loud playing of audio equipment in occupied spaces will not be allowed. In addition, Contractor comply with the District Code of Conduct, as referenced in the Bid Documents.

§ 3.4.4 The Contractor shall endeavor to employ or use labor in connection with the Work in a manner that will minimize the likelihood of any strike, work stoppage, or other labor disturbance.

§ 3.5 WARRANTY

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

§ 3.6 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, except such taxes as are saved by the use of the Owner's tax exemption.

§ 3.7 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

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

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders 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 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons.

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

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection. The Contractor acknowledges and agrees that he may not incur costs that exceed the stated Allowance or expend any monies related to the Allowance without first seeking the written approval of the Owner and, where necessary, the approval of the Board of Education.

§ 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 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. In connection with allowances stated in the Agreement or Contract Documents, the Contractor agrees that it may not incur or expend any monies in excess of the specified allowance amount(s), without express written approval issued in advance by Owner. Failure to obtain prior authorization from Owner shall be deemed a waiver of any claim by Contractor to increase the Contract Sum or seek additional compensation related to such increase in allowance amount(s).

§ 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, within seven (7) days after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, within (7) days after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, within ten (10) days after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.10.4 In the event that the Owner determines that the performance of the Work has not progressed to the level of completion required by the Contract Documents, the Owner shall have the right to order the Contractor to take corrective measures necessary to expedite progress of construction. The Contractor shall not be entitled to an adjustment in the Contract Sum in connection with the performance of such corrective measures for delays caused by the Contractor, subcontractors or materialmen.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work 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 the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 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.

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

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

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professionals related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals. Pursuant to this Section 3.12.10, the Architect will review, and issue a response as follows: "approve" or "approve as noted", or "reject and request resubmission" on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. Further, the Contractor shall use its best efforts to not disturb any occupancy or use of the building that is the subject of this Agreement or disturb any residences in the vicinity or operations of businesses adjacent to or near the site of the Work.

§ 3.14 CUTTING AND PATCHING

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

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

§ 3.15 CLEANING UP

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

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

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

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, including

attorney's fees, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, Project Manager or Construction Manager (if applicable) 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 which 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.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

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

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

(Paragraph deleted)

§ 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 report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or

charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

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

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

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

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

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

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

§ 4.2.10 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.

§ 4.2.11 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.

§ 4.2.12 The Architect's decisions on matters relating to aesthetic effect will be submitted to the Owner for final approval.

§ 4.2.13 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.

(Paragraph deleted)

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

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

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

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

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, within three (3) calendar days after award of contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 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 previously selected without the written approval of the Owner. Such approval shall not be deemed to create a contractual relationship, third party beneficiary relationship between Owner and such subcontractor. Such relationship is denied by Owner.

§ 5.3 SUBCONTRACTUAL RELATIONS

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

Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

- § 5.4.1** Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that
- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
 - .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

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 sixty (60) calendar days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. 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 Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

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

§ 6.1.3 The 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 other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the 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, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 MUTUAL RESPONSIBILITY

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

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

§ 6.2.3 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 the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner, separate contractors 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, Emergency Change Order Authorization 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; an Emergency Change Order Authorization requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

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

§ 7.2 CHANGE ORDERS

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

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

(Paragraphs deleted)

§ 7.2.2 Methods used in determining adjustments to the Contract Sum may include those listed in Section 7.2.3.

§ 7.2.3 If the Contractor does not respond promptly or disagrees with the method for adjustment of the Contract Sum, the method for adjustment in the Contract Sum shall be recommended by the Architect to the Owner 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, a reasonable allowance for overhead and profit. In such case, the Contractor shall keep and present in form such as the Architect, with the approval of the Owner, may prescribe an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Subparagraph 7.2.3 shall be limited to the following:

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

(Paragraph deleted)

§ 7.2.4 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net costs 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 based on net increase or decrease, if any, with respect to that change.

§ 7.3 EMERGENCY CHANGE ORDER AUTHORIZATION

§ 7.3.1 In emergency situations, as determined by the Owner, the Superintendent of Schools, or the Deputy Superintendent for Operations has authority to issue an Emergency Change Order Authorization up to a maximum of Twenty Thousand Dollars and No/100 (\$20,000.00) per occurrence.

§ 7.3.2 An Emergency Change Order Authorization is a written order prepared and signed by the Superintendent of Schools or the Deputy Superintendent for Operations directing a change in the Work prior to formal approval by the Board of Education. The Owner may, by Emergency Change Order Authorization, and without invalidating this Agreement, order changes in the Work within the general scope of the Agreement consisting of additions, deletions or other revisions, the Contract Sum being adjusted accordingly.

§ 7.3.3 An Emergency Change Order Authorization may be used to expedite the approval of changes in the Work when the formal action of the Board of Education is not practical, or cannot be obtained in a timely fashion without impeding the progress of the Project. An Emergency Change Order Authorization may, at Owner's discretion, be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.4 An adjustment in Contract Price by the execution of an Emergency Change Order Authorization 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 price 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 7.2.3.

§ 7.3.5 Upon receipt of an approved Emergency Change Order Authorization, 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 Emergency Change Order Authorization for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Owner 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, a reasonable allowance for overhead and profit. In such case, and also under Section 7.3.4.3, 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 7.3.6 shall be limited to the following:

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

§ 7.3.7 Pending final determination of the total cost of an Emergency Change Order Authorization, amounts not in dispute for such changes in the Work shall be included in Applications for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs. For any portion of such cost that remains in dispute, the

Architect will make an interim determination subject to Owner approval for purposes of monthly certification for payment for those costs. That 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 4.

§ 7.3.8 When the Owner and Contractor agree with the 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 shall be recorded by preparation and execution of an appropriate Change Order.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

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

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

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

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

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work. The Contractor agrees to commence Work not later than fourteen (14) calendar days after the execution of a Contract with the Owner. The Owner will suffer financial loss if the Project is not substantially complete in the time set forth in the Contract Documents. The Contractor and his surety shall be liable for and shall pay to the Owner the sum stated in Paragraph 8.2.4 herein as fixed, agreed, and liquidated damages for each consecutive day (including weekends and holidays) of delay until the Work is substantially completed.

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

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time. The Contractor shall diligently and continuously prosecute and complete the Work and coordinate the Work with the other work being performed in accordance with those schedules as may be issued from time to time during the performance of the Work so as not to delay, impede, obstruct, hinder or interfere with the commencement, progress, or completion of the whole or any part of the Work or other work for the Owner.

The Owner may, at its sole discretion, direct the Contractor to work overtime, and, if so directed, the Contractor shall work such overtime. Provided that the Contractor is not in default under any of the terms or provisions of this Contract the Owner will pay the Contractor for such actual additional wages paid, if any, at rates, which have been pre-approved by the Owner and Construction Manager.

§ 8.2.4 Liquidated damages in the amount per calendar day as set forth in Section 01010 shall be assessed against the Contractor for failure to complete the Work. Assessment of such liquidated damages shall commence on the day after the date designated in the bid proposal for substantial completion. Time is of the essence of this Contract.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may recommend and the Owner and Contractor may agree to...

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

(Paragraph deleted)

§ 8.3.3 Unless a delay is caused, in whole or in part, by acts or omissions within the control of the Owner or persons acting on behalf thereof (other than the Contractor or persons acting on behalf of the Contractor), the only remedy available to the Contractor for delay shall be an extension of time. Unless a delay is caused, in whole or in part, by acts or omissions within the control of the Owner or persons acting on behalf thereof (other than the Contractor or persons acting on behalf of the Contractor), the Contractor agrees that, whether or not any delay shall be basis for an extension of time, the Contractor shall have no claim against the Owner or Architect/Engineer for:

- .1 and increase in the Contract Sum;
- .2 a payment or allowance of any kind for damage, loss or expense resulting from delays; or
- .3 any damage, loss or expense resulting from interruptions, accelerations, inefficiencies or suspensions of its Work.

§ 8.3.4 Nothing herein shall be construed as granting an extension of time for delays, in whole or in part, by the Contractor or persons acting on behalf thereof.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

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

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, within ten (10) calendar days after award of contract, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Schedule of Values shall be prepared in such a manner that each major item of Work and each subcontracted item of Work is shown as a single line item on AIA Document G702A, Application and Certificate for Payment Continuation Sheet. The Schedule of Values shall indicate a value for construction schedules and progress meeting notes that are required in the Contract Documents.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 The Contractor shall submit its Applications for Payment to Architect and Owner's Representative in accordance with the Accounts Payable Schedule as set forth in Section 1020 of the Project Manual. The Contractor shall submit to the Architect and Owner's Representative 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. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.8, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Emergency Change Order Authorization, or by interim determinations of the Architect, but not yet included in Change Orders.

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

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

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

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

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

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

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

- .1 defective Work not remedied;
- .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 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.

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

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

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 The Owner shall make payment to Contractor in accordance with the Payment Schedule in the Contract Documents. However, it is understood that, notwithstanding the schedule, the Owner shall make payment to the Contractor within 30 days after the Owner receives a timely, properly completed undisputed request for payment according to the terms of this Agreement, unless extenuating circumstances exist (if so, no later than 45 days) and in accordance with the Kansas Fairness in Public Construction Contract Act. Such payments are subject to the following conditions:

§ 9.6.1.1 Until substantial completion, the Owner will pay ninety percent (90%) of the amount due the Contractor on account of progress payments.

§ 9.6.1.2 After substantial completion, and upon receipt of Application for Payment accompanied by consent of surety to reduction in or partial release of retainage executed in duplicate on AIA Document G707A, and upon certification, the Owner may, in its sole discretion, pay ninety-five percent (95%) of the amount due the Contractor on account of progress payments, less two hundred percent (200%) of the value of items of the Work remaining to be done.

§ 9.6.1.3 The final five percent (5%) of the Contract Sum shall not be paid until the Contractor has submitted to the Owner all releases, waivers and other final documents required and satisfied all other Conditions Precedent identified in the General Conditions and Section 5.2 of the Standard Form of Agreement Between Owner and Contractor, A101-2007, as amended.

§ 9.6.1.4 The full Contract retainage may be reinstated if the manner of completion of the Work and its progress do not remain satisfactory to the Owner or of other good and sufficient reasons, or its surety revokes its consent of reduction in or partial release of the retainage.

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

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

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

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

§ 9.7 FAILURE OF PAYMENT

In the event that undisputed amounts are not paid by Owner to Contractor within 30 days after Owner receives a timely, properly completed undisputed request for payment, the Owner shall pay interest computed at the rate of 18% per annum on the undisputed amount, which shall begin to accrue on the day payment is due. Owner agrees that all obligations regarding payment are subject of the Kansas Fairness in Public Construction Contract Act, K.S.A. §16-1901, et seq. If the Owner does not pay the Contractor in accordance with the above referenced timetable, then the Contractor may, upon seven days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, which shall be accomplished as provided in Article 7.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Owner determines in its sole discretion that 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 The Contractor shall carefully and regularly check his Work for conformance with the Contract Documents as the Work is being done. Unsatisfactory Work shall be corrected as the Work progresses and not be permitted to remain and become part of the Punch List. When the Contractor determines that the entire Work is ready for the Punch List inspection, it shall so notify the Architect for the Punch List inspection at the earliest possible date. Transmittal of the Punch List to the Contractor shall set the date for a reinspections prior to issuance of a Certificate of Substantial Completion. Upon receipt of the Punch List, the Contractor shall within seven (7) days bring to the attention of the Architect any questions that it may have concerning requirements of the Punch List.

§ 9.8.1.2 When advised by the Contractor that all items on the Punch List have been completed and/or corrected, the Architect shall conduct a reinspection and shall be accompanied by the Contractor and any needed subcontractors to determine whether the Certificate of Substantial Completion can be issued. When issued, the Certificate of Substantial Completion shall state the date of commencement of the Warranty period (with any items to have a later starting date specifically noted). The Certificate shall also have attached to it the uncompleted Punch List items, and shall name the date for their completion. The Certificate of Substantial Completion shall also state the responsibilities of the Owner and the Contractor for maintenance, heat, utilities, insurance and building security. Acknowledgment of the Date of Substantial Completion by the signature of all parties on the Certificate implies possession of the premises by the Owner, and further completion of all incomplete Punch List items by the Contractor and the subcontractors at the Owner's convenience. The Owner shall cooperate in permitting the Contractor access to the Work for the completion of Punch List items.

§ 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, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. 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..

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

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

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, 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 terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

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

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

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

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

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

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract, including without limitation the requirements of laws and regulations that protect the environment and human health and safety. The Contractor and its subcontractors are solely responsible for complying with local, state and federal laws and regulations regarding the Work under construction at the site, including the current provisions of the Occupational Safety and Health Act of 1970 (29 CFR 1910 et seq.) and the Consumer Product Safety Act as it relates to building materials and construction. The Contractor shall submit the Contractor's safety program to the Architect and Owner.

§ 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 or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

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

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 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, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone

directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 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, written notice of such 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

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

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. When the material or substance has been rendered harmless, Work in the affected area shall resume upon notification by Owner. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 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.

(Paragraphs deleted)

§ 10.3.4 The Contractor hereby agrees and warrants that neither the Contractor, nor any of its employees, agents or subcontractors shall introduce any materials, supplies, or products in performing the Work which contain restricted or banned hazardous materials.

§ 10.3.5 Upon request of the Contractor, the Owner shall make available any inspections, reports, or studies in the Owner's possession relating to the presence of asbestos, if any, at the Work site.

§ 10.3.6 The Owner shall not be responsible under this Section 10.3 for 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 materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

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

§ 10.3.8 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 indemnify 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.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

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

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified below.. Coverages, shall be on an occurrence basis, except for worker's compensation, and shall be maintained without interruption from the date of commencement of the Work until the date of final payment. and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

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

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

additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.1.5 Limits of insurance provided by the Contractor pursuant to these General Conditions shall not be less than the following:

.1	Commercial Liability	\$2,000,000.00
.2	Automobile Liability	\$1,000,000.00
.3	Umbrella Liability	\$10,000,000.00
.4	Workers' Compensation	Statutory plus \$500,000.00 Employers Liability

§ 11.2 OWNER'S LIABILITY INSURANCE

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

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis. Such property insurance shall be maintained until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.4 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

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

(Paragraphs deleted)

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 In the event of partial occupancy or use in accordance with Section 9.9, the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

(Paragraphs deleted)

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused.

(Paragraph deleted)

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

§ 11.3.6 Before an exposure to loss may occur, the Contractor shall file with the Owner a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least thirty (30) days' prior written notice has been given to the Owner.

§ 11.3.7 WAIVERS OF SUBROGATION

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

§ 11.3.8 The Contractor shall pay the Owner and Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

(Paragraphs deleted)

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND AND STATUTORY BOND

§ 11.4.1 The Contractor shall furnish Performance Bond, Labor and Material Payment Bond, and Statutory Bond in the amount of one hundred percent (100%) of Contract Sum at the time of execution of the Contract. Performance and Payment Bonds shall be executed by a surety company satisfactory to Owner in form of AIA A311.

§ 11.4.1.1 Such Bonds, among other conditions, shall include payment for all materials used in Work and for all labor performed, whether by subcontractor or otherwise. Cost of Performance Bond and Payment Bond shall be included in the Contract Sum. Further, the Surety, by providing such Bonds, agrees to waive all notice to any change in the Work that would extend the Contract Time or increase Contract Sum and Surety agrees to increase the Penal Sum of the Bonds in the event of increases in the Contract Sum to this Agreement.

§ 11.4.1.2 Said Bonds shall remain in full force and effect during term of any warranty required by specifications and any such longer term as required by Kansas law. Contractor shall keep bonding company informed of changes in amount of the Contract Sum and shall furnish Architect with copies of notices of such changes.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

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

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of

uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such 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 2.4. This provision does not reduce or limit Contractor's obligation to perform Work in accordance with the Contract Documents nor does it reduce or limit any remedies available to Owner at law or in equity.

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

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

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

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

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

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the State of Kansas.

§ 13.1.2 It is the Owner's intent to take advantage of its tax exemption status. Therefore, the Owner will furnish to the Contractor a tax exemption number issued by the State of Kansas for the construction of this Project. Where appropriate, sales tax shall not be included in the Contractor's proposal.

§ 13.1.3 The Contractor agrees to abide by all federal requirements, including Equal Employment Opportunity (Article 15.1), the Clean Air Act, the Federal Water Pollution Control Act and such other federal, state or local laws applicable to this Project and to furnish any certification required by any federal, state or local governmental agency in connection with same.

§ 13.2 SUCCESSORS AND ASSIGNS

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

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

§ 13.3 WRITTEN NOTICE

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

§ 13.4 RIGHTS AND REMEDIES

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

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

§ 13.5 TESTS AND INSPECTIONS

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

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

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

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

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

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

§ 13.6 INTEREST

In the event that undisputed amounts are not paid by Owner to Contractor within 30 days after Owner receives a timely, properly completed undisputed request for payment, the Owner shall pay interest computed at the rate of 18% per annum on the undisputed amount, which shall begin to accrue on the eighth day after Architect receives an undisputed request for payment from Contractor. Owner agrees that all obligations regarding payment are subject of the Kansas Fairness in Public Construction Contract Act, K.S.A. §16-1901, et seq.

§ 13.7 TIME LIMITS ON CLAIMS

Claims by the Contractor must be initiated within twenty-one (21) days after occurrence of the event giving rise to such claim, otherwise, such claim shall be deemed waived. Claims must be made by written notice to the Owner with a copy to the Architect. The Owner shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

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

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped; or
- .3 Because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents, following a seven-day written notice to cure to Owner .

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

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed,. Contractor shall have no right to anticipated overhead and profit on the work not completed and shall not be entitled to any consequential, indirect or incidental damages.

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

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

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

§ 14.2.2 When any of the above reasons exist, the Owner may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven (7) days' written 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
- .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.
- .4 By issuing the bonds for the Project, the Surety acknowledges that the Bonds are subject to the requirements of this Agreement. Further, in the event Owner must terminate Contractor for cause, the Surety agrees to perform its obligations under the bonds with promptness so as to not delay the overall completion of the Project and the Surety shall take all necessary steps to bring the Project back on track.

§ 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 as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

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

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

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

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

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

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, 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.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written 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 must 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 CONTINUING CONTRACT PERFORMANCE

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

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given to Owner and Architect before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein 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.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be made in accordance with the requirements and limitations of Section 01010, in the Paragraph entitled "Time Extensions for Unusually Severe Weather."

§ 15.1.6 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 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Architect 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 litigation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 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 such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 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.

§ 15.2.6 Either party may, within 30 days from the date of an initial decision, file suit in litigation.

(Paragraph deleted)

§ 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.

(Paragraphs deleted)

ARTICLE 16 AFFIRMATIVE ACTION

§ 16.1 Contractor shall comply with all federal, state and municipal statutes, rules, regulations and ordinances pertaining to hiring practices, affirmative action, and labor applicable to the jurisdiction of the Project.

§ 16.2 Exceptions to the above Equal Employment Opportunity conditions are contracts and subcontracts not exceeding ten thousand and no/100 dollars (\$10,000.00).

§ 16.3 Unless otherwise provided, the above Equal Employment Opportunity provisions are required to be inserted in all non-exempt subcontracts.

§ 16.4 Contractor may be required under Section 60-1.40 Title 41, C.F.R., to develop a written Affirmative Action Compliance Program if Contractor has fifty (50) or more employees. If Contractor is so required, it agrees to do so no later than one hundred twenty (120) days after the effective date of the Contract and to maintain such program until such time as it is no longer required by law or regulations.

§ 16.5 Contractor shall be bound by and agrees to the provisions of the Vietnam Era Veteran's Readjustment Act of 1974 and all regulations, rules and orders promulgated there under.

§ 16.6 Contractor shall be bound by and agrees to the provisions of Section 503 of the Rehabilitation Act of 1973 and all requirements, rules and orders promulgated there under.

(Paragraph deleted)



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Shawnee Mission School District 2007 Contract Template

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~~(Name, legal status and address)~~(Name and address)

Shawnee Mission U.S.D. No. 512

7235 Antioch

Shawnee Mission, KS 66204

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~~(Name, legal status)~~(Name and address)

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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 an Emergency Change Order~~ Authorization 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~~ The Contract Documents also include the bidding requirements (including: invitation to bid, Instructions to Bidders, bid form, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or and proposal, or portions of Addenda relating to bidding requirements. In addition, the Provisions found in Contractual Provision Attachment (Form DA-146a), which is hereto attached are hereby incorporated in this contract and made a part thereof.

...

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.~~

...

~~§ 1.1.8 INITIAL DECISION MAKER~~ INITIAL DECISION MAKER

The Initial Decision Maker is the ~~person~~ Architect identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

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

...

§ 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.

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor. Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities. The Owner shall furnish, where reasonably necessary, all surveys describing physical characteristics, legal descriptions, if requested and utility locations for the site of the Project, and a legal description of the site to the extent any such information exists.. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relate to the safe performance of the Work. However, Contractor shall immediately notify Owner and Architect, in writing, in the event Contractor observes any discrepancies in such information.

§ 2.2.3 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 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.

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

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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. The rights stated in this provision are not a limitation of any rights of the Owner expressed in the Contract Documents or as provided in law or equity.

...

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 written 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 deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor 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. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

§ 2.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a three-day period after receipt of written 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 deficiencies. In such case, an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor 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 payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

§ 2.4.2 Further, the Contractor agrees that, in the event Contractor does not carry out such Work at such rates of progress as required by the Construction Schedule, the Owner may, upon three (3) days' written notice to Contractor, at Owner's option and without Contractor receiving any additional compensation therefor, require Contractor to increase the number of qualified supervisory personnel and/or workers and the amount of equipment employed in the performance of the Work to such extent as Owner may deem necessary or desirable. In addition, Owner, at its option, may supplement Contractor's manpower by entering into contracts with other contractors to perform the Work. All costs that are incurred by Owner, in this regard, including reasonable attorney's fees, shall be deducted from any sums due Contractor or Owner may make demand on Contractor for reimbursement of such costs.

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§ 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, unless the Contract Documents give other specific instructions concerning these matters. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

...

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

§ 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. Use of profanity by Contractor or its employees, subcontractors, suppliers or other persons in the control of Contractor in the presence of School staff or students will not be tolerated. Smoking and excessively loud playing of audio equipment in occupied spaces will not be allowed. In addition, Contractor comply with the District Code of Conduct, as referenced in the Bid Documents.

§ 3.4.4 The Contractor shall endeavor to employ or use labor in connection with the Work in a manner that will minimize the likelihood of any strike, work stoppage, or other labor disturbance.

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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, except such taxes as are saved by the use of the Owner's tax exemption.

§ 3.7

PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

...

§ 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 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. ~~If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.~~

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§ 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. The Contractor acknowledges and agrees that he may not incur costs that exceed the stated Allowance or expend any monies related to the Allowance without first seeking the written approval of the Owner and, where necessary, the approval of the Board of Education.

...

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

...

- .3 ~~Whenever~~ 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. In connection with allowances stated in the Agreement or Contract Documents, the Contractor agrees that it may not incur or expend any monies in excess of the specified allowance amount(s), without express written approval issued in advance by Owner. Failure to obtain prior authorization from Owner shall be deemed a waiver of any claim by Contractor to increase the Contract Sum or seek additional compensation related to such increase in allowance amount(s).

...

§ 3.9.2 The Contractor, ~~as soon as practicable~~ within seven (7) days after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect

may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the ~~14-day~~ 14-day period shall constitute notice of no reasonable objection.

...

§ 3.10.1 The Contractor, ~~promptly~~ within (7) days after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, ~~promptly~~ within ten (10) days after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

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§ 3.10.4 In the event that the Owner determines that the performance of the Work has not progressed to the level of completion required by the Contract Documents, the Owner shall have the right to order the Contractor to take corrective measures necessary to expedite progress of construction. The Contractor shall not be entitled to an adjustment in the Contract Sum in connection with the performance of such corrective measures for delays caused by the Contractor, subcontractors or materialmen.

...

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

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§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design ~~professional~~ professionals related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design ~~professionals~~, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, ~~approve or take other appropriate action~~ approve or take other appropriate action and issue a response as follows: "approve" or "approve as noted", or "reject and request

resubmission" on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

...

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. Further, the Contractor shall use its best efforts to not disturb any occupancy or use of the building that is the subject of this Agreement or disturb any residences in the vicinity or operations of businesses adjacent to or near the site of the Work.

...

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the ~~Contract~~ Contract and to the reasonable satisfaction of the Owner. 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.

...

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, including attorney's fees, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

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§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, Project Manager or Construction Manager (if applicable) 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~~ which would otherwise exist as to a party or person described in this Section 3.18.

...

~~§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.~~

§ 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~~ 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, except as provided in Section 3.3.1-Documents.

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

...

§ 4.2.10 ~~If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.~~ 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.

§ 4.2.11 ~~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. 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.~~

§ 4.2.12 ~~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.~~ The Architect's decisions on matters relating to aesthetic effect will be submitted to the Owner for final approval.

§ 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.~~ 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.

§ 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.~~

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§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, ~~as soon as practicable within three (3) calendar days~~ after award of the Contract, ~~contract,~~ shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the ~~14 day~~ 14 day period shall constitute notice of no reasonable objection.

...

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if ~~the Owner or Architect makes reasonable objection to such substitution, without the written approval of the Owner.~~ Such approval shall not be deemed to create a contractual relationship, third party beneficiary relationship between Owner and such subcontractor. Such relationship is denied by Owner.

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§ 5.4.2 Upon such assignment, if the Work has been suspended for more than ~~30~~ sixty (60) calendar days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

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

...

§ 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~~ Emergency Change Order Authorization 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 or an Emergency Change Order Authorization~~ requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

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

...

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

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

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

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

1. ~~Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;~~
2. ~~Unit prices stated in the Contract Documents or subsequently agreed upon;~~
3. ~~Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or~~
4. ~~As provided in Section 7.3.7.~~

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

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

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

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, 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 7.3.7 shall be limited to the following:

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

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

§ 7.2.2 Methods used in determining adjustments to the Contract Sum may include those listed in Section 7.2.3.

§ 7.2.3 If the Contractor does not respond promptly or disagrees with the method for adjustment of the Contract Sum, the method for adjustment in the Contract Sum shall be recommended by the Architect to the Owner 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, a reasonable allowance for overhead and profit. In such case, the Contractor shall keep and present in form such as the Architect, with the approval of the Owner, may prescribe an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Subparagraph 7.2.3 shall be limited to the following:

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

§ 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.

§ 7.2.4 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net costs 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 based on net increase or decrease, if any, with respect to that change.

§ 7.3 EMERGENCY CHANGE ORDER AUTHORIZATION

§ 7.3.1 In emergency situations, as determined by the Owner, the Superintendent of Schools, or the Deputy Superintendent for Operations has authority to issue an Emergency Change Order Authorization up to a maximum of Twenty Thousand Dollars and No/100 (\$20,000.00) per occurrence.

§ 7.3.2 An Emergency Change Order Authorization is a written order prepared and signed by the Superintendent of Schools or the Deputy Superintendent for Operations directing a change in the Work prior to formal approval by the Board of Education. The Owner may, by Emergency Change Order Authorization, and without invalidating this Agreement, order changes in the Work within the general scope of the Agreement consisting of additions, deletions or other revisions, the Contract Sum being adjusted accordingly.

§ 7.3.3 An Emergency Change Order Authorization may be used to expedite the approval of changes in the Work when the formal action of the Board of Education is not practical, or cannot be obtained in a timely fashion without impeding the progress of the Project. An Emergency Change Order Authorization may, at Owner's discretion, be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.4 An adjustment in Contract Price by the execution of an Emergency Change Order Authorization 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 price 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 7.2.3.

§ 7.3.5 Upon receipt of an approved Emergency Change Order Authorization, 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 Emergency Change Order Authorization for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Owner 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, a reasonable allowance for overhead and profit. In such case, and also under Section 7.3.4.3, 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 7.3.6 shall be limited to the following:

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

§ 7.3.7 Pending final determination of the total cost of an Emergency Change Order Authorization, amounts not in dispute for such changes in the Work shall be included in Applications for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs. For any portion of such cost that remains in dispute, the Architect will make an interim determination subject to Owner approval for purposes of monthly certification for payment for those costs. That 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 4.

§ 7.3.8 When the Owner and Contractor agree with the 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 shall be recorded by preparation and execution of an appropriate Change Order.

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§ 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. The Contractor agrees to commence Work not later than fourteen (14) calendar days after the execution of a Contract with the Owner. The Owner will suffer financial loss if the Project is not substantially complete in the time set forth in the Contract Documents. The Contractor and his surety shall be liable for and shall pay to the Owner the sum stated in Paragraph 8.2.4 herein as fixed, agreed, and liquidated damages for each consecutive day (including weekends and holidays) of delay until the Work is substantially completed.

...

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time. The Contractor shall diligently and continuously prosecute and complete the Work and coordinate the Work with the other work being performed in accordance with those schedules as may be issued from time to time during the performance of the Work so as not to delay, impede, obstruct, hinder or interfere with the commencement, progress, or completion of the whole or any part of the Work or other work for the Owner.

The Owner may, at its sole discretion, direct the Contractor to work overtime, and, if so directed, the Contractor shall work such overtime. Provided that the Contractor is not in default under any of the terms or provisions of this Contract the Owner will pay the Contractor for such actual additional wages paid, if any, at rates, which have been pre-approved by the Owner and Construction Manager.

§ 8.2.4 Liquidated damages in the amount per calendar day as set forth in Section 01010 shall be assessed against the Contractor for failure to complete the Work. Assessment of such liquidated damages shall commence on the day after the date designated in the bid proposal for substantial completion. Time is of the essence of this Contract.

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§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine, recommend and the Owner and Contractor may agree to...

...

~~§ 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.~~

§ 8.3.3 Unless a delay is caused, in whole or in part, by acts or omissions within the control of the Owner or persons acting on behalf thereof (other than the Contractor or persons acting on behalf of the Contractor), the only remedy

available to the Contractor for delay shall be an extension of time. Unless a delay is caused, in whole or in part, by acts or omissions within the control of the Owner or persons acting on behalf thereof (other than the Contractor or persons acting on behalf of the Contractor), the Contractor agrees that, whether or not any delay shall be basis for an extension of time, the Contractor shall have no claim against the Owner or Architect/Engineer for:

- .1 and increase in the Contract Sum;
- .2 a payment or allowance of any kind for damage, loss or expense resulting from delays; or
- .3 any damage, loss or expense resulting from interruptions, accelerations, inefficiencies or suspensions of its Work.

§ 8.3.4 Nothing herein shall be construed as granting an extension of time for delays, in whole or in part, by the Contractor or persons acting on behalf thereof.

...

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, ~~before the first Application for Payment, within ten (10) calendar days after award of contract,~~ a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Schedule of Values shall be prepared in such a manner that each major item of Work and each subcontracted item of Work is shown as a single line item on AIA Document G702A, Application and Certificate for Payment Continuation Sheet. The Schedule of Values shall indicate a value for construction schedules and progress meeting notes that are required in the Contract Documents.

...

§ 9.3.1 ~~At least ten days before the date established for each progress payment, the~~ The Contractor shall submit its Applications for Payment to Architect and Owner's Representative in accordance with the Accounts Payable Schedule as set forth in Section 1020 of the Project Manual. The Contractor shall submit to the Architect and Owner's Representative an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2-9.2., for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section ~~7.3.9-7.3.8,~~ such applications may include requests for payment on account of changes in the Work that have been properly authorized by ~~Construction Change Directives, Emergency Change Order Authorization,~~ or by interim determinations of the Architect, but not yet included in Change Orders.

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§ 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. The Owner shall make payment to Contractor in accordance with the Payment Schedule in the Contract Documents. However, it is understood that, notwithstanding the schedule, the Owner shall make payment to the Contractor within 30 days after the Owner receives a timely, properly completed undisputed request for payment according to the terms of this Agreement, unless extenuating circumstances exist (if so, no later than 45 days) and in accordance with the Kansas Fairness in Public Construction Contract Act. Such payments are subject to the following conditions:~~

§ 9.6.1.1 Until substantial completion, the Owner will pay ninety percent (90%) of the amount due the Contractor on account of progress payments.

§ 9.6.1.2 After substantial completion, and upon receipt of Application for Payment accompanied by consent of surety to reduction in or partial release of retainage executed in duplicate on AIA Document G707A, and upon certification, the Owner may, in its sole discretion, pay ninety-five percent (95%) of the amount due the Contractor on account of progress payments, less two hundred percent (200%) of the value of items of the Work remaining to be done.

§ 9.6.1.3 The final five percent (5%) of the Contract Sum shall not be paid until the Contractor has submitted to the Owner all releases, waivers and other final documents required and satisfied all other Conditions Precedent identified in the General Conditions and Section 5.2 of the Standard Form of Agreement Between Owner and Contractor, A101-2007, as amended.

§ 9.6.1.4 The full Contract retainage may be reinstated if the manner of completion of the Work and its progress do not remain satisfactory to the Owner or of other good and sufficient reasons, or its surety revokes its consent of reduction in or partial release of the retainage.

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~~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 In the event that undisputed amounts are not paid by Owner to Contractor within 30 days after Owner receives a timely, properly completed undisputed request for payment, the Owner shall pay interest computed at the rate of 18% per annum on the undisputed amount, which shall begin to accrue on the day payment is due. Owner agrees that all obligations regarding payment are subject of the Kansas Fairness in Public Construction Contract Act, K.S.A. §16-1901, et seq. 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, in accordance with the above referenced timetable, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents, which shall be accomplished as provided in Article 7.~~

...

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Owner determines in its sole discretion that 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 The Contractor shall carefully and regularly check his Work for conformance with the Contract Documents as the Work is being done. Unsatisfactory Work shall be corrected as the Work progresses and not be permitted to remain and become part of the Punch List. When the Contractor determines that the entire Work is ready for the Punch List inspection, it shall so notify the Architect for the Punch List inspection at the earliest possible date. Transmittal of the Punch List to the Contractor shall set the date for a reinspections prior to issuance of a Certificate of Substantial Completion. Upon receipt of the Punch List, the Contractor shall within seven (7) days bring to the attention of the Architect any questions that it may have concerning requirements of the Punch List.

§ 9.8.1.2 When advised by the Contractor that all items on the Punch List have been completed and/or corrected, the Architect shall conduct a reinspection and shall be accompanied by the Contractor and any needed subcontractors to determine whether the Certificate of Substantial Completion can be issued. When issued, the Certificate of Substantial Completion shall state the date of commencement of the Warranty period (with any items to have a later starting date specifically noted). The Certificate shall also have attached to it the uncompleted Punch List items, and shall name the date for their completion. The Certificate of Substantial Completion shall also state the responsibilities of the Owner and the Contractor for maintenance, heat, utilities, insurance and building security. Acknowledgment of the Date of Substantial Completion by the signature of all parties on the Certificate implies possession of the premises by the Owner, and further completion of all incomplete Punch List items by the Contractor and the subcontractors at the Owner's convenience. The Owner shall cooperate in permitting the Contractor access to the Work for the completion of Punch List items.

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§ 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 as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided

the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. 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-Contractor..

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The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the ~~Contract~~. Contract, including without limitation the requirements of laws and regulations that protect the environment and human health and safety. The Contractor and its subcontractors are solely responsible for complying with local, state and federal laws and regulations regarding the Work under construction at the site, including the current provisions of the Occupational Safety and Health Act of 1970 (29 CFR 1910 et seq.) and the Consumer Product Safety Act as it relates to building materials and construction. The Contractor shall submit the Contractor's safety program to the Architect and Owner.

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§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. ~~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.~~ notification by Owner. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

...

§ 10.3.4 ~~The Owner shall not be responsible under this Section 10.3 for 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 materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.~~

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

§ 10.3.4 The Contractor hereby agrees and warrants that neither the Contractor, nor any of its employees, agents or subcontractors shall introduce any materials, supplies, or products in performing the Work which contain restricted or banned hazardous materials.

§ 10.3.5 Upon request of the Contractor, the Owner shall make available any inspections, reports, or studies in the Owner's possession relating to the presence of asbestos, if any, at the Work site.

§ 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 indemnify the Contractor for all cost and expense thereby incurred. The Owner shall not be responsible under this Section 10.3 for 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 materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

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

§ 10.3.8 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 indemnify the Contractor for all cost and expense thereby incurred.

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

...

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

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

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

§ 11.1.5 Limits of insurance provided by the Contractor pursuant to these General Conditions shall not be less than the following:

<u>.1</u>	<u>Commercial Liability</u>	<u>\$2,000,000.00</u>
<u>.2</u>	<u>Automobile Liability</u>	<u>\$1,000,000.00</u>
<u>.3</u>	<u>Umbrella Liability</u>	<u>\$10,000,000.00</u>
<u>.4</u>	<u>Workers' Compensation</u>	<u>Statutory plus \$500,000.00 Employers Liability</u>

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~~§ 11.3.1 Unless otherwise provided, the Owner~~The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract ~~Modifications~~modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost ~~basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, basis.~~ Such property insurance shall be maintained until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section ~~11.3-11.4~~11.4 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

...

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

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

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

~~§ 11.3.2 BOILER AND MACHINERY INSURANCE~~

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

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

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

~~§ 11.3.6 Before an exposure to loss may occur, the Owner~~Contractor shall file with the ~~Contractor~~Owner a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least ~~30~~thirty (30) days' prior written notice has been given to the ~~Contractor~~Owner.

~~§ 11.3.8 A loss insured under the Owner's property insurance 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 11.3.10. The Contractor shall pay~~ The Contractor shall pay the Owner and Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

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

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

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND AND STATUTORY BOND

~~§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.~~ Contractor shall furnish Performance Bond, Labor and Material Payment Bond, and Statutory Bond in the amount of one hundred percent (100%) of Contract Sum at the time of execution of the Contract. Performance and Payment Bonds shall be executed by a surety company satisfactory to Owner in form of AIA A311.

§ 11.4.1.1 Such Bonds, among other conditions, shall include payment for all materials used in Work and for all labor performed, whether by subcontractor or otherwise. Cost of Performance Bond and Payment Bond shall be included in the Contract Sum. Further, the Surety, by providing such Bonds, agrees to waive all notice to any change in the Work that would extend the Contract Time or increase Contract Sum and Surety agrees to increase the Penal Sum of the Bonds in the event of increases in the Contract Sum to this Agreement.

§ 11.4.1.2 Said Bonds shall remain in full force and effect during term of any warranty required by specifications and any such longer term as required by Kansas law. Contractor shall keep bonding company informed of changes in amount of the Contract Sum and shall furnish Architect with copies of notices of such changes.

...

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

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the

Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such 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 2.4. This provision does not reduce or limit Contractor's obligation to perform Work in accordance with the Contract Documents nor does it reduce or limit any remedies available to Owner at law or in equity.

...

The Contract shall be governed by the law of the ~~place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern~~ Section 15.4, State of Kansas.

§ 13.1.2 It is the Owner's intent to take advantage of its tax exemption status. Therefore, the Owner will furnish to the Contractor a tax exemption number issued by the State of Kansas for the construction of this Project. Where appropriate, sales tax shall not be included in the Contractor's proposal.

§ 13.1.3 The Contractor agrees to abide by all federal requirements, including Equal Employment Opportunity (Article 15.1), the Clean Air Act, the Federal Water Pollution Control Act and such other federal, state or local laws applicable to this Project and to furnish any certification required by any federal, state or local governmental agency in connection with same.

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Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located. In the event that undisputed amounts are not paid by Owner to Contractor within 30 days after Owner receives a timely, properly completed undisputed request for payment, the Owner shall pay interest computed at the rate of 18% per annum on the undisputed amount, which shall begin to accrue on the eighth day after Architect receives an undisputed request for payment from Contractor. Owner agrees that all obligations regarding payment are subject of the Kansas Fairness in Public Construction Contract Act, K.S.A. §16-1901, et seq.

...

The Owner and Contractor Claims by the Contractor must be initiated within twenty-one (21) days after occurrence of the event giving rise to such claim, otherwise, such claim shall be deemed waived. Claims must be made by written notice to the Owner with a copy to the Architect. The Owner shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. ~~law.~~ The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

...

- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;
or
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1 Documents, following a seven-day written notice to cure to Owner .

...

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and executed. Contractor shall have no right to anticipated overhead and profit on the work not completed and shall not be entitled to any consequential, indirect or incidental damages.

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§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, 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 (7) days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

...

- .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.
- .4 By issuing the bonds for the Project, the Surety acknowledges that the Bonds are subject to the requirements of this Agreement. Further, in the event Owner must terminate Contractor for cause, the Surety agrees to perform its obligations under the bonds with promptness so as to not delay the overall completion of the Project and the Surety shall take all necessary steps to bring the Project back on track.

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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. Documents for all non-disputed Work. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

...

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given to Owner and Architect before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

...

§ 15.1.5.2 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, made in accordance with the requirements and limitations of Section 01010, in the Paragraph entitled "Time Extensions for Unusually Severe Weather."

...

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker Architect 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-litigation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

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~~§ 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, may, within 30 days from the date of an initial decision, file suit in litigation.

~~§ 15.2.6.1~~ Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

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

§ 15.3 MEDIATION

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

~~§ 15.4.1~~ 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. 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 Either party, at its sole discretion, 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 Either party, at its sole discretion, 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.

ARTICLE 16 AFFIRMATIVE ACTION

§ 16.1 Contractor shall comply with all federal, state and municipal statutes, rules, regulations and ordinances pertaining to hiring practices, affirmative action, and labor applicable to the jurisdiction of the Project.

§ 16.2 Exceptions to the above Equal Employment Opportunity conditions are contracts and subcontracts not exceeding ten thousand and no/100 dollars (\$10,000.00).

§ 16.3 Unless otherwise provided, the above Equal Employment Opportunity provisions are required to be inserted in all non-exempt subcontracts.

§ 16.4 Contractor may be required under Section 60-1.40 Title 41, C.F.R., to develop a written Affirmative Action Compliance Program if Contractor has fifty (50) or more employees. If Contractor is so required, it agrees to do so no later than one hundred twenty (120) days after the effective date of the Contract and to maintain such program until such time as it is no longer required by law or regulations.

§ 16.5 Contractor shall be bound by and agrees to the provisions of the Vietnam Era Veteran's Readjustment Act of 1974 and all regulations, rules and orders promulgated there under.

§ 16.6 Contractor shall be bound by and agrees to the provisions of Section 503 of the Rehabilitation Act of 1973 and all requirements, rules and orders promulgated there under.

§ 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 the Owner and Contractor under this Agreement.

SECTION 007200 - GENERAL CONDITIONS

PART 1 - GENERAL

1.1 APPLICABLE DOCUMENTS

- A. The American Institute of Architects Document A201, "General Conditions of the Contract for Construction", 2017 Edition, is part of the Contract Documents and is included by reference, as amended by Document 007300 "Supplementary Conditions".
- B. Copies of the General Conditions may be obtained, at cost, from the Local Chapter, of the American Institute of Architects, at the address listed below:
 - 1. AIA Springfield
 - a. Address: 1717 E. Republic Rd, Ste. A, Springfield, Missouri 65804.
 - b. Telephone: (417) 886-8606.
 - c. Website: www.aiaspringfield.org
 - 2. AIA Kansas City
 - a. Address: 1801 McGee, Suite 100, Kansas City, Missouri 64108
 - b. Telephone: (816) 221-3485.
 - c. Website: www.aiakc.org
 - 3. AIA Mid Missouri
 - a. Address: P. O. Box 1622, Columbia, Missouri 65205
 - b. Website: www.aiamid-missouri.com
 - 4. AIA St. Louis
 - a. Address: 911 Washington Street, #100, Louis, Missouri 63101
 - b. Telephone: (314) 621-3484
 - c. Website: www.aia-stlouis.org
 - 5. AIA Missouri
 - a. Address: 204 East High Street, Jefferson City, Missouri 65101
 - b. Telephone: (573) 635-8555
 - c. Website: www.aiamo.org
 - 6. AIA Kansas
 - a. Address: 700 SW Jackson, Suite 209, Topeka, KS 66603
 - b. Telephone: (785) 357-5308
 - c. Website: www.aiaks.org
- C. Copies of the General Conditions may also be obtained, at cost, from the website of the American Institute of Architects, at the internet address listed below:
 - 1. Website: <http://www.aia.org/contractdocs/index.htm>

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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CONTRACTOR'S PUBLIC WORKS BOND TO THE STATE
(Pursuant to K.S.A. 60-1111 as amended)

WITNESSETH: That we _____

as Principal, and _____

as Surety, are hereby jointly and severally held and firmly bound unto the STATE OF KANSAS in the sum of _____ Dollars
(\$ _____), lawful money of the United States of America for
the use and benefit of all persons entitled thereto and for the payment of which we hereby bind ourselves, our successors,
assigns, heirs, executors and administrators.

THE CONDITION OF THE OBLIGATION IS SUCH, THAT

WHEREAS, the Principal has entered into an Agreement with _____
dated _____ for
improvements described as _____
_____ (the "Work")
according to the Contract Documents which are incorporated herein by reference.

NOW, THEREFORE, if the Principal and its Subcontractors shall pay all indebtedness incurred for labor furnished, materials,
equipment or supplies used or consumed in connection with the Work including gasoline, lubricating oils, fuel oils, grease, coal
and similar items used or consumed directly in furtherance of the Work, then this obligation is to be null and void; otherwise it
shall remain in full force and effect.

The Surety covenants and agrees that no change, extension of time, alteration or addition to the Contract Documents or to the
Work shall in any way reduce, nullify or affect the Surety's obligations on this bond; and the Surety hereby waives notice on any
such change, extension of time, alteration or addition to said Contract Documents or Work.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed and delivered this _____ day
of _____, 20____.

Principal_

Title

Surety

Title

FEDERAL WORK AUTHORIZATION PROGRAM AFFIDAVIT

I, _____, being of legal age and having been duly sworn upon my oath, state the following facts are true:

1. I am more than twenty-one years of age; and have first-hand knowledge of the matters set forth herein.
2. I am employed by _____ (hereinafter "Company") and have authority to issue this affidavit on its behalf.
3. Company is enrolled in and participating in the United States E-Verify (formerly known as "Basic Pilot") federal work authorization program with respect to Company's employees working in connection with the services Company is providing to, or will provide to, the District, to the extent allowed by E-Verify.
4. Company does not knowingly employ any person who is an unauthorized alien in connection with the services the Company is providing to, or will provide to, the District.

FURTHER AFFIANT SAYETH NOT.

By: _____ (individual signature)

For: _____ (company name)

Title: _____

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

NOTARY PUBLIC

My commission expires:

FEDERAL WORK AUTHORIZATION PROGRAM (“E-VERIFY”) ADDENDUM

Pursuant to Missouri Revised Statute 285.530, all business entities awarded any contract in excess of five thousand dollars (\$5,000) with a Missouri public school district must, as a condition to the award of any such contract, be enrolled and participate in a federal work authorization program with respect to the employees working in connection with the contracted services being provided, or to be provided, to the District (to the extent allowed by E-Verify). In addition, the business entity must affirm the same through sworn affidavit and provision of documentation. In addition, the business entity must sign an affidavit that it does not knowingly employ any person who is an unauthorized alien in connection with the services being provided, or to be provided, to the District.

Accordingly, your company:

- A. agrees to have an authorized person execute the attached “Federal Work Authorization Program Affidavit” attached hereto as Exhibit A and deliver the same to the District prior to or contemporaneously with the execution of its contract with the District;
- B. affirms it is enrolled in the “E-Verify” (formerly known as “Basic Pilot”) work authorization program of the United States, and are participating in E-Verify with respect to your employees working in connection with the services being provided (to the extent allowed by E-Verify), or to be provided, by your company to the District;
- C. affirms that it is not knowingly employing any person who is an unauthorized alien in connection with the services being provided, or to be provided, by your company to the District;
- D. affirms you will notify the District if you cease participation in E-Verify, or if there is any action, claim or complaint made against you alleging any violation of Missouri Revised Statute 285.530, or any regulations issued thereto;
- E. agrees to provide documentation of your participation in E-Verify to the District prior to or contemporaneously with the execution of its contract with the District (or at any time thereafter upon request by the District), by providing to the District an E-Verify screen print-out (or equivalent documentation) confirming your participation in E-Verify;
- F. agrees to comply with any state or federal regulations or rules that may be issued subsequent to this addendum that relate to Missouri Revised Statute 285.530; and
- G. agrees that any failure by your company to abide by the requirements a) through f) above will be considered a material breach of your contract with the District.

By: _____ (signature)

Printed Name and Title: _____

For and on behalf of: _____ (company name)

SECTION 008400 - ATTACHMENTS

PART 1 - GENERAL

1.1 APPLICABLE DOCUMENTS

A. The State of Kansas "Statutory Bond Form" is bound hereinafter for duplication and use.

1. Bond shall be fully executed, filed, and stamped with the Clerk of the District Court having jurisdiction where the project is located.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 010200

CONTRACT CONSIDERATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Schedule of values.
- B. Bid Cost Breakdown.
- C. Application for Progress Payment.
- D. Application for Final Payment
- E. Change Orders and/or Clarifications.

1.02 SCHEDULE OF VALUES

- A. The Contractor will submit to the Architect, a Schedule of Values that includes all major categories of work and per building if applicable. The Schedule of Values will annotate a value for the construction schedules and progress meeting notes required by the contract documents. The dollar amounts are to include all labor, material, overhead and profit applicable to each item in the breakdown. As a sub-breakdown, each item is to be separated into an estimated labor and materials line item. The Contractor must submit an estimated total value for the projected cost of supplies, materials, and equipment required. Submit typed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet. Contractor's standard form of electronic media printout will be considered as an alternate form of submission.
- B. Submit Schedule of Values in triplicate within fourteen (14) calendar days after the contract for construction is executed and prior to any submission of an Application for Payment. Schedule shall list the installed value of the component parts of the work, broken down in sufficient detail to serve as a basis for computing values for progress payments during construction.
- C. Format: At a minimum, use the Table of Contents in this Project Manual to identify each line item with number and title of the major specification section.
- D. Add to the Schedule of Values approved Change Orders, with each Application for Payment. List Change Orders in numerical sequence with each Application for Payment.
- E. Correlate line items in the Schedule of Values with other required additional schedules and forms including:
 - a. Contractor's construction schedule
 - b. Contract payment request form
 - c. List of subcontractors.
 - d. List of products.
 - e. List of principle suppliers and fabrications.
 - f. Schedule of submittals.
- F. Prior to making application for the first progress payment, the Contractor must submit the Schedule of Values. No progress payments will be made until the schedule of values has

been received, reviewed, and approved by the Architect and Shawnee Mission School District. The costs assigned to the breakdown are to total the contract sum. The approved Schedule of Values is to be used by the Contractor on their Application for Payment.

1.03 BID COST BREAKDOWN

(See Bid Form for any applicable requirements)

1.04 APPLICATION FOR PROGRESS PAYMENTS

- A. At a time consistent with the requirements of this section, the General Conditions, and the Owner-Contractor Agreement, and for each calendar month during the progress of the work, submit three (3) copies of a properly notarized itemized Application for Payment prepared in a manner consistent with the Schedule of Values.
 - B. The amount shown on the Application for Payment shall be established by the value of work completed through the last day of the application period based upon the Contractor's estimate of labor and materials incorporated in the work and of materials suitably stored in accordance with the contract through the last day of the previous application, less the aggregate of previous payments, and less the retainage as specified in this section.
 - C. The form of application for payment shall be the May, 1983 edition of AIA Document G702. "Application and Certificate for Payment", supported by AIA Document G703. "Continuation Sheet", May, 1983 edition.
 - D. Provide the following itemized data on Continuation Sheet:
 - a. Format, schedules, line items, and values shall be from the Schedule of Values accepted by Architect.
 - b. Include names, trades and amount for subcontractors.
1. Application Form:
- a. Fill in required information, including that for change orders executed prior to the date of submittal application.
 - b. Fill in summary of dollar values to agree with the respective totals indicated on the continuation sheet.
 - c. Execute certificate with the signature of a responsible officer of the contractor's firm.
2. Continuation sheets:
- a. Fill in total list of all scheduled component items of work, with each number and the scheduled dollar value of each item.
 - b. Fill in the dollar value in each column for each scheduled line item when work has been performed or products stored. Round off values to nearest dollar, or as specified in the Schedule of Values.
 - c. List each change order executed prior to the date of submission, at the end of the continuation sheets. List by change order number, description, and breakdown of costs as for an original component item of work.

- E. Substantiating Data for Progress Payments:
 - 1. Substantiating data is required to verify a payment request. Contractors are to include a cover letter identifying:
 - a. Project.
 - b. Application number and date.
 - c. Detailed list of enclosures.
 - d. For stored products: Item number and identification as shown on application, and description of specific material. Include Bill of Sale, Non-Negotiable Bailment Receipt (see form at the end of this section) and applicable insurance certificate.
 - 2. Submit one copy of the data cover letter for each of the applications.
- F. Applications for Payment shall be accompanied by cost breakdowns from the contractor, subcontractors and sub-sub-contractors.
- G. The three notarized copies of the application for payment will be transferred to the architect to be certified for payment. Provide a copy (non-notarized) to the owner's representative.

1.05 APPLICATION FOR FINAL PAYMENT

- A. Submit final Application for Payment following the procedures specified above for progress payments.
- B. Before submitting final Application for Payment, forward concurrently to the Architect, the written warranties and guarantees, Record and Information Manuals and other documents required by the contract documents. Place properly in approved storage at the site the extra stock and spare parts specified. Contractor will obtain the signature of the Architect verifying receipt of the extra stock and spare parts.
- C. Properly executed "Final Lien Waiver and Release" and Contractor's "Affidavit" (see applicable forms at the end of this section) shall be submitted to the Architect in duplicate prior to final payment.
- D. Application for Final Payment shall be accompanied by a properly executed "Consent of Surety Company to Final Payment: AIA Document G707, April, 1970 edition.

1.06 CHANGES AND/OR CLARIFICATIONS

- A. Request for Information (RFI)
 - 1. If during the construction of the project, clarification of the documents is required, it shall be brought to the attention of the Architect. The Architect will either provide clarification or the Contractor will issue a Request for Information (RFI) to the Architect. Each RFI will be dated and sequentially numbered. The Architect shall provide his written response to the RFI and return the RFI response to the Contractor for distribution to all effected contractors.
 - 2. Responses to RFI's are not authorization to proceed with work requiring additional compensation. If additional compensation is required, the Contractor shall immediately advise the Architect, and Owner.

B. Proposal Request (PR)

1. Should the owner contemplate making a change in the work, the architect will issue a Proposal Request (PR) to the Contractor. If the described change impacts cost and/or time, the Contractor will prepare a proposal and submit it to the Architect. The Contractor's proposed cost shall be broken down completely giving quantity and unit costs by each trade of each item, labor cost with hourly rates, allowable overhead and profit (both adds and deducts). The Owner and Architect will review the pricing to determine if a change order will be issued. Contractors are not to proceed with additional work until written authorization has been received. No additional amount will be paid for submittal in this form or for resubmittal should the breakdown be considered inadequate by the Architect and Owner.

C. Change Orders (CO)

1. If the Owner determines that a Proposal Request will be accepted, the Architect will prepare a change order (CO) which will be dated and numbered sequentially. The change order will describe the change or changes, will refer to the Proposal Request and Proposal number and becomes valid when signed by the Owner, the Architect and the Contractor.
2. Where unit prices are not required by the bid documents and value of changes or extra work is determined by estimate and acceptance in a lump sum, by cost and percentages, or by cost and a fixed fee, the percentages for overhead and profit, or commission to be allowed for net increases shall in no case exceed the figures identified on the bid form.
3. Estimates for material shall be based on reasonable current market value at which materials are available to the Contractor and Subcontractor. Upon request, submit satisfactory evidence of such costs. Labor unit costs shall include associated insurance.
4. When authorized by the Owner, time and material accounting of a change in work may be used. The Contractor shall maintain an accurate account of labor and material involved in each change. Such time and material records are subject to verification. Notify Architect and Owner when work on each change is to start and when it has been completed. To receive full recognition, labor assigned to Contract changes must, insofar as possible, work continuously on the change, rather than interchanging between contract work and the change.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

FINAL LIEN WAIVER AND RELEASE

Reference that certain Agreement between _____, as Contractor, and _____, as Owner, dated _____, on the project known as _____ located at _____ for work to be performed by said Contractor.

Reference also that certain invoice of Contractor to said Owner in the Amount of \$ _____ for work, labor and materials installed in or furnished for said project by and through _____.

The receipt by Contractor of Owner's remittance for the amount said invoice, contingent upon the final clearance and payment of said remittance, shall constitute payment for the full contract amount, including change orders and all other claims or demands of any nature whatsoever which Contractor has or may have in connection with the Project or Contract referenced herein, of \$ _____, for which Contractor (a) agrees to and does hereby waive and release said property, project and the Owner and all bond or payment sureties and guarantors from; and (b) does hereby agree to protect, indemnify, defend and hold harmless said property, project, Owner, sureties and guarantors against;

- (1) any and all liens, statutory or otherwise, and
- (2) any or all obligations under any bond or guaranty for payment furnished by or to said Owner, whether pursuant to agreement or requirement of law, and
- (3) any and all other claims whatsoever, statutory or otherwise,

for any and all work, labor and materials furnished by or through said Contractor, its subcontractors and material suppliers for the entirety of said project.

The remittance of the Owner, identified as payment of said above invoice and endorsed by Contractor and marked "paid" or otherwise canceled by the bank against which said remittance was drawn shall constitute conclusive proof that said invoice was paid and the payment thereof was received by the Contractor, and thereupon, this final lien waiver shall become effective automatically and without requirement of any further act, acknowledgment or receipt of the part of said Contractor.

Contractor does further warrant that Contractor has not and will not assign its claims for payment nor its right to perfect a lien against said property and project, and the undersigned representative of the contractor has the right to execute this waiver and release thereof.

The undersigned representative of Contractor does hereby certify under oath that he is fully authorized and empowered to execute this instrument for and in behalf of said Contractor and to bind them hereto and does in fact so execute this final lien release.

Dated this _____ day of _____, 20__.

Contractor:

By:

Title:

Subscribed and affirmed to before me, the undersigned Notary Public within and for the State of _____ and the County of _____, this _____ day of _____, 20__, in the City of _____

-.

Notary Public within and for said County and State

NON-NEGOTIABLE BAILMENT RECEIPT

Receipt Number

BAILOR: _____ Owner _____

BAILEE: Contractor/Supplier_____

PROJECT: _____

LOCATION OF STORAGE: _____

The goods and materials described below are held and stored pursuant to the Contract by and between Bailee, as Contractor/Supplier, and Bailer as Owner for Work to be performed at the above referenced Project location. Said goods and materials are to be transferred or delivered to the project site in conjunction with the performance of Bailee's contract referenced above or upon the direction of Bailor or the Architect and no other. The Bailee acknowledges that it has no ownership rights or title in, nor shall claim any lien or interest in or upon, said goods and materials.

QUANTITY	DESCRIPTION OF ITEM
----------	---------------------

Received and Acknowledged
Contractor/Supplier

DATED: _____ BY: _____ Authorized Signature

The undersigned representative of Contractor does hereby certify under oath that he is fully authorized and empowered to execute this instrument for and in behalf of said Contractor and to bind them hereto and does in face so execute this final lien release.

Dated this _____ day of _____, 20 ____.

Contractor:

By:

Title:

Subscribed and affirmed to before me, the undersigned Notary Public within and for the State of

_____ and the County of _____, this _____ day of _____, 20
____,

in the City of _____.

Notary Public within and for said County and State

SECTION 010400**COORDINATION****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Coordination.
- B. Coordination Drawings.
- C. Lockout/Tagout Procedures
- D. General Installation Provisions
- E. Cleaning and Protection

1.02 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various sections of specifications to assure efficient and orderly sequence of the project.
- B. Verify that utility requirements for the project have been properly installed and that such water, phone, and electrical hookup is compatible with other construction and demolition operations occurring at the site. Coordinate Work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate space requirements and installation of all Work including mechanical and electrical Work that is indicated diagrammatically on drawings prior to initiating Work on site. Bring discrepancies to the attention of the Architect in a timely manner, follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas, except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- E. The Contractor is to coordinate his Work with the Work of the Owner's Contractors.
- F. Coordinate completion and clean up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.
- G. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with contract documents, to minimize disruption of Owner's activities. This will include off-hour Work to avoid conflict with Owner's activities.
- H. Coordinate construction activities included under various sections of these specifications to assure efficient, safe, and orderly installation of each part of the Work. Coordinate construction operations included under different sections of the specifications that are dependent upon each other for proper installation, connection, and operations.

1. Where installation of one part of the Work is dependent on installation of other components either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
- I. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.
- J. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of schedules.
 2. Installation and removal of temporary facilities.
 3. Delivery and processing of submittals.
 4. Conducting progress meetings.
 5. Orchestrating pre-installation and quality assurance meetings.
 6. Project closeout activities.

1.03 COORDINATION DRAWINGS (Include as specifically applicable to the project.)

- A. Coordination Drawings: Prepare and submit coordination drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.
1. Show the interrelationship of components.
 2. Indicate required installation sequences.
 3. Comply with requirements contained in Section "Submittals".
 4. Refer to Division-15 Section "Basic Mechanical Requirements", and Division-16 Section "Basic Electrical Requirements" for specific coordination drawing requirements for mechanical and electrical installations.
 5. In addition to coordination drawings listed in the individual sections, prepare coordination drawings for:
 - a. Mechanical equipment rooms.
 - b. Electrical equipment rooms.
 - c. Elevator equipment rooms.
 - d. Roof plan with ALL penetrations, equipment supports, etc., including mechanical and electrical items.
 - e. Ductwork, piping, electrical conduit.
 6. Submit coordination drawings to the Architects as an "Informational Submittal". The Architect will not take responsive action.

1.04 LOCKOUT/TAGOUT PROCEDURES

- A. Comply with the most recent requirements of OSHA Regulations for the safety of the workers. All equipment shall be locked/tagged out to a zero energy state when new installation, replacement, repair, maintenance or servicing is done on machinery or equipment to protect against accidental or inadvertent operation when such operation could cause injury to personnel.
- B. Contractors are required to lockout/tagout machinery and equipment prior to maintenance or service. Compliance with this policy/procedure is mandatory.
- C. Contractor employees must be able to:
 - 1. Prepare equipment for shut down
 - 2. Shut down equipment
 - 3. Isolate equipment
 - 4. Apply lockout/tagout devices
 - 5. Control any stored energy
 - 6. Verify equipment isolation
 - 7. Remove the lockout
- D. When a lockout is placed on a piece of equipment or a system, it shall have a tag attached with a written warning from the person attaching the lockout.
- E. If the energy source cannot be locked out, the tag should clearly state that there is no lockout on the equipment and that it has been de-energized for service.
- F. Procedures:
 - 1. Preparation

Contractor(s) performing lockouts must verify which switches, valves or other energy isolating devices apply to the equipment being services.
 - 2. Shutdown
 - a) Notify any affected personnel (includes other contractors and/or district staff) of the equipment or machinery being locked/tagged out.
 - b) Shut the equipment down using its normal operating controls.
 - 3. Isolation
 - a) Isolate the equipment or machinery from every power source.
 - b) Insure any secondary power is isolated from the equipment or machinery.
 - 4. Application of Lockout/Tagout
 - a) Lockout the energy isolating device with an assigned lock. Only locks assigned for lockout purposes shall be used. General purpose locks shall not be utilized.

5. Stored Energy

- a) Insure all moving parts are stopped.
- b) Release any stored energy from the equipment or machinery. Spring pressure, elevated parts, rotating parts, hydraulics, air, gas, steam, water, etc., must be dissipated or restrained by other methods such as grounding, blocking or bleeding down.

6. Isolation & Verification

- a) Insure no personnel are exposed to the equipment or machinery.
- b) Operate the controls of the equipment or machinery to make sure the equipment or machinery will not operate.
- c) Return the controls to the off position.
- d) Electrical testing equipment shall be used to verify electrical isolation.

7. Restoring Equipment/Machinery to Operation

- a) Upon completion of maintenance or service, verify the equipment/machinery is safe to operate.
- b) Remove all tools from the work area.
- c) Insure the system is fully assembled.
- d) Be sure all personnel are clear of the equipment.
- e) Inform everyone affected by the equipment or machinery that the lockout/tagout is being removed.
- f) Remove the lockout/tagout devices. Devices are only to be removed by the person that put them on, except in the case of an emergency.

1.05 GENERAL INSTALLATION PROVISIONS

- A. Inspection of Conditions: Require the Installer of each major Work component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in contract documents.
 - 1. Where applicable, comply with manufacturer's instructions, including each step in sequence.
 - 2. Should manufacturer's instructions with contract documents, request clarification from Architect before proceeding.
 - 3. Installation must be performed to conform to the requirements of manufacturer's warranty.
- C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.
- E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

- F. Recheck measurements and dimensions, before starting each installation.
- G. Install each component during weather conditions and project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
- I. Mounting Heights: Where mounting heights are not indicated (install individual components at standard mounting heights recognized within the industry for the particular application indicated). Refer questionable mounting height decisions to the Architect for final decision.

1.06 CLEANING AND PROTECTION

- A. Clean and maintain construction area as frequently as necessary throughout the project. Contractor to provide up to and have use of at least one dumpster during the course of the Work. The dumpster to be located as coordinated with the Owner. The Contractor shall be responsible for any damages and shall repair and/or replace grass sod, concrete curbing, sidewalks, paved surfaces, or other items if damaged due to the Contractor's activities.
- B. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
 - 1. Excessive static or dynamic loading.
 - 2. Excessive internal or external pressures.
 - 3. Excessively high or low temperatures.
 - 4. Thermal shock.
 - 5. Excessively high or low humidity.
 - 6. Air contamination or pollution.
 - 7. Water or ice.
 - 8. Solvents.
 - 9. Chemicals.
 - 10. Light.
 - 11. Radiation.
 - 12. Puncture.
 - 13. Abrasion.
 - 14. Heavy traffic.
 - 15. Soiling, staining and corrosion.
 - 16. Bacteria.
 - 17. Rodent and insect infestation.
 - 18. Combustion.
 - 19. Electrical current.
 - 20. High speed operation.
 - 21. Improper lubrication.
 - 22. Unusual wear or other misuse.
 - 23. Contact between incompatible materials.
 - 24. Destructive testing.
 - 25. Misalignment.
 - 26. Excessive weathering.

27. Unprotected storage.
 28. Improper shipping or handling.
 29. Theft.
 30. Vandalism.
- C. Comply with Environmental Protection Agency Standards for Lead Renovation, Repair, and Painting Program (RRP); 40 CFR Part 745 and Kansas Department of Health and Environment Regulations K.A.R. 28-72-1 to 28-72-54.
1. Conduct pre-renovation education and notification.
 2. Supervise construction activities to ensure that lead safe work practices are performed and take proper precautions concerning presumed lead materials.
 3. Prevent discharge, dispersal, release or escape of lead dust and debris.
 4. Isolate work areas and ensure that renovation dust or debris does not spread beyond contract limits or the project work areas. If latent emissions occur, perform cleaning, recleaning, and subsequent cleaning verifications as necessary. The Contractor shall not leave lead dust hazards in Owner facilities. Lead dust hazard means surface dust that contains a dust-lead loading (area concentration of lead) at or exceeding the levels promulgated by State of Kansas and Federal regulations. The Contractor shall not impair the Owner's ability to occupy work areas under this contract beyond substantial completion dates by leaving lead dust hazards.
 5. During construction the Contractor shall perform visual inspections and cleaning verifications and shall weigh and assess the risks presented by the actual or presumed presence of lead-based paint and/or lead-based paint hazards.
 6. The Contractor shall comply with State of Kansas and Federal lead safe work practices to clean and reclean each work area for safe post renovation occupancy by unprotected workers, children, and other building occupants.
 7. Comply with the US Occupational Safety and Health Administration's Lead in Construction Rule, 29 CFR Part 1926 et al., 29 CFR Part 1910 et al.
 - a. Communicate information concerning lead hazards according to the requirements of OSHA's Hazard Communication Standard for the construction industry, 29 CFR 1926.59.
 - b. Employee notification: Prior to the commencement of work activities, make available to the affected parties information developed for the hazard communication standard for this purpose.
 - c. The Contractor shall properly clean all areas where suspect or identified lead-based paint products are disturbed prior to project completion.
 8. At the Pre-Construction Meeting the Contractor shall submit documents which indicate:
 - d. Contractor and subcontractors are lead certified firms.
 - e. That each firm employees at least one lead certified renovator who is specifically trained to supervise and direct lead safe work practices, post signage, and perform cleaning verifications.
 - f. That individual workers are trained to use lead safe work practices.

9. Product Prohibition: Do not install lead-based paints or coatings. Do not install lead bearing materials. The Contractor shall not install lead or lead-bearing products as defined by the US Consumer Product Safety Commission's Ban of Lead-Containing Paint and Certain Products Bearing Lead-Containing Paint 16 CFR 1303 et. Al.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 010450**CUTTING AND PATCHING****PART 1 GENERAL****1.01 SECTION INCLUDES:**

- A. Summary
- B. Submittals
- C. Quality Assurance
- D. Products
- E. Cleaning
- F. Renovation Supplemental Project Procedures

1.02 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. Requirements of this section apply to mechanical and electrical installations. Refer to Division-22, 23, and 26 sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

1.03 SUBMITTALS

- A. Cutting and Patching Description: Where approval of procedures for cutting and patching is required before proceeding, submit a description of the procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the proposal:
 - 1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.
 - 2. Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
 - 3. List products to be used and firms or entities that will perform work.
 - 4. Indicate dates when cutting and patching is to be performed.
 - 5. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
 - 6. Where cutting and patching involves addition of reinforcement to structural elements, submit details and engineering calculations signed and sealed by a qualified professional engineer licensed in the State of Kansas to show how reinforcement is integrated with the original structure.

7. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of a part of the work found to be unsatisfactory.

1.04 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 approval of the cutting and patching description before cutting and patching the following structural elements:
 - a. Foundation construction.
 - b. Bearing and retaining walls.
 - c. Structural concrete.
 - d. Structural steel.
 - e. Lintels.
 - f. Structural decking.
 - g. Miscellaneous structural metals.
 - h. Equipment supports.
 - i. Piping, ductwork, vessels, and equipment.
- 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 increase maintenance, or decreased operational life or safety.
 1. Obtain approval of the cutting and patching description before cutting and patching the following operating elements or safety related systems:
 - a. Primary operational systems and equipment.
 - b. Air or smoke barriers.
 - c. Water, moisture, or vapor barriers.
 - d. Membranes and flashings.
 - e. Fire protection systems.
 - f. Noise and vibration control elements and systems.
 - g. Control systems.
 - h. Communication systems.
 - i. Electrical wiring systems.
- 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 that has been cut and patched in a visually unsatisfactory manner.
 1. If possible, retain the original installer or fabricator to cut and patch the following categories of exposed work; or if it is not possible to engage the original installer or fabricator, engage another recognized experience and specialized firm:
 - a. Processed concrete finishes.
 - b. Stonework.
 - c. Ornamental metal.
 - d. HVAC enclosures, cabinets or covers.

PART 2 PRODUCTS

2.01 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**3.01 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.

3.02 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.

3.03 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.
 3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
 4. Comply with requirements of applicable sections of Division-2.
 5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
 2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3.04 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

3.04 RENOVATION SUPPLEMENTAL PROJECT PROCEDURES

- A. Materials: As specified in Product Sections; match existing products and work for patching and extending work.
- B. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.
- C. Remove, cut and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to original condition.
- D. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.
- E. Where new work abuts or aligns with existing, perform a smooth and even transition. Patched work to match existing adjacent work in texture and appearance.
- F. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
- G. Where a change of plane of ¼-inch or more occurs, submit recommendation for providing a smooth transition for Architect review.
- H. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- I. Finish surfaces as specified in individual product sections.

END OF SECTION

SECTION 010950**REFERENCE STANDARDS AND DEFINITIONS****PART 1 - GENERAL****1.01 SECTION INCLUDES:**

- A. Related documents
- B. Definition
- C. Specification Format and Content Explanation
- D. Industry Standards
- E. Governing Regulations/Authorities
- F. Submittals

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to this section.

1.03 DEFINITIONS

- A. Indicated: The term "indicated" refers to graphic representations, notes, or schedules on the drawings, other paragraphs or schedules in the specifications, and similar requirements in the contract documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used, it is to help the reader locate the reference; no limitation on locating is intended.
- B. Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the architect/consultant", "requested by the architect/consultant", and similar phrases.
- C. Approve: The term "approved", where used in conjunction with the architect/consultant's action on the Contractor's submittals, applications, and requests, is limited to the architect/consultant's duties and responsibilities as stated in General, Supplementary, and Special Provisions.
- D. Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the asbestos removal, hazardous waste, and construction industries that control performance of the work.
- E. Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations".
- F. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations".
- G. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use".

- H. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, Subcontractor, or sub-subcontractor, for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
 - 1. The term "experienced" when used with the term "Installer" means having a minimum of five previous projects similar in size and scope to this project, being familiar with the precautions required, and having complied with requirements of the authority having jurisdiction.
 - 2. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter". It also does not imply that requirements specified apply exclusively to trades persons of the corresponding generic name.
- I. Assignment of Specialists: Certain sections of the specifications require that specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling contract requirements remains with the Contractor.
 - 1. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.
- J. Project Site is the space available to the Contractor for performance of activities, either exclusively or in conjunction with others performing other work as part of the project. The extent of the Project Site is shown on the drawings and may or may not be identical with the description of the actual Project Site. All dimensions and locations should be field verified and noted by the Contractor.
- K. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.04 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. Specification Format: The specifications are organized into divisions and sections based somewhat on the Construction Inspection Institute's 16-Division format and MASTER FORMAT numbering system.
- B. Specification Content: This specification uses certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
 - 1. Abbreviated Language: Language used in specifications and other contract documents is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and the full context of the contract documents so indicates.
 - 2. Imperative and streamlined language is used generally in the specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.

- a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.

1.05 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where the contract documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the contract documents. Such standards are made a part of the contract documents by reference.
- B. Publication Dates: Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of contract documents.
- C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the architect and/or owner for a decision before proceeding.
 1. Minimum Quantity or Quality Levels: The quantity level shown or specified shall be the minimum provided or performed. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirement. Refer uncertainties to the architect and/or owner for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in activities on the project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the contract documents.
 1. Where copies of standards are needed for performance of a required activity, the Contractor shall obtain copies directly from the publication source.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the specifications or other contract documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations", published by Gale Research Co., available in most libraries.

1.06 GOVERNING REGULATIONS/AUTHORITIES

- A. As applicable, the architect and/or engineer has contacted authorities having jurisdiction to obtain information necessary for preparation of contract documents. Contact authorities having jurisdiction directly for information and decisions having a bearing on the work.

1.07 SUBMITTALS

- A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the work.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by Owner.
4. Work under separate contracts.
5. Access to site.
6. Work restrictions.
7. Specification and drawing conventions.
8. Miscellaneous provisions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: SMSD 2021 Roof Improvements

1. Project Addresses: Refer to Document 001100 "Invitation to Bid".

B. Owner: **Shawnee Mission School District**

1. Owner's Address: 8200 W. 71st Street, Shawnee Mission, Kansas 66204 .
2. Refer to Document 000105 "Project Team Directory."

C. Architect:

1. Architect's Address: Hollis + Miller Architects, Inc., 1828 Walnut Street, Suite 922, Kansas City, MO 64108
2. Architect's Representative: Justin Durham .
3. Refer to Document 000105 "Project Team Directory."

D. Architect's Consultants: The Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:

1. Refer to Document 000105 "Project Team Directory."

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. General: All demolition, sitework, architectural, structural, fire suppression, plumbing, mechanical, electrical, access control, technology and utilities as indicated in the Contract Documents and as further defined in the

Scopes of Work.

2. Alternates: Refer to Section 012300 "Alternates".

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.4 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. 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. Limits: Confine construction operations to areas indicated and as directed by Architect and Owner.
 2. 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 storage of materials.
 - a. Restrictions: Note that no deliveries to the Project Site will be allowed between the hours of 7:00 am to 8:30 am and 2:00 pm to 3:30 pm.
 - b. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - c. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.5 COORDINATION WITH OCCUPANTS

- A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.
 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

1.6 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise indicated.

1. Weekend Hours: Coordinate and schedule all weekend hours with the Owner not less than 48 hours in advance. Comply with regulations of authorities having jurisdiction.
 2. Early Morning Hours: Notify Owner of days when early morning hours will be required and comply with regulations of authorities having jurisdiction.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
1. Notify Architect and Owner not less than three (3) days in advance of proposed utility interruptions.
 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
1. Notify Architect and Owner not less than three (3) days in advance of proposed disruptive operations.
 2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Nonsmoking Buildings and Sites: Smoking is not permitted on School District property.
- F. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
- G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.
- H. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.
1. Maintain list of approved screened personnel with Owner's representative.

1.7 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 012000
PROJECT MEETINGS

PART 1 - GENERAL**1.01 SECTION INCLUDES:**

- A. Related Documents
- B. Summary
- C. Pre-Construction Conference
- D. Pre-Installation Conference
- E. Progress Meetings

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division-1 specification sections, apply to this section.

1.03 SUMMARY

- A. This section specifies administrative and procedural requirements for project meetings including, but not limited to:
 - 1. Preconstruction conference.
 - 2. Preinstallation conferences.
 - 3. Coordination meetings.
 - 4. Progress meetings.
- B. Construction schedules are specified in another Division-1 section.

1.04 PRECONSTRUCTION CONFERENCE

- A. The Contractor shall schedule a preconstruction conference and organizational meeting at the project site or other convenient location within fourteen (14) days of contract execution, and at least seven (7) days prior to commencement of any construction activities. The Contractor shall conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: Shawnee Mission School District, the Architects/Consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the work.
- C. Agenda: Discuss items of significance that could affect progress, including such topics as:
 - 1. Tentative construction schedule.
 - 2. Critical work sequencing.
 - 3. Designation of responsible personnel.

4. Procedures for processing field decisions and change orders.
5. Procedures for processing applications for payment.
6. Distribution of contract documents.
7. Submittal of Shop Drawings, Product Data and Samples.
8. Preparation of record documents.
9. Use of the premises.
10. Office, work and storage areas.
11. Equipment deliveries and priorities.
12. Safety procedures and compliance with Lock Out/Tag Out procedures.
13. Lead safe work practices and lead hazard prevention procedures.
14. First aid.
15. Security.
16. Housekeeping.
17. Working hours.
18. Testing agencies and procedures.
19. Temporary utilities; water, electric, phone.
20. Temporary lavatory facilities.
21. Quality control.

- D. The Contractor shall record meeting minutes and distribute copies to everyone in attendance and to others affected by decisions of actions resulting from the meeting.

1.05 PREINSTALLATION CONFERENCES

- A. The General Contractor shall convene a preinstallation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the architect and owner of scheduled meeting dates.
- B. Review the progress of the construction activities and preparations for the particular activity under consideration at each preinstallation conference, including requirements for:
1. Contract documents.
 2. Options.
 3. Related Change Orders.
 4. Purchases.
 5. Deliveries.
 6. Shop drawings, product data and quality control samples.
 7. Possible conflicts.
 8. Compatibility problems.
 9. Time schedules.
 10. Weather limitations.
 11. Manufacturer's recommendations.
 12. Compatibility of materials.
 13. Acceptability of substrates.
 14. Temporary facilities.
 15. Space and access limitations.
 16. Governing regulations.
 17. Safety and application of associated Lock Out/Tag Out procedures.
 18. Inspection and testing requirements.
 19. Required performance results.
 20. Recording requirements.

- 21. Protection.
- 22. Punchlist procedures and Architect/Engineer responsibilities limitations.
- C. Notify architect and owner four days in advance of meeting date when their attendance is required by individual section.
- D. The Contractor shall prepare agenda, preside at the conference and record significant discussions and agreements and disagreements of each conference, along with the approved schedule. The Contractor shall distribute the record of the meeting to everyone concerned, promptly, including the owner and architect.
- E. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene the conference at the earliest feasible date.

1.06 PROGRESS MEETINGS

- A. Conduct progress meetings at the Project Site at a minimum of bi-monthly intervals or as directed by the Architect. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.
- B. Attendees: In addition to representatives of the Owner and Architect, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meeting by persons familiar with the Project and authorized to conclude matters relating to progress..
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the project.
 - 1. Contractor's Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's schedule, whether on time or ahead or behind schedule. Determine how operations behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed with the contract time.
 - 2. Produce and review a two-week "look ahead" schedule outlining planned construction activities for the next two weeks (or the period of time until the next progress meeting).
 - 3. Review the present and future needs of each entity present, including such items as:
 - a. Interface requirements.
 - b. Time.
 - c. Sequences.
 - d. Deliveries.
 - e. Off site fabrication status.
 - f. Access.
 - g. Site utilization.
 - h. Temporary facilities and services.
 - i. Hours of work.
 - j. Hazards and risks.

- k. Housekeeping.
- l. Quality and work standards.
- m. Change orders.
- n. Documentation of information for payment requests.
- o. Outstanding items; submittals, proposal requests, RFIs.
- p. Quality assurance.
- q. Safety and application of necessary Lock Out/Tag Out procedures.
- r. Performance of lead safe work practices.

- D. Reporting: No later than three days after each progress meeting date, the Contractor is to distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and reports.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used.

END OF SECTION

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Contingency allowances.
- C. Related Requirements:
 - 1. Section 012200 "Unit Prices" for procedures for using unit prices.
 - 2. Section 014000 "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.

1.2 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.3 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.4 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.7 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 - 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
 - 4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. 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.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1-3: Contingency Allowance of \$20,000.00 for each of the three (3) schools.

END OF SECTION

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
 - 1. Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
 - 2. Section 014000 "Quality Requirements" for general testing and inspecting requirements.

1.2 DEFINITIONS

- A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes (other than sales and use tax), overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 SCHEDULE OF UNIT PRICES

- A. Unit Price No. 01: Roof Insulation Infill at Existing Gypsum Deck
 - 1. Description: Provide new roof insulation over metal decking as directed by Architect and Owner. Extent of roof insulation to be replaced shall be determined by Architect. Refer to Section 075213 for additional information and requirements.
 - 2. Unit of Measurement: Square feet of roof insulation.
- B. Unit Price No. 02: Metal Decking Repair at Existing Gypsum Deck

1. Description: Provide new metal decking over existing deteriorated metal decking as directed by Architect and Owner. Extent of deteriorated metal decking to be determined by Architect. Refer to Section 053100 for additional information and requirements.
 2. Unit of Measurement: Square feet of metal decking.
- C. Unit Price No. 03: Cementitious Wood Fiber Deck Repair.
1. Description: Provide new cementitious wood fiber deck system to replace existing deteriorated decking as directed by Architect and Owner. Extent of deteriorated decking to be determined by Architect. Refer to Section 035113 for additional information and requirements.
 2. Unit of Measurement: Square feet of cementitious wood fiber decking system.

END OF SECTION

SECTION 012500.01 - SUBSTITUTION PROCEDURES FORM

MAIL TO:	HOLLIS + MILLER ARCHITECTS 1828 WALNUT STREET, SUITE 922 KANSAS CITY, MISSOURI 64108	PROJECT:	SMSD 2021 ROOF IMPROVEMENTS
-----------------	--	-----------------	-----------------------------

SPECIFIED ITEM: _____

PROPOSED SUBSTITUTE: _____

SUBMITTED BY: _____

FIRM: _____

ADDRESS: _____

SIGNATURE: _____ **DATE:** _____

PHONE NUMBER: _____

ATTACH COMPLETE DESCRIPTION, DESIGNATION, CATALOG OR MODEL NUMBER, SPEC DATA SHEET AND OTHER TECHNICAL DATA AND SAMPLES, INCLUDING LABORATORY TESTS IF APPLICABLE.

FILL IN BLANKS BELOW:

1. WILL SUBSTITUTION AFFECT DIMENSION INDICATED ON DRAWINGS?
2. WILL SUBSTITUTION AFFECT WIRING, PIPING, DUCTWORK, ETC., INDICATED ON DRAWINGS?
3. WHAT EFFECT WILL SUBSTITUTION HAVE ON OTHER TRADES?
4. DIFFERENCES BETWEEN PROPOSED SUBSTITUTION AND SPECIFIED ITEM?
5. ANY AND ALL IMPACTS ON COSTS, DESIGN MODIFICATIONS, ADDITIONAL ARCHITECTURAL AND ENGINEERING SERVICES, MATERIAL AND LABOR CHANGES, SCHEDULE CHANGES, AND OTHER UNANTICIPATED CONSEQUENCES, RESULTING FROM THIS SUBSTITUTION IN LIEU OF THE SPECIFIED ITEM, SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR AND HIS SUBCONTRACTORS AND SUPPLIER.
6. MANUFACTURER'S WARRANTIES OF THE SPECIFIED ITEMS AND PROPOSED ITEMS ARE: ☐ SAME OR ☐ DIFFERENT, *EXPLAIN:* _____

REVIEW COMMENTS:

☐ **NO EXCEPTION TAKEN TO SUBMITTED MANUFACTURER**

MANUFACTURER ONLY IS ACCEPTED DUE TO TIME LIMITATIONS FOR FULL REVIEW OF PRODUCT, OR BECAUSE NO SPECIFIC PRODUCT DATA IS SUBMITTED, OR OTHER UNSPECIFIED REASONS. CONTRACTOR MUST STILL BEAR FULL RESPONSIBILITY FOR COMPLIANCE WITH CONTRACT REQUIREMENTS.

☐ **NO EXCEPTION TAKEN TO SPECIFIC PRODUCTS**

☐ **EXCEPTIONS NOTED**

SEE ATTACHED COPY OR NOTES ON PRODUCT LITERATURE

☐ **NOT ACCEPTED**

☐ **RECEIVED TOO LATE**

BY: _____ DATE: _____

REMARKS: _____

END OF SECTION

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SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for "Substitutions for Convenience" and "Substitutions for Cause".
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for products selected under an allowance.
 - 2. Section 012200 "Unit Prices" for products selected under a unit price.
 - 3. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
 - 4. Division 02 through 33 Sections for specific requirements and limitations for substitutions.

1.2 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms. Substitutions for Cause shall be submitted after award of the contract as set forth hereinafter.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner. Substitutions for Convenience shall be submitted prior to bidding as set forth hereinafter.
- B. Comparable Products: Naming of specified items on the Drawings and in the specifications, means that such named items are specifically required by the Architect and/or Owner. When the words "or comparable product" follows such named item(s), a substitution request must be submitted when proposing a product other than the named product. Requests for substitutions must be received by the Architect within the time frame set hereinafter.
- C. The following are not considered substitutions:
 - 1. Revisions to Contract Documents requested by the Owner or Architect.
 - 2. Specified options of products, materials and construction methods included in the Contract Documents.

1.3 ACTION SUBMITTALS

- A. Substitution Requests: Submit at least one (1) paper copy or an electronic pdf copy of each request for consideration to the Architect. Clearly Identify proposed product and related options or fabrication or installation method to be replaced. Include Specification Section number and title, in addition to applicable Drawing numbers

and titles.

1. Substitution Request Form: Use facsimile of form provided at the end of this Section.
 - a. Accompanying each Substitution Request shall be a fully executed copy of the Substitution Request Form.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Specifically indicate deviations, if any, from the Work specified in writing.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested, of proposed substitution and of specified product shall be submitted for comparison and review by Architect.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names, addresses and contact information of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Review Process: Submittal requests for proposed substitutions will be processed using the following procedures:
 - a. Submittals will be "Received Dated" immediately upon arrival.
 - b. Submittals will be placed by receiving person in a file designated for that purpose.
 - c. Submittals will not be reviewed for completeness or compliance until after the date and time established for closing of receipt of substitution request submittals.
 - d. Submittals will be reviewed by a member of Hollis + Miller Architect's staff (or respective consultant). Reviewer(s) will not be designated until after closing period established for receipt of submittals.
 - e. Reviewer's General Attitude will be:
 - 1) Burden of Proof is on Proposer.
 - 2) Reviewer should not be required to complete the submittal, that is, select from options or between models and lines of products.
 - 3) Reviewer should not be required to conduct an exhaustive review of the submittal. Submittals of manufacturer's catalogs which do not clearly indicate proposed product and proposed product options will be rejected.
 - 4) Reviewer should not be required to seek information from manufacturer's literature on file in the office, from an improperly submitted electronic submittal or information in other locations.
 - 5) Substitute must be "comparable to" or superior in those features and performance which the Project requires and those which the specified product will provide.
 - 6) Review is complete when, in the reviewer's opinion, significant deficiency(ies) are established. In such case, review of data covering other points of specifications is not required.
 - f. Reviewer will note action taken (No Exception taken to Submitted Manufacturer, No Exception taken to Specific Product, Exceptions Noted, Not Accepted or Received Late), the date, and his/her initials.

- g. All submittals received after closing time will be "Received Dated", marked "Late", initialed by reviewer, and filed without review.
- h. Submittals will be filed in Architect's office until completion of the Project.
- 4. Architect's Action:
 - a. Architect will review requests for "Substitutions for Convenience" only once, no additional information may be submitted. Architect may request additional information as necessary for review of "Substitutions for Cause."
 - b. Architect will note action taken.
 - c. Architect is not obligated nor required to review any and all substitution requests.
 - d. Architect is not obligated to inform proposers of substitutions of incomplete and non-accepted requests for substitution.
 - e. Acceptance of Substitutions:
 - 1) Acceptance of Substitutions for Convenience: Accepted substitutions will be set forth in an Addendum and in no other manner.
 - (a) Use product specified if Architect does not issue a decision on use of a proposed substitution.
 - 2) Acceptance of Substitutions for Cause: Architect will review proposed substitution within 15 business days of receipt of request. If necessary, Architect, will request additional information or documentation for evaluation within seven (7) business days of receipt of a request for Substitution for Cause." Architect will notify Contractor of acceptance of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later. **Only acceptable substitutions will receive notification of status. Substitutions shall be considered unacceptable unless a form of acceptance is received by the Proposer.**
 - (a) Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - (b) Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 ELECTRONIC SUBMITTAL OF SUBSTITUTIONS

- A. Substitution Request submittals will be accepted for review when submitted electronically under the following conditions. Substitution requests which are not submitted in accordance with the criteria listed below may be rejected at the Architect's discretion.
 - 1. Accompanying each submittal shall be a fully executed copy of the Substitution Request Form.
 - 2. Submittals shall be sent to Hollis + Miller Architects, to the attention of the contact listed in Document 000101 "Project Team Directory. Submittals directed to the attention of anyone other than the contact listed will not be considered.
 - 3. Submittals of Substitutions for Cause must be received within the time limits set forth in Paragraph 2.1 A of this Section.
 - 4. Submittals of Substitutions for Convenience must be received prior to bidding and within the time limits set forth in Paragraph 2.1 B of this Section.
 - 5. Documentation requirements as set forth in 1.3 A.2a through 1.3 A.2m are applicable to electronic submittals.
- a. Note: Electronic submittals in which the manufacturer's entire catalog is submitted will be rejected.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by

manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than thirty (30) days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect and Owner will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Request is directly related to a "or comparable product" clause or similar language in the Contract Documents.
 - c. Specified product or method of construction cannot be provided within the Contract Time.
 - d. Specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
 - e. Specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution will provide the specified warranty.
 - f. Substitution request is fully documented and properly submitted.
 - g. Requested substitution will not adversely affect Contractor's construction schedule.
 - h. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - i. Requested substitution is compatible with other portions of the Work.
 - j. Requested substitution has been coordinated with other portions of the Work.
 - k. Requested substitution provides specified warranty.
 - l. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Architect will consider requests for substitution only when submitted prior to bidding, and no later than 4:00 p.m. (local time) eight (8) calendar days prior to the date established for receipt of bids. Requests received after that time may be considered or rejected at discretion of Architect.
 - 1. 1.Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - g. Requested substitution is compatible with other portions of the Work.
 - h. Requested substitution has been coordinated with other portions of the Work.

- i. Requested substitution provides specified warranty.
 - j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- C. The Contractor's submittal and A/E's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptance or validate request for substitution, nor does it constitute approval.
- D. Under no circumstances does the Architect's and/or Owner's acceptance of any such substitution relieve the Contractor from timely, full and proper performance of the Work.

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 013000

SUBMITTALS

PART 1 - GENERAL

1.01 SECTION INCLUDES:

- A. Related Documents.
- B. Summary.
- C. Submittal Procedures.
- D. Contractor's Construction Schedules.
- E. Submittal Schedule.
- F. Daily Construction Reports.
- G. Preexisting Conditions Video Survey.
- H. Shop Drawings.
- I. Product Data.
- J. Samples.
- K. Communications Facilitating Contract Administration.
- L. Architect's Action.
- M. Contractor's Action on Returned Submittals.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

1.03 SUMMARY

- A. This section specifies administrative and procedural requirements for submittals required for performance of the work, including:
 - 1. Submittal procedures.
 - 2. Contractor's construction schedule.
 - 3. Submittal schedule.
 - 4. Daily construction reports.
 - 5. Construction photographs.
 - 6. Shop drawings.
 - 7. Product data.
 - 8. Samples.
 - 9. Informational submittals.
 - 10. Communications.

- B. Administrative Submittals: Refer to other Division-1 sections and other contract documents for requirements for administrative submittals. Such submittals include, but are not limited to:
 - 1. Permits.
 - 2. Applications for payment.
 - 3. Performance, payment bonds, and statutory bond.
 - 4. Insurance certificates.
 - 5. List of subcontractors.
- C. The "Schedule of Values" submittal is included in Division-1 Section "Applications for Payment."
- D. Inspection and test reports are included in Division-1 Section "Quality Control Services."
- E. The "Product List" submittal is included in Division-1 Section "Materials and Equipment."

1.04 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related activities to avoid delay and to allow sufficient review time.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related elements of the work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received. Such action shall not be grounds for an extension of time or delay by the Contractor.
 - 3. The Architect may request submittals in addition to those indicated in the technical sections when deemed necessary to adequately describe the work covered in the respective section.
 - 4. Units of weights and measurements used on all submittals shall be the same as used in the contract documents.
 - 5. Processing: Allow sufficient review time so that the work will not be delayed as a result of the time required to process submittals, including time for resubmittals.

The Architect shall be responsible for reviewing and certifying that submittals are in compliance with the contract requirements. The approving authority on submittals is the Architect unless otherwise specified for the specific submittal.

 - a. Allow at least seven (7) working days in Architect's office for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination with work by others.

- b. If an intermediate submittal is necessary, process in the same manner as the initial submittal.
 - c. Allow at least four (4) working days for reprocessing each submittal.
 - d. No extension of contract time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the work to permit processing.
 - B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
 - 1. Provide a space approximately 4" x 5" on the label or beside the title block on shop drawings, product data and samples to record the Contractor's review and approval markings and the action taken.
 - 2. Include the following information on the label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Number and title of appropriate specification section.
 - i. Drawing number and detail references, as appropriate.
 - C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect including the information below. Submittals received by Architect from sources other than the Contractor will be returned without action.
 - 1. Record relevant information and requests for data on the transmittal. On the form, or separate sheet, record deviations from contract document requirements, including minor variations and limitations. Include Contractor's signed certification that information complies with contract document requirements.
 - 2. Submit to Architect at business address.
- 1.05 CONTRACTOR'S BAR CHART CONSTRUCTION SCHEDULES (Alternate to CPM Schedule)
- A. The Contractor shall provide Critical Path Method (CPM) scheduling services, including planning, evaluating and reporting; subcontractors shall participate in scheduling.
 - 1. Standards: Comply with procedures contained in "CPM in Construction-A Manual for General Contractors" published by The Associated General Contractors of America, Inc.
 - B. Interim Schedules: The Contractor, within ten (10) calendar days after execution of the contract, shall submit an interim construction schedule to the Owner's representative and Architect. The schedule shall be in the form of a bar chart or a Critical Path Method (CPM) schedule. The schedule shall include as many activities as necessary to sufficiently detail the work to be performed during the first thirty (30) working days of the construction. The interim schedule shall also detail, in general, the balance of the construction work past the first thirty (30) work days.

- C. CPM Construction Schedule: The Contractor, within thirty (30) calendar days after execution of contract, shall submit a detailed construction schedule to the Owner's representative and Architect. The schedule shall be in the form of a Critical Path Method (CPM) schedule. The CPM shall be in the arrow diagram method where the activity and duration is represented on the arrow. The CPM schedule shall include logic drawings and corresponding computer printouts. The CPM schedule shall be updated monthly. A narrative report shall be submitted with each update. In addition, the Contractor will provide a time scaled summary chart.
- D. Scope: The CPM schedule as a minimum, shall provide for 1) work sequence as identified in Section 01010 Summary of Work; 2) provisions for adverse weather as identified in the General Conditions; and, 3) the following:
1. Long lead time procurement activities.
 2. Contractor phasing activities.
 3. Activation and testing activities.
 4. Milestone dates for contract phasing requirements.
 5. Owner furnished equipment activities.
 6. Logic restraints reflecting the flow of manpower.
 7. Utility tie-in activities.
 8. Clean-up and punchlist activities and Owner move-in activities.
 9. Activity durations in working days.
 10. The project shall be broken down into logical building areas by floor levels, elevations, functional spaces, and addition or renovation, and as required.
 11. Work activities performed by subcontractors.
 12. Concurrent work activities under separate contract.
 13. Shop drawing, submittals and approval.
 14. Weather constraints.
 15. Change orders.
- E. Logic Drawings: The CPM logic drawings shall be 30" x 42" and shall, as a minimum, include:
1. The activity description.
 2. Activity duration.
 3. Marked critical path.
 4. Marked complete activities.
 5. Highlighted milestone dates.
 6. Update number and date.
- F. Computer Printouts: The CPM computer printouts shall, as a minimum, include:
1. The activity I-J designation.
 2. The activity description.
 3. The activity duration (in working days).
 4. Activity early state date.
 5. Activity late start date.
 6. Activity early finish date.
 7. Activity late finish date.
 8. Slack or total float.
 9. Subcontract or trade designation.

- G. Developing the Schedule. The Contractor shall meet jointly with the subcontractors, suppliers, and the Architect when developing the CPM schedule.
- H. Owner's Review: Within five (5) working days after receipt of the Contractor's schedule, the Owner and Architect shall meet with the contractor for the final review of the schedule. Review of the schedule by the Owner does not relieve the Contractor's responsibility for the schedule's accuracy or the ability of the Contractor to meet the dates set forth therein, nor does such review constitute an acknowledgement or admission by the Owner of the reasonableness of durations or logic of the schedule.
- I. Update Schedule Submittals: An updated schedule submittal, including a written schedule recovery statement if required, shall accompany the Contractor's Application for Payment. The Contractor's Application for Payment will not be processed until the update schedule has been received by the Owner.
- J. Narrative Report: The Contractor shall prepare a narrative report as a part of each schedule update, in a form agreed upon by the Architect. The narrative report shall include a description of the current status of the work, problem areas, current and anticipated delaying factors and their estimated impact on performance of other activities and completion dates; and an explanation of corrective action taken or proposed.
- K. Schedule Slippage: Whenever the current schedule update reflects that the project is five (5) or more working days behind schedule, the Contractor shall submit a written statement to the Architect describing the cause of the slippage and the actions being considered by the Contractor to recover the time slot. The written schedule recovery statement shall be submitted with the monthly schedule update.
- L. The progress schedule shall indicate the monthly anticipated adverse weather days, if any, pursuant to the Supplemental and General Conditions and indicate the constraints of anticipated adverse weather on planned activities. Update submittals of the progress schedule shall indicate actual adverse weather days and their impact on planned activities.
- M. Any adjustments in Contract Time executed by Change Order shall be included in the update submittals of the project schedule.

1.05 CONTRACTOR'S CPM CONSTRUCTION SCHEDULES

- A. The Contractor shall provide a detailed bar chart or a Critical Path Method (CPM) schedule. The schedule shall include as many activities as necessary to sufficiently detail the work to be performed.
- B. Scope: The schedule as a minimum, shall provide for 1) work sequence as identified in Section 01010 Summary of Work; 2) provisions for adverse weather as identified in the General Conditions; and, 3) the following:
 - 1. Long lead time procurement activities.
 - 2. Contractor phasing activities.
 - 3. Activation and testing activities.
 - 4. Milestone dates for contract phasing requirements.
 - 5. Owner furnished equipment activities.
 - 6. Utility tie-in activities.
 - 7. Clean-up and punchlist activities and Owner move-in activities.

8. Activity durations in working days; including:
 - a. Activity early start date.
 - b. Activity late start date.
 - c. Activity early finish date.
 - d. Activity late finish date.
 - e. Slack or total float.
 9. The project shall be broken down into logical building areas by floor levels, elevations, functional spaces, and addition or renovation, and as required.
 10. Work activities performed by subcontractors.
 11. Concurrent work activities under separate contract.
 12. Shop drawing, submittals and approval.
 13. Weather constraints.
- C. Developing the Schedule: The Contractor shall meet jointly with the subcontractors, and suppliers, when developing the schedule.
- D. Owner's Review: Within five (5) working days after receipt of the Contractor's schedule, the Owner and Architect shall meet with the Contractor for the final review of the schedule. Review of the schedule by the Owner does not relieve the Contractor's responsibility for the schedule's accuracy or the ability of the Contractor to meet the dates set forth therein, nor does such review constitute an acknowledgement or admission by the Owner of the reasonableness of durations or logic of the schedule.
- E. Updated Schedule Submittals: An updated schedule submittal, including a written schedule recovery statement if required, shall accompany the Contractor's Application for Payment. The Contractor's Application for Payment will not be processed until the update schedule has been received by the Owner.
1. Schedule Slippage: Whenever the current schedule update reflects that the project is five (5) or more working days behind schedule, the Contractor shall submit a written statement to the Architect describing the cause of the slippage and the actions being considered by the Contractor to recover the time slot. The written schedule recovery statement shall be submitted with the monthly schedule update.
 2. The progress schedule shall indicate the monthly anticipated adverse weather days, if any, pursuant to the Supplemental and General Conditions and indicate the constraints of anticipated adverse weather on planned activities. Update submittals of the progress schedule shall indicate actual adverse weather days and their impact on planned activities.
 3. Any adjustments in Contract Time executed by Change Order shall be included in the update submittals of the project schedule.

1.06 SUBMITTAL SCHEDULE

- A. After development and acceptance of the Contractor's schedule, prepare a complete schedule of submittals. Submit the schedule within ten (10) days of the date required for establishment of the Contractor's construction schedule.
1. Coordinate submittal schedule with the list of subcontracts, schedule of values and the list of products as well as the Contractor's Construction Schedule.

2. Prepare the schedule in chronological order; include submittals required during the construction. Provide the following information.
 - a. Scheduled date for the first submittal.
 - b. Related section number.
 - c. Submittal category.
 - d. Name of subcontractor.
 - e. Description of the part of the work covered.
 - f. Scheduled date for resubmittal.
- B. Distribution: Following response to initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the project meeting room and field office.
 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in project activities.
- C. Schedule Updating: Revise the submittal schedule after each meeting or activity, where revisions have been recognized or made relating to submittals. Issue the updated schedule concurrently with report of each such meeting.

1.07 DAILY CONSTRUCTION REPORTS

- A. The Contractor's Superintendent shall prepare a daily construction report, recording the following information, in a narrative format, concerning events at the site; and submit original documents to the Architect and/or Owner upon request.
 1. List of subcontractors at the site.
 2. Approximate count of personnel at the site, identifying the number of workers and supervisors.
 3. Lead safe work practices and cleaning verifications.
 4. High and low temperatures, general weather conditions.
 5. Accidents and unusual events.
 6. Meetings and significant decisions.
 7. Stoppages, delays, shortages, losses.
 8. Emergency procedures.
 9. Orders and requests of governing authorities.
 10. Change orders received, implements.
 11. Services connected, disconnected.
 12. Equipment or system tests and start-ups.
 13. Partial completions and occupancies.
 14. Type and usage of major pieces of heavy equipment.

1.08 PRE-EXISTING CONDITIONS VIDEO SURVEY

- A. Submit a pre-existing condition list and/or video with the initial application for payment. Specifically note any pre-existing conditions which may result in a potential dispute with the Owner.

1.09 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the contract documents. Do not reproduce contract documents or copy standard information as the basis of shop drawings. Standard information prepared without specific reference to the project is not considered shop drawings. Shop drawings' quality is subject to approval.
- B. Shop drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
 - 1. Dimensions.
 - 2. Relationship to building grids or coordinates.
 - 3. Interface with adjacent construction.
 - 4. Identification of products and materials included.
 - 5. Compliance with specified standards.
 - 6. Notation of dimensions established by field measurement.
- C. Sheet Size: Except for templates, patterns and similar full-size drawings, submit shop drawings on sheets 8½" x 11", 11" x 17", or 30" x 42". No other sizes will be accepted.
- D. Submittal: Submit at least two blue-line prints. One of the blue-line prints will be retained by the Architect. The Contractor shall be responsible for making appropriate number of copies for distribution to other affected parties.
- E. Do not use shop drawings without an appropriate final stamp indicating action taken in connection with construction.

1.10 PRODUCT DATA

- A. Collect product data into a single submittal for each specified product. Product data includes printed information such as catalog cuts, Material Safety Data Sheets (MSDS), and other performance information.
 - 1. Mark each copy to show applicable choices and options. Where printed product data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
 - a. Manufacturer's printed recommendation.
 - b. Compliance with recognized trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
 - g. Any limitations on warranty or guarantee of manufacturer.
 - 2. Do not submit product data until compliance with requirements of the contract documents has been confirmed.

- B. Submittals: Submit three (3) copies. Submit two (2) additional copies where required for maintenance manuals. The Architect will return one copy marked with action taken and corrections or modifications required.
 - 1. Unless noncompliance with contract documents provisions is observed, the submittal may serve as the final submittal.
- C. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal form.
 - 1. Do not proceed with installation until a copy of the applicable product data is in the Installer's possession.
 - 2. Provide copies for record documents described in Section 01700 – Project Closeout.
- D. Do not permit use of unmarked copies of product data in connection with construction.

1.11 SAMPLES

- A. Submit full-size, full fabricated samples cured and finished as specified (where applicable) and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or container of materials, color range sets, and swatches showing color, texture and pattern.
 - 1. Mount, display, or package samples in the manner specified to facilitate review of qualities indicated.

Prepare samples to match the Architect's sample. Include the following:

 - a. General description of the sample.
 - b. Sample sources
 - c. Product name or name of manufacturer.
 - d. Compliance with recognized standards.
 - e. Availability and delivery time.
 - 2. Submit samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than three), that show approximate limits of the variations.
 - b. Refer to other specification sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
 - c. Refer to other sections for sample to be returned to the Contractor for incorporation in the work. Such samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of sample submittals.

- B. Submittals: Except for samples illustrating details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit three sets: One set will be returned with comments.
- C. Maintain sets of samples, as returned, at the project site, for quality comparisons throughout the course of construction.
 - 1. Unless non-compliance with contract documents provisions is observed, the submittal may serve as the final submittal.
 - 2. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- D. Distribution of Samples: prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the work. Show distribution on transmittal forms.
- E. Field Samples: Field samples specified in individual sections are special types of samples. Field samples are full-size samples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the work will be judged.
 - 1. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.
 - 2. Allow at least seven (7) days after completion and curing (where applicable) of field sample for Architect's review. Notify Architect in writing upon completion of field sample.
 - 3. Where required, give Architect notice and an opportunity to observe field erection or application of field sample.

1.12 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

- A. Except as otherwise provided in the contract documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate through the Architect. Communications by and with subcontractors and material suppliers shall be through the Contractor.
- B. All requests for information regarding or clarification of the plans and specifications shall be made in writing referencing the specification section and statement requiring clarification. Deliver to Architect's business address.

1.13 ARCHITECT'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly.
 - 1. Compliance with specified characteristics is the Contractor's responsibility.

- B. Submittal Stamp: The Architect will stamp each submittal with a uniform, self-explanatory submittal stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
1. Action A – Reviewed: Where submittals are marked “Reviewed”, that part of the work covered by the submittal may proceed provided it complies with requirements of the contract documents.
 2. Action B – Reviewed – Additional Information Required: Where submittals are marked “Reviewed – Additional Information Required”, the information submitted has been reviewed. However, additional information as noted and/or required by contract documents need to be submitted.
 3. Action C – Furnish as Corrected: When submittal is marked “Furnish as Corrected”, that part of the work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the contract documents.
 4. Action D – Revise and Resubmit: When submittal is marked “Revise and Resubmit”, do not proceed with that part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
 - a. Do not permit submittals marked “Revise and Resubmit” to be used at the project site, or elsewhere where work is in progress.
 5. Action E – Rejected: When submittal is marked “Rejected”, information submitted is not in compliance with contract documents. Resubmit submittal as required by contract documents.
- D. Meaning of Architect’s Approval: Review is only for conformance with the design concept and for compliance with the information given in the contract documents. Approval does not authorize changes involving additional cost unless stated in separate change order or letter. Contractor is not relieved of responsibility for any deviations in submittals from requirements of the contract documents. Contractor is responsible for dimensions to be confirmed and correlated at the site; for information that pertains solely to the fabrication processes or to means, methods, techniques, sequences, and procedures of construction; and for coordination of the work of all trades. Approval of a specific item does not indicate approval of an assembly of which the item is a component.

1.14 CONTRACTOR’S ACTION ON RETURNED SUBMITTALS

- A. The Contractor shall coordinate distribution of all product data and samples for the project.
- B. The Contractor is responsible to reproduce and distribute copies of stamped returned submittals as required for this use in abatement, or in corrections for resubmittal.
- C. The Contractor is responsible to reproduce and distribute copies of stamped returned submittals as required for his use and subcontractor’s use in preparing and submitting other submittals such as, close-out, maintenance manuals, etc., Refer to other sections of the specifications for requirements.
 1. The Contractor shall maintain a current set of abatement plans and specifications which shall be available to the Architect at the job site during the course of the work.

PART 2 -- PRODUCTS

Not applicable.

PART 3 -- EXECUTION

Not applicable.

END OF SECTION

SECTION 014000**QUALITY CONTROL****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Contractor's Quality Control
- B. Contractor's Quality Control Program
- C. Pre-Installation Conferences
- D. Initial and Follow-up Inspections
- E. Mock Up
- F. Field Samples
- G. Manufacturer's Field Services and Reports
- H. References
- I. Inspection and Testing Laboratory Services
- J. Quality Assurance and Control of Installation
- K. Safety

1.02 RELATED SECTIONS

- A. Section 010400 - Coordination and Meetings
- B. Section 013000 - Submittals
- C. Section 017000 - Contract Closeout

1.03 CONTRACTOR'S QUALITY CONTROL

- A. The quality of all work shall be the responsibility of the Contractor. Sufficient inspections and tests of all items of work, including that of subcontractors, to ensure conformance to applicable specifications and drawings with respect to the quality of materials, workmanship, construction finish, functional performance, and identification shall be performed on a continuing basis. The Contractor shall furnish qualified personnel, appropriate facilities, instruments and testing devices necessary for the performance of the quality control function. The controls shall be adequate to cover all construction operations both on and off site, shall be keyed to the proposed construction sequence and shall be correlated by the Contractor's quality control personnel.

1.04 CONTRACTOR'S QUALITY CONTROL PROGRAM

- A. The Contractor shall submit to the Architect a copy of the proposed written quality control program prior to submission of the Contractor's first application and certificate for payment. The Contractor's written quality control plan shall include as a minimum:

1. Identification of the project team for this project. Team members include, but are not necessarily limited to, the Owner's Project Manager, Architect, Mechanical Consultant, Electrical Consultant, Site Engineer, Structural Consultant, General Contractor and major subcontractors. List company name, address, contact and telephone number.
2. Name and identification of the Contractor's Quality Control representative (may be the superintendent or other key contract representative). Provide a brief description of proposed duties and qualifications. The quality control representative must have the authority to make all decisions relating to quality control issues.
3. General summary and mission statement outlining general procedures for implementation of the program.
4. List by specification section the method of performing, documenting and enforcing quality control operations of both prime and subcontract work including proposed and required inspection and testing. Include preinstallation conferences, follow-up inspections, mockups, field samples and manufacturer's inspection, and lead safe work practices and cleaning verifications.
5. The Contractor's quality control program shall be submitted and accepted prior to consideration of the Contractor's first certificate and application for payment.

1.05 PREINSTALLATION CONFERENCES

- A. Pre-installation conferences shall be performed prior to beginning each feature of work for any on-site construction work. Preparatory inspections for the applicable feature of work shall include: review of submittal requirements and all other contract requirements with the foreman or supervisors directly responsible for the performance of the work; check to assure that provisions have been made to provide required field control testing; examine the work area to ascertain that all preliminary work has been completed; verify all field dimensions and advise the project Architect of any discrepancies; and perform a physical examination of materials and equipment to assure that they conform to approved shop drawings or submittal data and that all materials and/or equipment are on hand; review special requirements, review shop drawings and sample construction mockups as appropriate.
- B. The Contractor shall prepare agenda, preside at conference, record minutes, and distribute copies within five (5) days after conference to participants, with copies to the Architect and Owner.

1.06 INITIAL AND FOLLOW UP INSPECTIONS

- A. An initial inspection shall be performed as soon as a representative portion of the particular feature of the work is complete and shall include examination of the quality of workmanship as well as a review of the work for compliance with contract requirements. The initial inspection shall be performed by the Contractor's Quality Control representative and results noted in the Contractor's daily reports. Any deviations from the contract requirements shall be brought to the immediate attention of the Architect.

1.07 MOCK UP

- A. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals and finishes.
- B. Where mock up is specified in individual sections to be removed, clear area after mock up has been accepted by the Architect.

1.08 FIELD SAMPLES

- A. Install field samples at the site as required by individual specifications sections for review.
- B. Acceptable samples represent a quality level for the work.
- C. Where field sample is specified in individual sections to be removed, clear area after field sample has been accepted by the Architect.

1.09 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. Submit qualifications of observer to Architect thirty (30) days in advance of required observations. Observer subject to approval of Architect and Owner.
- B. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start up of equipment, and test, adjust, and balance of equipment as applicable, and to initiate instructions when necessary.
- C. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
- D. Submit report within thirty (30) days of observation to the Architect for review.

1.10 REFERENCES

- A. Conform to reference standard by date of issue or current date of contract documents.
- B. Obtain copies of standards when required by contract documents.
- C. Should specified reference standards conflict with contract documents, request clarification from Architect before proceeding.
- D. The contractual relationship of the parties to the contract shall not be altered from the contract documents by mention or inference otherwise in any reference document.

1.11 INSPECTION AND TESTING LABORATORY SERVICES

- A. Owner will appoint, employ, and pay for services of an independent firm to perform inspection and testing, except when a specification section specifically states that testing of that work be provided for by the Contractor.

- B. The independent firm will perform inspections, tests, and other services specified in individual specification sections and as required by the Architect and authorities having jurisdiction.
- C. Reports will be submitted by the independent firm to the Architect, in duplicate, indicating observations and results of tests and indicating compliance or noncompliance with contract documents.
- D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 - 1. Notify Architect and independent firm forty-eight hours prior to expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- E. Retesting required because of nonconformance to specified requirements shall be performed by the same independent firm on instructions by the Architect. Payment for retesting will be charged to the Contractor by deducting inspection or testing charges from the contract sum.

1.12 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply fully with manufacturer's instructions, including each step in sequence.
- C. Should manufacturer's instructions conflict with contract documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality. Work that properly should be done by skilled labor shall not be attempted with common laborers. The Contractor shall have on the job, at all times, ample equipment to carry on the work properly, including such tools as may be necessary to meet emergency requirements.

1.13 SAFETY

- A. Contractors who perform any work under this contract will fully comply with the provisions of the Federal Occupational Safety and Health Act of 1970 and to the rules and regulations promulgated pursuant to this Act.
 - 1. Contractor must submit a safety program to the Architect prior to starting work on the site. This program should indicate the Contractor's plan to comply with OSHA requirements for the various conditions of the project. The Contractor shall appoint a safety representative on site. The safety program and Contractor's representative names must both be posed.

2. The Architect will take no action on the Contractor's safety program, but will forward it to the Owner for information only. The Contractor is responsible for safety on the project site per the contract documents.
- B. Hazardous Material: In the event the Contractor encounters material on the site, reasonably believe to be asbestos or polychlorinated biphenyl (PCB) that has not been rendered harmless, the Contractor shall immediately stop work and notify the Architect and Owner. Such notification shall be documented in writing.
- C. Provide any and all measures of protection required by the applicable local municipality for the protection of the public and employees during excavation operations and at completion of work. Measures taken shall include, but not be limited to, sidewalks, barricades, warning lights and signs/ and shall comply with American Standard Safety Code and all local laws and ordinances. Maintain in good condition during operations.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 015000**CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Related Documents
- B. Summary
- C. Submittals
- D. Quality Assurance
- E. Project Conditions
- F. Temporary Construction and Support Facilities
- G. Security and Protection Facilities Installation
- H. Operation, Termination, and Removal

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including general and supplementary conditions and other Division-1 Specification sections, apply to this section.

1.03 SUMMARY

- A. This section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.
- B. Temporary utilities that may be required include, but are not limited to:
 - 1. Water service and distribution.
 - 2. Temporary electric power and light.
 - 3. Gas service.
 - 4. Telephone service.
 - 5. Storm sewer.
- C. Temporary construction and support facilities that may be required include, but are not limited to:
 - 1. Temporary heat.
 - 2. Field offices and storage sheds.
 - 3. Temporary roads and paving.
 - 4. Sanitary facilities, including drinking water.
 - 5. Dewatering facilities and drains.
 - 6. Temporary enclosures.
 - 7. Hoists and lifts.
 - 8. Temporary project identification signs and bulletin boards.
 - 9. Waste disposal services.
 - 10. Rodent and pest control.
 - 11. Construction aids and miscellaneous services and facilities.

D. Security and protection facilities required include, but are not limited to:

1. Temporary fire protection.
2. Barricades, warning signs, lights.
3. Environmental protection.

1.04 SUBMITTALS

A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.

1.05 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:

1. Building Code requirements.
2. Health and safety regulations.
3. Utility company regulations.
4. Police, Fire Department and Rescue Squad rules.
5. Environmental protection regulations.

B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical facilities."

1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.
2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA temporary electric service. Install service in compliance with National Electrical Code (NFPA 70).

C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.06 PROJECT CONDITIONS

A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.

B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION

3.01 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES

- A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and support facilities of ready access within project limit lines.
 - 1. Maintain temporary construction and support facilities until near substantial completion. Personnel remaining after substantial completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
 - 2. Location of all temporary buildings shall be subject to the approval of the Owner and the governing authority.
- B. Provide incombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.
- C. Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection if installed construction from adverse effect of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirement to produce the ambient condition required and minimize consumption of energy.
- D. Heating Facilities: Except where use of the permanent system is authorized, provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited.
- E. Field Offices: provide insulated, weather tight temporary offices of sufficient size to accommodate required office personnel at the project site. Keep the office clean and orderly for use of small progress meetings. Furnish and equip offices.
- F. Storage Trailers: Place storage trailers, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Trailers are to be fully enclosed and placed on the site with prior approval of the Owner.
- G. Temporary Roads and/or Equipment Access Paths: Construct and maintain temporary roads and/or access paths to adequately support the construction activity, during the construction period. Locate temporary roads, storage areas and parking where the same permanent facilities will be located, if possible.
 - 1. Coordinate temporary road and/or access path development with subgrade grading, compaction, installation and stabilization of subbase, and installation of base and finish courses of permanent paving.
 - 2. Install temporary roads and/or access paths to minimize the need to rework the installations and to result in permanent roads and/or access paths and paved areas that are without damage or deterioration when occupied by the Owner.
 - 3. Extend temporary roads and/or access paths in and around the construction area as necessary to accommodate building structure erection, delivery and storage of materials, equipment usage, administration and supervision.
- H. Sanitary facilities include temporary toilets and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operations and maintenance of fixtures and facilities. All sanitary conveniences shall be satisfactory to the Owner and shall conform to the regulations of the City, County, and State Health Departments.

1. Install where facilities will best serve the project's needs, with prior owner approval.
 2. Provide toilet tissue, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.
- I. Toilets: Install well-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
- J. Dewatering Facilities and Drains: For temporary drainage and dewatering facilities and operations not directly associated with construction activities included under individual sections, comply with dewatering requirements of applicable Division-2 sections. Where feasible, utilize the same facilities. Maintain the site, excavations and construction free of water.
- K. Temporary Enclosures: Provide temporary enclosure of protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities, and to provide security from vandalism and theft.
1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
 2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 square feet or less with plywood or similar materials.
 3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood-framed construction.
- L. Temporary Enclosures for Lead Safe Work Area Isolation.
1. Before beginning the renovation, the Contractor shall isolate the work area so that no dust or debris leaves the work area while the renovation is being performed. Prevent latent dust emissions. Protect other areas of the facility from contamination by fugitive dusts.
 2. In addition, the Contractor shall maintain the integrity of the containment by ensuring that any plastic or other impermeable materials are not torn or displaced, and taking any other steps necessary to ensure that no dust or debris leaves the work area while the renovation is being performed.
 3. The Contractor must also ensure that containment is installed in such a manner that it does not interfere with occupant and worker egress in an emergency.
- M. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- N. Project Identification and Temporary Signs: The Contractor will not erect free-standing or post any signs on property under the control of the Shawnee Mission School District without prior approval by the Owner. This includes signs on construction trailers, portable sheds, etc., which might legitimately be temporarily parked on said property by and for the Contractor's use as part of this project. The Owner may provide and erect one or more project signs as they deem necessary.
- O. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than seven days during normal weather or three days when the temperature is expected to rise above 80 degrees. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

- P. Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate. Cover finished permanent stairs with a protective covering of plywood or similar material so finish will be undamaged at the time of acceptance.

3.02 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Architect.
- B. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against reasonable predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguisher", and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."
 - 1. Locate fire extinguisher where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
 - 2. Store combustible materials in containers in fire-safe locations.
 - 3. Maintain unobstructed access to fire extinguisher, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
 - 4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- C. Permanent Fire Protection: At the earliest feasible date in each area of the project, complete installation of the permanent fire protection facility, including connected services, and place into operations and use. Instruct key personnel on use of facilities.
- D. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.
- E. Enclosure Fence: Prior to demolition or excavation, install an enclosure fence with lockable entrance gates. Locate where indicated, or enclose the entire site or the portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering the site, except by the entrance gates.
 - 1. Provide an open mesh chain link construction fence and gates, minimum 6'-0" high, with galvanized steel pipe posts.
 - 2. Utilize concrete block or pegged steel pipe stabilizer brackets where fence panels adjoin or end.
 - 3. Upon removal of the fencing, repair any disturbed areas to restore to original condition.
 - 4. Locate the construction fence and gates to facilitate all jurisdictional exit and entry requirements from existing buildings and new construction.
 - 5. If requested by the owner, the gates shall be double locked (lock to lock) with the contractor's lock and the owner's lock to allow owner access.
 - 6. Locate the fence and gates to facilitate owner operations that may be in progress during construction.
 - 7. Maintain the fence and gates throughout construction.

- F. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
 - 1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- G. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise making tools and equipment harmful to humans so as to minimize complaints from persons or firms near the site.
 - 1. Contractor shall comply with all Federal, state and local laws and regulations relating to environmental protection. Daily clean up of adjacent streets, sidewalks, and public structures due to construction debris shall be required at Contractor's expense.

3.03 OPERATION, TERMINATION AND REMOVAL

- A. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
 - 2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- B. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or not later than substantial completion. Complete, or if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserves the right to take possession of project identification signs.
 - 2. At substantial completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:
 - a. Replace air filters and clean inside of ductwork and housings.
 - b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
 - c. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

END OF SECTION

SECTION 016000
MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES:

- A. Related Documents
- B. Summary
- C. Definitions
- D. Submittals
- E. Quality Assurance
- F. Product Requirements and Selection Procedures

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to this section.

1.03 SUMMARY

- A. This section specifies administrative and procedural requirements governing the Contractor's selection of products for use on the project.
- B. The Contractor's construction schedule and the schedule of submittals are included under Division 1 Section "Submittals."
- C. Standards: Refer to Division 1 Section "Reference Standards and Definitions" for applicability of industry standards to products specified.
- D. Administrative procedures for handling requests for substitutions made after award of the contract are included under Division 1 Section "Product Substitutions."

1.04 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," "structure," "accessories," and similar terms. Such terms such are self-explanatory and have well recognized meanings in the construction industry.
 - 1. "Products" are items purchased of 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 as of the date of the Contract Documents.
2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or utilized 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.

1.05 SUBMITTALS

- A. Product List Schedule: Prepare a schedule showing products specified in a tabular form acceptable to the Architect. Include generic names of products required. Include the manufacturer's name and proprietary product names of each item listed.
 1. Coordinate the product list schedule with the Contractor's Construction Schedule and the Schedule of Submittals.
 2. Form: Prepare the product listing schedule with information of each item tabulated under the following column headings:
 - a. Related Specification Section Number.
 - b. Generic Name Used in Contract Documents.
 - c. Proprietary Name, Model Number and Similar Designations.
 - d. Manufacturer's Name and Address.
 - e. Supplier's Name and Address.
 - f. Installer's Name and Address.
 - g. Projected Delivery Date, or Time Span of Delivery Period.
 3. Initial Submittal: Within twenty (20) days after date of commencement of the work, submit three (3) copies of an initial product list schedule. Provide a written explanation for omissions of data, and for known variations from contract requirements.
 4. Architect's Action: The Architect will respond in writing to the Contractor within two weeks of receipt of the completed product list schedule. No response within this time period constitutes no objection to listed manufacturers or product, but does not constitute a waiver of the requirement that products comply with contract documents. The Architect's response will include the following:
 - a. A list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.06 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.
- B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the project, the product selected shall be compatible with products previously selected products that were also options.

- C. Nameplates: Except for required labels and operating data, do not attached or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces or products which will be exposed to view in occupied spaces or on the exterior.
1. Labels: Locate required product labels and stamps on a concealed surface or, where required of observation after installation, on an accessible surface that is not conspicuous.
 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.

1.07 PRODUCT REQUIREMENTS AND SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
 2. Standard products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: Product selection is governed by the Contract Documents and government regulations, not be previous project experience. Procedures governing product selection include the following:
1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.
 2. Semi-Proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
 3. Non-Proprietary Specifications: When the specifications list products or manufacturers that are available and may be incorporated in the work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with contract requirements. Comply with contract document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
 4. Descriptive Specification Requirements: Where specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with contract requirements.
 5. Performance Specification Requirements: Where specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
 - a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

END OF SECTION

SECTION 016500
STARTING OF SYSTEMS

PART 1 – GENERAL

1.01 SECTION INCLUDES:

- A. Starting systems.
- B. Demonstration and instructions.
- C. Testing, adjusting, and balancing.

1.02 RELATED SECTIONS

- A. Section 014000 – Quality Control: Manufacturer's field reports.
- B. Section 017000 – Contract Closeout: System operations and maintenance data and extra materials.

1.03 STARTING SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Architect and Owner fourteen (14) days prior to start up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions that may cause damage.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start up under supervision of responsible manufacturer's representative in accordance with manufacturer's instructions.

1.04 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of substantial completion. Contractor will prepare and distribute meeting minutes of each demonstration and associated instruction.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season as soon as practical prior to the season. Demonstration shall be performed under applicable seasonal conditions.
- C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

- D. Demonstrate start up, operation, control, adjustment, troubleshooting, servicing, maintenance, and shutdown of each item of equipment at a scheduled agreed upon time, at designated location.
- E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
- F. The minimum amount of time required for instruction on each item of equipment and system may be specified in individual sections. Reference individual sections for requirements.

1.05 TESTING, ADJUSTING AND BALANCING

- A. Contractor will appoint, employ, and pay for services of an independent firm to perform testing, adjusting and balance.
- B. The independent firm will perform services specified in Section 15950.
- C. Reports will be submitted by the independent firm to the Architect indicating observations and results of tests and indicating compliance or noncompliance with specified requirements and with the requirements of the contract documents.

PART 2 – PRODUCTS (NOT APPLICABLE)**PART 3 – EXECUTION (NOT APPLICABLE)**

END OF SECTION

SECTION 017000
PROJECT CLOSEOUT

PART 1 GENERAL

1.01 SECTION INCLUDES:

- A. Related documents.
- B. Summary.
- C. Completion of a building and/or phase.
- D. Final completion and final payment.
- E. Record document submittals.
- F. Starting systems.
- G. Operating and maintenance instructions.
- H. Final cleaning.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to this section.
- B. Refer to Section 010200 for Final Lien Waiver.

1.03 SUMMARY

- A. This section specifies administrative and procedural requirements for project closeout, including but not limited to:
 - 1. Inspection procedures.
 - 2. Project record document submittal.
 - 3. Operating and maintenance manual submittal.
 - 4. Submittal of warranties.
 - 5. Final cleaning.
 - 6. Record vellum drawings.
- B. Closeout requirements for specific construction activities are included in the appropriate technical specifications sections
- C. Refer to Division-1 Section "Warranties and Bonds" for specific requirements.

1.04 SUBSTANTIAL COMPLETION

A. Substantial Completion:

1. The Contractor and each Subcontractor shall carefully and regularly check their work for conformance with the contract documents as the Work is being done. Unsatisfactory work shall be corrected as the Work progresses and not be permitted to remain and become a part of the punch list.
2. The Contractor shall conduct a pre-punch list inspection. The written pre-punch list shall be distributed to affected subcontractors, for correction of noted items. The Contractor shall provide a copy of the pre-punchlist inspection and advise the Architect of the correction of the pre-punch list. This notification shall so serve to notify the Architect that the work is ready for the Architect's punch list inspection.
3. The Architect shall make arrangements for his punch list inspection at the earliest possible date following Contractor notification of correction of the pre-punch list. Transmittal of the Punch List to the Contractor shall set the date for a reinspection prior to issuance of a Certificate of Substantial Completion. Upon receipt of the Punch List, the Contractor shall, within seven (7) days, bring to the attention of the Architect, in writing, any questions that he or any of his subcontractors may have concerning the requirements of the Punch List.
4. When advised by the Contractor that the Punch List items have been completed, the Architect shall conduct a reinspection with the Contractor and any needed subcontractors (and the Owner's representative where applicable) to determine whether the Certificate of Substantial Completion can be issued. A Certificate of Substantial Completion will only be issued after codes administration authorities document approval and permit occupancy of the building or phase. Also note Paragraph 12 of this section.
5. When issued, the Certificate of Substantial Completion shall name the date, triggering the beginning of the warranty period (with any items to have a later starting date specifically noted). The certificate shall also have attached to it any uncompleted Punch List items, and shall name the date for their final completion. The Certificate of Substantial Completion shall also state the responsibilities of the Owner and the Contractor for maintenance, heat, air conditioning, utilities, insurance and building security.
6. Acknowledgement of the date of substantial completion by the signature of all parties on the certificate implies possession of the premises by the Owner. The subsequent completion of incomplete punch list items by the Contractor and the subcontractors shall occur at the Owner's convenience. The Owner shall cooperate in permitting the Contractor reasonable access to the work for the completion of punch list items.
7. A Certificate of Substantial Completion for the work, or portion of work as applicable, will only be issued after the requirements for the demonstration and instruction of operation and maintenance procedures as defined elsewhere by the Contract Documents, to the Owner's personnel have been satisfied by the Contractor.
8. A list of items required for submission at Substantial Completion is listed at the end of this section. This list may include specific maintenance agreements, maintenance manuals, tools, keys, spare parts, extra stock materials, operational instruction to Owner's operating personnel, etc. Any items not here-in specifically listed as required at Substantial Completion

- shall be submitted at Final Completion.
9. Substantial Completion Cleaning: At Substantial Completion for each project or portion of the project, clean the entire work area to a level acceptable to the Owner, for finish cleaning by the Owner's custodial personnel. Remove non-permanent protection and labels, polish glass, clean exposed finishes, touch-up minor finish damage, clean or replace filters of mechanical systems, remove debris and broom clean non-occupied spaces, sanitize plumbing/food service facilities, clean light fixtures and replace burned out/dimmed lamps, sweep and wash paved areas, police yards and grounds. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces. Mop VCT or seamless floor surfaces clean. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
 10. Lead Safe Project Report: The Contractor shall furnish a single report documenting compliance with recordkeeping and reporting of requirements of 40 CFR Part 745.85 including documentation that a certified renovator was assigned to the project, that the certified renovator provided on-the-job training for workers used on the project, that the certified renovator performed or directed workers who performed all of the tasks described in Part 745.85, and that the certified renovator performed the post-renovation cleaning verification described in Part 745.85. If the renovation firm was unable to comply with all of the requirements of this rule due to an emergency as defined in Part 745.82, the Contractor shall document the nature of the emergency and the provisions of the rule that were not followed. This documentation must include a copy of the certified renovator's training certificate, and a certification by the certified renovator assigned to that project that:
 - a. Training was provided to workers (topics must be identified for each worker).
 - b. Pre-renovation education and hazard communication was performed before and updated during the project.
 - c. Warning signs were posted at the entrances to the work area.
 - d. The work area was contained by:
 - (1) Removing or covering all objects in the work area (interiors).
 - (2) Closing and covering all HVAC ducts in the work area (interiors).
 - (3) Closing all windows in the work area (interiors) or closing all windows in and within 20 feet of the work area (exteriors).
 - (4) Closing and sealing all doors in the work area (interiors) or closing and sealing all doors in and within 20 feet of the work area (exteriors).
 - (5) Covering doors in the work area that were being used to allow passage but prevent spread of dust.

- (6) Covering the floor surface, including installed carpet, with taped-down plastic sheeting or other impermeable material in the work area 6 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to contain the dust, whichever is greater (interiors) or covering the ground with plastic sheeting or other disposable impermeable material anchored to the building extending 10 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to collect falling paint debris, whichever is greater, unless the property line prevents 10 feet of such ground covering, weighted down by heavy objects (exteriors).
 - (7) Installing (if necessary) vertical containment to prevent migration of dust and debris to adjacent property (exteriors).
 - e. Waste was contained on-site and while being transported off-site.
 - f. The work area was properly cleaned after the renovation by:
 - (1) Picking up all chips and debris, misting protective sheeting, folding in dirty side inward, and taping it for removal.
 - (2) Cleaning the work area surfaces and objects using a HEPA vacuum and/or wet clothes or mops (interiors).
 - g. The certified renovator performed the post-renovation cleaning verification (the results of which must be briefly described, including the number of wet and dry cloths used).
- 11. Substantial Completion Drain Clearing. At Substantial Completion for each project or portion of the project, perform drain clearing in each building area affected by new construction or renovation work. Clear drains of debris and/or construction materials using methods acceptable to the school district. Test all affected drains to ensure proper operation prior to turn-over to the district. As required, demonstrate proper operation.
- 12. The Owner has contracted with the Architect/Engineer to perform a limited number of punchlist inspections and reinspections. Typically, the Architect/Engineer is responsible for the initial punchlist inspection and one reinspection. If the Owner incurs additional cost from the Architect/Engineer for the performance of more than one initial punchlist inspection and one reinspection, costs for any necessary additional reinspection will be assessed to the Contractor in the way of a deductive cost change order.

B. Final Completion:

- 1. Submit executed warranties, workmanship bonds, remaining maintenance agreements, inspection certificates and similar required documentation for specific units of work, enabling Owner's unrestricted occupancy and use.
- 2. Submit maintenance manuals, tools, keys, spare parts, extra stock materials not required at substantial completion.
- 3. Complete instruction of Owner's operating personnel with start up of all systems, not previously required at substantial completion.
- 4. Complete final cleaning and remove temporary facilities.
 - a. Final Cleaning: At closeout time of each building, or applicable portion, reclean the work affected by punch list corrections. Remove non-permanent protection, polish glass, clean exposed finishes, touch-up minor finish damage, remove debris and broom clean non-occupied spaces, sanitize plumbing/food service facilities, clean light fixtures, sweep and wash paved areas, police

yards and grounds, and perform similar clean up operations needed to produce a "clean" condition as judged by Architect and Owner.

5. All punch list work must be completed, reviewed and accepted by the Architect.

1.05 FINAL COMPLETION AND FINAL PAYMENT

- A. Provide submittals to Architect that are required by governing or other authorities. Confirm that all submittals required by the construction documents have been transmitted.
- B. Final Completion: For the purpose of determining a date at which the project is finished, final completion may be defined to include, but is not limited to:
 1. Substantial completion.
 2. Submission and acceptance by the Architect of project record drawings.
 3. Operation and maintenance data (including all air and water balance reports).
 4. All applicable Owner training sessions with meeting notes distributed (video tapes, if applicable).
 5. Final cleaning.
 6. Adjusting (hardware, HVAC, etc.)
 7. Warranties submitted by General Contractor and accepted by Architect.
 8. Spare parts and maintenance materials turned over to proper District personnel.
 9. All Punch List work completed, reviewed and accepted by the Architect.
 - a. All of the above items are as required by individual specification requirements as found in the contract documents. These individual requirements shall take precedence over this definition if any conflict should arise.
- C. Upon written notice by the Contractor that the reinspection punch list items are completed, the Architect shall verify this by inspection and shall issue to the Owner a final certificate of payment stating that, to the best of their knowledge, information and belief, the work has been completed in accordance with the terms and conditions of the contract documents, and that the entire balance found to be due the Contractor, and noted in said final certificate of payment, is due and payable. The Owner shall endeavor to make final payment within thirty (30) days.

1.06 RECORD DOCUMENT SUBMITTAL

- A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.
- B. Record Drawings: A set of blue- or black-line drawings of the original bidding documents will be provided by the Architect to the Contractor for the following use:
 1. If the Contractor elects to vary the work from the Contract Documents, and secures prior approval from the Architect, he shall record in a neat,

readable manner, all such variances on the blue- or black-line drawings furnished.

2. For plumbing; heating; ventilating; and air conditioning; electrical and fire protection work, record document drawings shall be maintained by the Contractor as the work progresses and as follows:
 - a. All deviations from the sizes, locations, and from all other features of all installations showing the contract documents shall be recorded.
 - b. In addition, it shall be possible, using these drawings, to correctly and easily locate, identify and establish sizes of piping, direction etc., as well as all other features of work that will be concealed.
 1. Locations of underground work shall be established by dimensions to column lines or walls, by locating all turns, etc., and by properly referenced centerline or invert elevations and rates of fall.
 2. For work concealed in the building, sufficient information shall be given so it can be located with reasonable accuracy and ease. In some cases this may be by dimension; in others, it may be sufficient to illustrate the work on the drawings in relation to the spaces in the building near which it was actually installed. Architect's decision in this matter shall be final.
3. Blue- or black-line record drawings shall be kept up to date during the entire course of the work and shall be available upon request for examination by the Architect.
4. The following requirements apply to all record document drawings:
 - a. They shall be maintained at the Contractor's expense.
 - b. All such drawings shall be done carefully and neatly by a competent draftsman and in an approved form.
 - c. Additional drawings shall be provided as necessary for clarification.
 - d. The record document drawings (both blue- and black-line and reproducible) shall be returned to the Architect upon completion of the work and are subject to the approval of the Architect.
 - d. Delete Architect title block and seal from record document drawings.
- C. Record Specifications: Maintain one complete copy of the project manual, including addenda, and one copy of other written construction documents such as change orders and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and product data.
 1. Legibly mark and record at each product section description of actual products installed, including the following:
 - a. Manufacturer's product name and product model number.
 - b. Product substitutions or alternates utilized.
 - c. Changes made by addenda and modifications.

2. Upon completion of the work, submit record specifications to the Architect for the Owner's records.
 3. Record project manual shall be maintained at the Contractor's expense.
 4. Record project manual shall be maintained in a neat, readable manner. Contract work variations shall be recorded in the correct corresponding technical section of the project manual.
 5. Delete Architect seal from record project manual.
 6. Complete final cleaning and remove temporary facilities.
- D. Record Shop Drawings: Maintain a clean, undamaged set of blue or black line white prints of shop drawings as finally approved. Mark the set to show the actual installation where the installation varies substantially from the work as originally shown. Mark drawings accurately; record a cross reference at the corresponding location on the contract drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the work.
 2. Mark new information that is important to the Owner, but was not shown on shop drawings.
 3. Note related change order numbers where applicable.
 4. Organize record shop drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.
- E. Record Product Data: Maintain one copy of each product data submittal. Mark these documents to show significant variations in actual work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instruction and recommendations. Give particular attention to concealed products and portions of the work that cannot otherwise be readily discerned later by direct observation. Note related change orders and mark up of record drawings and specifications.
1. Upon completion of mark ups, submit complete set of record product data to the Architect for the Owner's records.
- F. Record Documents and Shop Drawings: Contractor to supply one complete set of approved shop drawings. Legibly mark each item to record actual construction including:
1. Measured depths of foundations in relation to fine (main) floor datum.
 2. Measured horizontal and vertical locations of underground utilities and appurtenance, referenced to permanent surface improvements.
 3. Measured locations of internal utilities and appurtenance concealed in construction, referenced to visible and accessible features of the work.
 4. Field changes of dimension and detail.
 5. Details not on original contract drawings.
- G. Record Sample Submitted: Immediately prior to the date or dates of substantial completion, the Contractor will meet at the site with the Architect and the Owner's representative personnel to determine which of the submitted samples that have been maintained during progress of the work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's sample storage area.

- H. Miscellaneous Record Submittal: Refer to other specification sections for requirements of miscellaneous recordkeeping and submittal in connection with actual performance of the work. Immediately prior to the date or dates of substantial completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Architect for the Owner's records.
- I. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Submit two sets prior to Substantial Completion or final inspection, as applicable. Bind properly indexed data in individual heavy-duty, three inch, three ring vinyl-covered binders, 8½ x 11 inch test page format, with pocket folders for folded sheet information.
1. Prepare binder covers with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.
 2. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
 3. Contents: Prepare a Table of Contents for each volume, with each product or system description identified.
 4. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, subcontractors, and major equipment suppliers where they can be reached for emergency service at all times, including nights, weekends, and holidays.
 5. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions
 - g. Emergency instructions.
 - h. Spare parts list.
 - i. Wiring diagrams.
 - j. Recommended "turn around" cycles.
 - k. Inspection procedures.
 6. Part 3: Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Photo copies of warranties and bonds.
 7. Submit one copy of completed volumes in final form fifteen (15) days prior to the applicable submission requirement. This copy will be returned after review, with Architect comments. Revise content of documents as required prior to final submittal for the applicable submission requirement.

- 8. Submit final volumes revised, within ten (10) days after Architect review and comment.
- J. Record reproducible vellum drawings. Contractor shall submit one copy of all record contract drawings to the Owner in the form of reproducible vellum sheets.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 -- EXECUTION

3.01 STARTING SYSTEMS

- A. Coordinate schedule of start up of various equipment and systems.
- B. Notify Architect and Owner seven (7) days prior to start up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions that may cause damage.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start up under supervision of responsible manufacturer's representative (Contractor's personnel) in accordance with manufacturer's instructions.
- G. When specified in individual specification sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start up, and to supervise placing equipment or system in operation.
- H. Submit a written report in accordance with Section 01400 that equipment or system has been properly installed and is functioning correctly.

3.02 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. General: Arrange for each Installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance, if applicable. If Installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:
 - 1. Maintenance manuals.
 - 2. Record documents.
 - 3. Spare parts and materials.
 - 4. Tools.
 - 5. Lubricants.
 - 6. Fuels.
 - 7. Identification systems.
 - 8. Control sequences.

9. Hazards.
10. Cleaning.
11. Warranties and bonds.
12. Maintenance agreements and similar continuing commitments.

B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Start up.
2. Shutdown.
3. Emergency operations.
4. Noise and vibration adjustments.
5. Safety procedures.
6. Economy and efficiency adjustments.
7. Effective energy utilization.

END OF SECTION

SECTION 017100

CONSTRUCTION HOUSEKEEPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Related Documents
- B. Summary
- C. Submittals
- D. Quality Assurance
- E. Project Conditions

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including general and supplementary conditions and other Division-1 Specification sections, apply to this section.

1.03 SUMMARY

- A. This section specifies requirements for maintaining housekeeping of the construction site and facilities during construction operations.

1.04 SUBMITTALS

- A. Submit a written narrative outlining the operational plan that will be employed by the contractor and subcontractors to maintain the construction site and facilities in a clean, safe, and organized condition that is free from recognized hazards that can cause serious physical harm or death to employees or the public.

1.05 QUALITY ASSURANCE

- A. Comply with Occupational Safety and Health Standards for the Construction Industry 29 CFR 1926.25.
- B. Comply with standards of authorities having jurisdiction, including but not limited to:
 - 1. Building Code requirements.
 - 2. Health and safety regulations.
 - 3. Police, Fire Department, and/or Rescue Squad requirements.
- C. Comply with directives issued by the Architect-Engineer and/or Owner. Contractors failing to comply with Architect-Engineer and/or Owner directives to properly maintain construction housekeeping may be subject to the withholding of Payment Applications until proper housekeeping conditions are adhered and maintained.

1.06 PROJECT CONDITIONS

- A. Keep construction areas free of the accumulation of dirt, debris, trash, water, liquids, and or hazards that deter from the safety of the construction site and facilities. Neatly organize and store materials so as to not co-mingle waste materials and construction materials, tools, and equipment.

PART 2 – PRODUCTS (NOT APPLICABLE)**PART 3 – EXECUTION****3.01 WORK PRACTICES**

- A. Housekeeping occurs constantly on the job, not just once a week or at the end of the project.
- B. Everyone does housekeeping, not just laborers or certain trades.
- C. Trained personnel shall use lead-safe work practices contained in EPA's renovation, repair, and painting rule as applicable.
- D. Workers pick up anything they see lying around that can trip a person or fall on them.
- E. Extension cords, lines, welding leads, hoses, etc. are coiled up when not in use.
- F. Tools are returned to the gang box or tool room.

3.02 HAZARD IDENTIFICATION, REMOVAL, AND CLEANUP

- A. Ensure that trained personnel perform lead safe work practices and take proper precautions concerning presumed lead bearing materials. If latent dust emissions occur, establish containment, post signage, and perform cleaning, recleaning, and subsequent cleaning verifications as necessary. Assess risks presented by the actual or presumed presence of lead-based paint and lead-based paint hazards. The Contractor shall not leave lead dust hazards in Owners facilities. Lead dust hazard means surface dust that contains a dust-lead loading (area concentration of lead) at or exceeding the levels promulgated by State of Kansas and Federal regulations. The Contractor shall not impair the Owner's ability to occupy work areas under this contract beyond substantial completion dates by leaving lead dust hazards.
- B. Debris is cleaned from work surfaces, passages, and stairs.
- C. Ground within 6 feet of a building under construction is free of irregularities.
- D. Storage areas and walkways are reasonably free of dangerous depressions, obstructions, and debris.
- E. All walking and working surfaces are reasonably dry and free from grease or oil.
- F. Spills of oil, grease, and other liquids are removed at once, or covered with sand or other absorbent material until cleaned up.
- G. Sufficient waste or trash containers are provided, used and emptied when appropriate.

- H. Workers wear heavy gloves and heavy soled or safety shoes when handling scrap material.
- I. All walking and working surfaces are free of protruding nails.
- J. Nails or fasteners are removed when opening crates, cartons, kegs, or when stripping small forms.
- K. Nails are bent down or removed before scrap material is discarded.
- L. Scrap and debris are piled neatly.
- M. Materials, waste, or tools are not thrown from buildings or structures to areas where workers may be located.
- N. Any object protruding at head height has been removed or flagged.
- O. Protective caps are used on exposed rebar.
- P. Chutes are used to remove waste and/or debris from above grade floors.
- Q. Hoses, power cords, welding leads, etc. are not laying in heavily traveled walkways or areas.
- R. Structural openings are covered/protected adequately (i.e., sumps, shafts, floor openings, etc.).

3.03 BULK MATERIAL STORAGE

- A. All piled or stacked material is stable and cannot fall, slip, or collapse.
- B. The face of a pile of bags (containing cement or other material) more than 5 feet high is tapered back, or the sacks are tied in horizontal layers to prevent them from falling or collapsing.
- C. Lumber piles are no more than 16' high if handled manually or 20' high if handled by equipment. Headpieces, crosspieces, or other means are used as needed to prevent slipping, tipping, or collapsing.
- D. Piles of bricks, tiles, masonry blocks, and similar materials are stabilized by the use of headers at least every sixth layer.
- E. Brick stacks are not over 7 feet high. Brick stacks over 4 feet high are tapered back.
- F. Masonry stacks over 6 feet high are tapered back.
- G. The way that material is going to be taken off the pile is planned at the time the material is first stored.
- H. Workers and their equipment have room to move material off a pile.
- I. Material is piled on surfaces that will hold its weight.
- J. Material is piled on ground stable enough for a heavy load (not too near an excavation).
- K. Pipe or rod is stored in racks if more than one layer high.
- L. Surplus materials are returned to the stockpile.

- M. Materials are at least 2m (5 ft.) from openings, roof edges, excavations or trenches.

3.04 HAZARDOUS MATERIAL STORAGE AND DISPOSAL

- A. Flammable material is always stored in separate closed containers.
- B. Incompatible chemical products (which may cause a hazardous reaction if they come in contact) are not stored together.
- C. Flammable liquids are not stored near sources of ignition (sparks, electricity, flames, or hot objects).
- D. Where more than 25 gallons of flammable liquids are present, they are kept in a storage cabinet approved by the National Fire Protection Association (NFPA).
- E. Indoor storage areas for flammable liquids are ventilated and have one clear aisle, at least three feet wide.
- F. Flammable liquids stored outdoors are at least 50 feet from the property line and 10 feet from any public way.
- G. Outdoor flammable liquid storage areas are graded to divert spills away from buildings.
- H. Flammable and combustible scrap, debris, and waste are removed promptly from buildings or structures.
- I. Covered metal waste cans are available for oily and paint-soaked waste.
- J. Appropriate cleanup materials are available for leaks or spills of flammables or other hazardous materials.
- K. Leftover hazardous products and waste are properly stored, labeled, and disposed of according to the instructions on the product's Material Safety Data Sheet (MSDS).

3.05 SANITATION

- A. Toilets and washing facilities are clean and sanitary. Toilets are design to ensure user privacy, and are supplied with toilet paper.
- B. Sufficient toilets and washing facilities are available.
- C. Adequate supplies of potable water are available.
- D. Drinking water is stored and dispensed in clearly marked containers that are not used for any other purpose.
- E. All pipes and containers for non-potable water have been clearly labeled, and only potable water is used for washing or drinking.

3.06 ENVIRONMENT

- A. Lighting and ventilation are adequate.
- B. Burned out lights are reported and replaced.

END OF SECTION

SECTION 017110**CLEANING****PART 1 - GENERAL****1.01 SECTION INCLUDES**

- A. Description
- B. Disposal Requirements
- C. Materials
- D. During Construction
- E. Dust Control
- F. Final Cleaning

1.02 DESCRIPTION

- A. Contractor will be responsible to execute daily cleaning, during progress of the Work and at completion of the Work, as required by General Conditions. The Contractor is to daily, broom clean debris and remove all refuse, rubbish, scrap material caused by his operation. The Contractor shall remove all excess spoils.

1.03 CLEANING AND DISPOSAL REQUIREMENTS

- A. Conduct cleaning and disposal operations to comply with Scope of Work Section 017100 Construction Housekeeping, codes, ordinances, regulations, and anti-pollution laws.

1.04 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by the manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

1.05 DURING CONSTRUCTION

- A. Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations or his subcontractor's operations and ensure that building and grounds are maintained free from accumulations of waste materials and rubbish. Do not allow waste materials, rubbish and debris to accumulate and become an unsightly or hazardous condition.

- B. Transport waste materials in a controlled manner with as few handling as possible; do not drop or throw materials from heights. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces. Sprinkle dusty debris with water.
- C. Burning or burying of rubbish and waste materials on the project site is not permitted. Disposal of volatile fluid wastes (such as mineral spirits, oil, or paint thinner) in storm or sanitary sewer systems is not permitted. Remove waste materials, rubbish and debris from the site and legally dispose of at public or private dumping areas off the Owner's property.

1.06 DUST CONTROL

- A. Clean interior spaces prior to the start of finish painting and/or other applicable work, and continue cleaning on as as-needed basis until such work is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.
- C. Broom clean interior building areas when ready to receive finish painting and/or other applicable work, and continue cleaning on as-need basis until building is ready for acceptance or occupancy.

1.07 FINAL CLEANING

- A. At completion of construction and just prior to acceptance or occupancy, the Contractor will conduct a final inspection of exposed interior and exterior surfaces. Perform final cleaning and maintain cleaning until building or portion thereof, is accepted by Owner.
- B. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from interior and exterior surfaces. Repair, patch and touch-up marred surfaces to match adjacent finishes. Broom clean paved surfaces; rake clean other surfaces of grounds.
- C. Clean all glass and all other finish surfaces, replace all broken and scratched glass; remove stains, spots marks and dirt from decorated work; clean all hardware; remove paint spots and smears from all surfaces, clean all fixtures and wash or vacuum all floors; leaving work in a clean and spotless condition.
- D. Mechanical subcontractor shall replace air conditioning filters if units were operated during construction. Clean ducts, blowers, and coils if air conditioning units were operated without filters during construction.
- E. Remove all waste materials and rubbish from and about the Project as well as all tools, construction equipment, machinery, and surplus materials.
- F. Use experienced workmen or professional cleaners for final cleaning.
- G. Comply with cleaning instructions contained in the Specifications. In absence of specific cleaning instructions, follow accepted cleaning practices or the recommendations of the manufacturer of the material to be cleaned.

END OF SECTION

SECTION 017400

WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 SECTION INCLUDES:

- A. Related Documents
- B. Summary
- C. Definitions
- D. Warranty Requirements
- E. Submittals

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to this section.

1.03 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 of the contract for construction of terms of Contractor's warranty of workmanship and materials.
 - 2. General closeout requirements are included in Division-1, Section "Project Closeout".
 - 3. 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 through 16.
 - 4. 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 incorporated the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.04 DEFINITIONS

- A. Standard product warranties are reprinted written warranties published by individual manufacturers for particular product 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.

1.05 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 has 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.
- D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
- E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.06 SUBMITTAL

- A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's certificate of substantial completion designates a commencement date for warranties other than the date of Substantial Completion of the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.
 - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen (15) days of completion of that designated portion of the Work.
 - 2. In all other instances, warranty periods will not begin prior to Substantial Completion, regardless of equipment use prior to dates of Substantial Completion.
- B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.
 - 1. Refer to individual sections of Divisions-2 through 16 for specific content requirements, and particular requirements of submittal of special warranties.

- C. Form of Submittal: At final completion, compile two copies of each required warranty and bond properly executed by the Contractor, or the Contractor, subcontractor, supplier or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the project manual.
- D. Bind warranties and bonds in heavy-duty, commercial quality, durable three-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8½" x 11" paper.
 - 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.
 - 2. Identify each binder on the front and the spine with the typed or printed title 'WARRANTIES AND BONDS', the project title or name, and the name of the Contractor.
 - 3. When operating and maintenance manuals are required for warranted constitution, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 035113 - CEMENTITIOUS WOOD FIBER DECKS

PART 1 GENERAL (FROM 18089,

1.1 SUMMARY

- A. Section Includes:
 - 1. Monolithic cementitious wood-fiber plank units.
 - 2. Subpurlins and grout.
- B. Related Requirements:
 - 1. Section 012200 "Unit Prices" for unit prices effecting the work of this Section.
 - 2. Section 075216 "Modified Bituminous Roofing" for roofing products installed over the work of this Section.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include details at supports, reinforcement at openings, and attachment to other work.
- C. Samples: Show texture, finish, and edge and end configurations of each type of cementitious wood-fiber unit, 12 inches long by width of unit.

1.3 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Product Test Reports: For cementitious wood-fiber units, for tests performed by a qualified testing agency.
- C. Evaluation Reports: For cementitious wood-fiber deck, from ICC-ES.

1.4 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect cementitious wood-fiber units from moisture.
- B. Store units on elevated platforms at Project site in a dry, well-ventilated, covered space and stack according to manufacturer's written instructions.
- C. Handle units to prevent chipping, breaking, cracking, staining, soiling, warping, or other physical damage. Discard damaged units at time of installation.

1.6 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit work to be performed according to manufacturers' written instructions and warranty requirements.
- B. Protect cementitious wood-fiber deck from moisture during installation and while exposed to the weather until permanently covered with subsequent construction.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 50 or less.
- B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.
- C. Noise Reduction Coefficient (NRC): NRC 0.60; ASTM C 423.
- D. Light Reflectance: 60 percent; ASTM E 1349.

2.2 MONOLITHIC CEMENTITIOUS WOOD-FIBER PLANK UNITS

- A. Monolithic Plank: Manufacturer's standard, tongue-and-groove-edged, cementitious wood-fiber units.
 - 1. Basis of Design: Subject to compliance with requirements, provide "Tectum I" by Armstrong or a comparable product with the following product characteristics.
 - 2. Thickness: As required to match existing conditions.
 - 3. Size: Manufacturer's standard width; length as required to coordinate with existing conditions.
 - 4. End Configuration: Square.
 - 5. Finish: Manufacturer's standard natural or prime-painted finish as required to match existing conditions

2.3 SUBPURLINS AND GROUT

- A. Bulb-Tee Subpurlins: Hot-rolled steel bulb tees, complying with ASTM A 499, of length required to span three support spacings; shop painted with metal primer.
- B. Gypsum Concrete Grout: Factory-packaged, gypsum concrete grout formulation recommended by cementitious wood-fiber unit manufacturer with a minimum compressive strength of 500 psi.

2.4 ACCESSORIES

- A. Anchor Clips: Manufacturer's standard formed anchor clips of 0.0478-inch-thick minimum, galvanized-steel sheet, of type and configuration required for deck system indicated.
- B. Screws: Manufacturer's recommended corrosion-resistant screw fasteners and washers, self-drilling, self-tapping, of length required for deck and structural framing indicated.
- C. Nails: Manufacturer's recommended corrosion-resistant nails of size and length required for deck and structural framing indicated.

- D. Adhesive: Manufacturer's recommended construction adhesive complying with APA AFG-01.
- E. Filler Strips: Insulation strips, same as used in manufacture of insulated composite cementitious wood-fiber units.
- F. Polyethylene Film: 0.004 inch thick, complying with ASTM D 4397.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine structural support framing for compliance with requirements, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with manufacturer's written instructions for installing cementitious wood-fiber deck.
 - 1. Install fastenings according to manufacturer's written instructions unless otherwise indicated.
- B. Deck Interruptions: Provide barrier seals or blocking at overhangs to form wind seals and at partitions and walls to form sound seals unless otherwise indicated.

3.3 ROOF DECK INSTALLATION

- A. Plank Roof Deck: Install planks progressively with long dimension perpendicular to supports and with end joints in alternate rows, staggered and centered over supports unless otherwise indicated. Tightly nest tongue-and-groove edges and tightly butt end joints.
 - 1. Cut panels to provide starter units.
 - 2. Continuously support plank edges and ends at perimeter of building and at openings in deck.
 - 3. Adhesively and mechanically fasten planks to supports and perimeter members. Apply adhesive to tongue-and-groove edges.

3.4 CLEANING AND PROTECTION

- A. Protect top surfaces of deck from damage caused by construction operations.
- B. Protect exposed bottom surfaces of deck from soiling and damage during handling and construction.
- C. Clean exposed bottom surfaces of completed deck and touch up minor damage to surfaces as approved by Architect.
- D. Provide final protection and maintain conditions in a manner acceptable to manufacturer and Installer that ensures that cementitious wood-fiber deck is without damage or deterioration at time of Substantial Completion.
- E. Remove and replace deteriorated and damaged deck units.

END OF SECTION 035113

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SECTION 040100 - MASONRY RESTORATION AND CLEANING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes, but is not limited to, the following masonry restoration and cleaning.
 - 1. 100% repointing of all brick mortar joints indicated to receive work on the drawings.
 - 2. Remove any downspouts and support hangers/brackets during cleaning and repointing.
 - 3. Remove any miscellaneous wood and metal fasteners on the masonry and repoint the holes. Verify first that these items serve no purpose.
 - 4. Replace damaged or missing brick.
 - 5. Mortar filling of all voids in brick joints to about 3/4" from surface of brick.
- B. Related work in other Sections:
 - 1. Joint Sealants: Section 079200.

1.2 DEFINITION

- A. Repointing: The process of raking out (removing) mortar and replacing it with new mortar.

1.3 QUALITY ASSURANCE

- A. Field-Constructed Mock-Ups: Prior to start of general masonry restoration, prepare the following sample panels on building where directed by Architect. Obtain Architect's acceptance of visual qualities before proceeding with the work. Retain acceptable panels in undisturbed condition, suitable marked, during construction as a standard for judging completed work.
 - 1. Cleaning and Paint Stripping: Demonstrate materials and methods to be used for cleaning and paint stripping of masonry surface and condition on sample panels of approximately 9 sq ft in area.
 - a. Test adjacent nonmasonry materials for possible reaction with cleaning materials.
 - b. Allow waiting period of duration indicated, but not less than seven (7) calendar days, after completion of sample cleaning to permit study of sample panels for negative reactions.
 - 2. Repointing: Prepare a sample areas of approximately 3' high by 3' wide for each type of repointing required, one for demonstrating methods and quality of workmanship expected in removal of mortar from joints and the other for demonstrating quality of materials and workmanship expected in pointing mortar joints. Architect shall observe work on field sample after raking and again after first layer of pointing.
 - a. The fundamental consideration for routing and pointing procedures shall be that the materials and techniques adopted do minimal or no damage to the masonry units while achieving the desired results.
 - 3. Mortar Filling: Prepare sample areas of approximately 3'-0" x 3'-0" for joint grouting. All extensive voids in brick joints shall be mortared full to about 3/4" of the finish face of brick to allow repointing of these joints.
- B. Source of Material: Obtain materials for masonry restoration from a single source for each type material required to ensure match of quality, color, pattern, and texture.

- C. Owner Representative and/or Architect may randomly selected areas of tuckpointing to be raked for verification of the appropriate depth of pointing and void filling. Contractor shall bear the cost of repointing these areas of selected destructive testing in their base bid.
- D. Preconstruction Conference: Approximately two weeks prior to scheduled commencement of work of this Section, the General Contractor shall meet at Project site with Architect, Owner's Representative, masonry restoration Contractor, and each Subcontractor and other representatives directly concerned with performance of the work of this Section. General Contractor to record discussions of conference and decisions and agreements (or disagreements) reached, and furnish copy of record to each party attending. Review foreseeable methods and procedures related to roofing work, including but not necessarily limited to the following:
 - 1. Tour building exterior, inspect, identify and discuss brick areas to be replaced. Limestone areas to be patched, limestone areas to be replaced, and discuss preparatory work to be performed by other trades.
 - 2. Locate mock-up sample areas and test areas.
 - 3. Review masonry restoration and cleaning requirements (drawings, specifications and other Contract Documents.
 - 4. Review required submittals, both completed and yet to be completed.
 - 5. Review and finalize construction schedule related to work of this Section and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
 - 6. Review required inspection, testing, certifying and material usage accounting procedures.
 - 7. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each product indicated including recommendations for their application and use. Include test reports and certifications substantiating that products comply with requirements.
- B. Restoration Program: Submit written program for each phase of restoration process including protection of surrounding materials on building and site during operations. Describe in detail materials, methods and equipment to be used for each phase of restoration work.
- C. Samples: Submit, for verification purposes, prior to mock-up erection, samples of the following:
 - 1. For replacement face bricks provide straps or panels containing not less than 8 units and representing the entire color range.
- D. Patching Mortar: Submit the following items in time to prevent delay of the work and to allow adequate time for review and resubmittal, if needed; do not order materials or start work before receiving the written approval:
 - 1. Written certificates from the repair mortar manufacturer shall be submitted stating that all installers of the repair mortar have successfully completed the training workshop for installation of the mortar.

2. Samples of all specified materials and Material Safety Data Sheets (MSDS) as appropriate.
3. Certificates, except where the material is labeled with such certification, by the producers of the materials, that all materials supplied comply with all the requirements of these specifications and the appropriate standards.
4. Color-match patch samples fabricated on pieces of appropriate masonry from or on the building using the specified repair mortar as required.
5. Written verification that all specified items will be used. Provide purchase orders, shipping tickets, receipts, etc., to prove that the specified materials were ordered and received.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Carefully pack, handle, and ship masonry units and accessories strapped together in suitable packs or pallets or in heavy cartons. Unload and handle to prevent chipping and breakage.
- B. Deliver other materials to site in manufacturer's original and unopened containers and packaging, bearing labels as to type and names of products and manufacturers.
- C. Protect masonry restoration materials during storage and construction from wetting by rain, snow or ground water, and from staining or intermixture with earth or other types of materials.
- D. Protect grout, mortar and other materials from deterioration by moisture and temperature. Store in a dry location or in waterproof containers. Keep containers tightly closed and away from open flames. Protect liquid components from freezing. Comply with manufacturer's recommendations for minimum and maximum temperature requirements for storage.

1.6 PROJECT CONDITIONS

- A. Clean masonry surfaces only when air temperatures are 40 deg F (4 deg C) and above and will remain so until masonry has dried out, but for not less than 7 days after completion of cleaning.
- B. Do not repoint mortar joints or repair masonry unless air temperatures are between 40 deg F (4 deg C) and 80 deg F (27 deg C) and will remain so for at least 48 hours after completion of work.
- C. Prevent grout or mortar used in repointing and repair work from staining face of surrounding masonry and other surfaces. Remove immediately grout and mortar in contact with exposed masonry and other surfaces.
- D. Protect sills, ledges and projections from mortar droppings.
- E. Do not apply water repellent treatments to wet surfaces or during rain or when there is a chance of rain within 24 hours after application without protection which will prevent wetting.
- F. Do not apply water repellent materials when winds are sufficient to carry airborne chemicals to unprotected surfaces.
- G. Provide protection and facilities necessary to maintain progress within schedule.

1.7 SEQUENCING AND SCHEDULING

- A. Perform masonry restoration work in the following sequence:
 - 1. Repair existing masonry including replacing existing masonry with new masonry materials.
 - 2. Rake out existing mortar from joints indicated to be repointed.
 - 3. Repoint existing mortar joints of masonry indicated to be restored.
 - 4. Clean existing masonry surfaces.
 - 5. Sealants work by others must be completed.

PART 2 - PRODUCTS

2.1 MASONRY MATERIALS

- A. Face Brick and Accessories: Provide face brick and accessories, including units for lintels, arches, corners, and other special ground, cut, or sawed shapes where required to complete masonry restoration work.
 - 1. Provide units with color, surface texture and size to match existing brick work and with physical properties not less than those determined from preconstruction testing, of selected existing units.

2.2 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I.
 - 1. For stonework and other masonry indicated, provide non staining white or gray cement complying with staining requirement of ASTM C 91 for not more than 0.03% water soluble alkali.
 - a. Intent is to match color.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Aggregate for Mortar: No. 1 Brick Sand (fine sand), free of loam, silt and organic matter.
 - 1. Match size, texture and gradation of existing mortar as closely as possible.
- D. Colored Mortar Pigment: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with record of satisfactory performance in masonry mortars.
- E. Water: Clean, free of oils, acids, alkalis and organic matter.

2.3 CLEANING MATERIALS AND EQUIPMENT

- A. Water for Cleaning: Clean, potable, free of oils, acids, alkalis, salts, and organic matter.
- B. Warm Water: Heat water to temperature of 140 deg F 180 deg F (60 deg C 82 deg C).
- C. Brushes: Fiber bristle only.
- D. Brick Cleaner: Manufacturer's acidic masonry restoration cleaner composed of hydrofluoric acid blended with other acids including trace of phosphoric acid and combined with special wetting systems and inhibitors.
 - 1. Product: Subject to compliance with requirements, provide one of the following:
 - a. Sure Klean T-785 Heavy Duty Restoration Cleaner:, ProSoCo, Inc.
 - b. Diedrich Chemicals.

- E. Protective Film: For windows, glass, metal and polished stone surfaces during acidic and alkaline masonry cleaning, use self-adhesive, translucent polyethylene protective film.
 - 1. Products: 3M Long-mask Masking Tape #2090 and the self-adhesive, thin, window protection film by 3M, 3M Protective Tape 2A26B. Catalog No. RM2090, 24" or 35" side.
- F. Spray Equipment: Provide equipment for controlled spray application of water and chemical cleaners, if any, at rates indicated for pressure, measured at spray tip, and for volume.
 - 1. For spray application of chemical cleaners provide low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with cone-shaped spray-tip.
 - 2. For spray application of water provide fan-shaped spray-tip which disperses water at angle of not less than 45 degrees.

2.4 MORTAR MIXES

- A. Existing mortar to be analyzed by Owner's Testing Laboratory as a part of this Contract to establish existing mix, presence of portland and compressive strength. New mortar to have no more portland content than original.
- B. Measurement and Mixing: Measure cementitious and aggregate material in a dry condition by volume or equivalent weight. Do not measure by shovel, use known measure. Mix materials in a clean mechanical batch mixer.
- C. Do not use admixtures of any kind in mortar, unless otherwise indicated.
- D. Mortar proportions:
 - 1. Pointing mortar for brick: One part gray portland cement, three parts lime and eight to twelve parts natural mortar aggregate.
 - 2. Rebuilding mortar shall be the same as pointing mortar.
 - 3. Intent is for cured mortar to match color, texture and not exceed compressive strength of original mortar.

2.5 CHEMICAL CLEANING SOLUTIONS

- A. General: Unless otherwise indicated, dilute chemical cleaning materials with water to produce solutions of concentration indicated but not greater than that recommended by chemical cleaner manufacturer.
- B. Acidic Cleaner Solution for Brick: Diluted with four parts water to one part cleaning solution.
- C. Chemical Paint Remover: In concentration recommended by chemical cleaner manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. General: Comply with recommendations of manufacturers of chemical cleaners for protecting building surfaces against damage from exposure to their products.

- B. Protect persons, motor vehicles, surrounding surfaces of building whose masonry surfaces are being restored, building site, and surrounding buildings from injury resulting from masonry restoration work.
 - 1. Prevent chemical cleaning solutions from coming into contact with pedestrians, motor vehicles, landscaping, buildings and other surfaces which could be injured by such contact.
 - 2. Do not clean masonry during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
 - 3. Dispose of run off from cleaning operations by legal means and in manner which prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
 - 4. Erect temporary protection covers over pedestrian walkways and at points of entrance and exit for persons and vehicles which must remain in operation during course of masonry restoration work.
- C. Protect glass, unpainted metal trim and polished stone from contact with acidic chemical cleaners by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape. Apply masking agent to comply with manufacturer's recommendations. Do not apply liquid masking agent to painted or porous surfaces.
- D. Protect unpainted metal from contact with alkali chemical cleaners and water repellent by covering them either with liquid strippable masking agent or polyethylene film and waterproof masking tape.
- E. Containment of all runoff related to cleaning masonry will be a must in order to minimize impact on surrounding vegetation; Contractor is responsible to meet all local, state and federal regulations in each masonry cleaners' application, handling, and disposal. ProSoCo indicates that containment and proper disposal of Sure Klean 509 paint stripper is without exception always regulated due to the petroleum base products it contains.

3.2 CLEANING EXISTING MASONRY, GENERAL

- A. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other.
- B. Use only those cleaning methods indicated for each masonry material and location.
- C. Perform each cleaning method indicated in a manner which results in uniform coverage of all surfaces, including corners, moldings, interstices and which produces an even effect without streaking or damage to masonry surfaces.
- D. Rinse off chemical residue and soil by working upwards from bottom to top of each treated area at each stage or scaffold setting.
- E. Chemical Cleaner Application Methods: Use only when directed by Architect, after performing water only cleaning methods described above.
 - 1. General: Apply chemical cleaners to masonry surfaces to comply with chemical manufacturer's recommendations using brush or spray application methods, at Contractor's option, unless otherwise

indicated. Do not allow chemicals to remain on surface for periods longer than that indicated or recommended by manufacturer.

2. Spray Application: Apply to pressures not exceeding 50 psi, unless otherwise indicated.
3. Reapplication of Chemical Cleaners: Do not apply chemical cleaners to same masonry surfaces more than twice.

3.3 CLEANING BRICKWORK

A. Chemical Cleaning: At locations indicated, clean brick masonry surfaces with acidic cleaner applied as follows:

1. Prewet masonry with cold water applied by low pressure spray.
2. Prewet masonry with warm water applied by low pressure spray.
3. Apply acidic cleaner to masonry. Let cleaner remain on surface for period indicated below before rinsing away:
 - a. As recommended by chemical cleaner manufacturer.
 - b. 2 to 3 minutes.
4. Rinse masonry with cold water to remove chemicals and soil, applied by medium pressure spray.
5. Repeat chemical cleaning procedure above where required to produce effect established by mock-up. Do not apply more than twice.
6. Do not clean brick work prior to seven (7) days after completion of the tuckpointing.

3.4 REPOINTING EXISTING MASONRY

A. Joint Raking:

1. Rake out mortar from joints to depths equal to 2 1/2 times their widths but not less than 1" nor less than that required to expose sound, unweathered mortar.
2. Remove mortar from masonry surfaces within raked out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum or flush joints to remove dirt and loose debris.
3. Do not spall edges of masonry units or widen joints. Replacement of masonry units which become damaged.
 - a. Cut out old mortar by hand with chisel and mallet, unless otherwise indicated.
 - b. For bed joints a small power operated rotary hand saw with 1/8" thick, 3" to 4" diameter diamond blade will be permitted but only on specific written approval of Architect based on submission by Contractor of a satisfactory quality control program and demonstrated ability of operators to use tools without damage to masonry.

B. Joint Pointing:

1. Rinse masonry joint surfaces with water to remove any dust and mortar particles. Time application of rinsing so that, at time of pointing, excess water has evaporated or run off, and joint surfaces are damp but free of standing water.

2. Fill the voids with pointing mortar in layers. Compact each layer and allow it to become thumbprint hard before applying the next layer. Fill the voids to about 1" from exposed face of bricks. Fill remaining 1" depth simultaneously with final pointing of entire brick facades.
3. After joints have been filled to a uniform depth, place remaining pointing mortar in 2 layers with each of first and second layers filling approximately half of the overall depth. First layer shall have a raked square edge. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges recess final layer slightly from face. Take care not to spread mortar over edges onto exposed masonry surfaces, or to featheredge mortar.
4. When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.
5. Cure mortar by maintaining in a damp condition for not less than 72 hours. Provide temporary protection in areas exposed to direct sun.
6. Where repointing work precedes cleaning of existing masonry hallow mortar to harden not less than seven (7) days before beginning cleaning work.

3.5 FINAL CLEANING

- A. After mortar has fully hardened thoroughly clean exposed masonry surfaces of excess mortar and foreign matter using stiff nylon or bristle brushes and clean water, spray applied at low pressure.
- B. Use of metal scrapers or brushes will not be permitted.
- C. Use of acid or alkali cleaning agents will not be permitted.
- D. Remove and dispose of waste, debris and masking materials following completion of consolidation operation. Leave surfaces and adjacent areas clean.
- E. Sweep and flush residue washed from building surface away from surrounding sidewalk and service areas nightly. Maintain premises clean and neat at all times.

END OF SECTION

SECTION 053100 - STEEL DECKING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Roof deck (053100.A01)

B. Related Requirements:

1. Section 012100 "Allowances" for those allowances affecting work of this Section.
2. Section 012200 "Unit Prices" for unit prices relating to work of this Section
3. Section 014000 "Quality Requirements" for independent testing agency procedures and administrative requirements.
4. Section 051200 "Structural Steel Framing" for shop- and field-welded shear connectors.
5. Section 055000 "Metal Fabrications" for framing deck openings with miscellaneous steel shapes.
6. Section 099600 "High Performance Coatings" for finish painting of exterior deck.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of deck, accessory, and product indicated.

B. Shop Drawings:

1. Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

1.3 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Product Certificates: For each type of steel deck.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that each of the following complies with requirements:

1. Power-actuated mechanical fasteners.

1.4 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."

B. FM Global Listing: Provide steel roof deck evaluated by FM Global and listed in its "Approval Guide, Building Materials" for Class 1 fire rating and Class 1-90 windstorm ratings.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

- B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."
- B. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

2.2 ROOF DECK (053100.A01)

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Canam United States; Canam Group Inc.
 - 2. Consolidated Systems, Inc.; Metal Dek Group
 - 3. Epic Metals Corporation
 - 4. New Millennium Building Systems, LLC.
 - 5. Nucor Corp; Vulcraft Group
 - 6. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.
- B. Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 31, and with the following:
 - 1. Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 33 minimum, shop primed with manufacturer's standard baked-on, rust-inhibitive primer.
 - a. Color: Manufacturer's standard.
 - 2. Galvanized and Shop-Primed Steel Sheet: Provide where specifically indicated. ASTM A 653/A 653M, Structural Steel (SS), Grade 33, G90 zinc coating; cleaned, pretreated, and primed with manufacturer's standard baked-on, rust-inhibitive primer.
 - a. Color: Manufacturer's standard.
 - 3. Deck Profile: As indicated.
 - 4. Profile Depth: As indicated.
 - 5. Design Uncoated-Steel Thickness: As indicated.
 - 6. Span Condition: Triple span or more.
 - 7. Side Laps: Overlapped.

2.3 ACCESSORIES

- A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

- B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.
- C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.
- D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.
- E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.
- F. Galvanizing Repair Paint: ASTM A 780 or SSPC-Paint 20, with dry film containing a minimum of 94 percent zinc dust by weight.
- G. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.
- B. Locate deck bundles to prevent overloading of supporting members.
- C. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.
- D. Place deck panels flat and square and fasten to supporting frame without warp or deflection.
- E. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.
- F. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.
- G. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

3.3 ROOF-DECK INSTALLATION

- A. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding 12 inches on center, and as follows:

1. Mechanically fasten with self-drilling, No. 10 diameter or larger, carbon-steel screws.
 2. Side Lap Fastening: As indicated on Drawings.
- B. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches, with end joints as follows:
1. End Joints: Lapped 2 inches minimum.
- C. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld to substrate to provide a complete deck installation.
1. Weld cover plates at changes in direction of roof-deck panels unless otherwise indicated.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Field welds will be subject to inspection.
- C. Testing agency will report inspection results promptly and in writing to Contractor and Architect.
- D. Remove and replace work that does not comply with specified requirements.
- E. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

3.5 PROTECTION

- A. Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on both surfaces of prime-painted deck immediately after installation, and apply repair paint.
 1. Apply repair paint, of same color as adjacent shop-primed deck, to bottom surfaces of deck exposed to view.
- B. Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 054000 - COLD FORMED METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes the following applications of cold-formed metal framing (054000.A01):
 - 1. Miscellaneous framing and furring members (054000.A07).
- B. Related Requirements:
 - 1. Section 012300 "Alternates" for those alternates related to work of this Section.
 - 2. Section 055000 "Metal Fabrications" for miscellaneous steel shapes, masonry shelf angles, and connections used with cold-formed metal framing.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of cold-formed steel framing product and accessory.
- B. Shop Drawings:
 - 1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
 - 2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.
 - 3. For cold-formed metal framing indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Delegated-Design Submittal: For cold-formed steel framing.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency and professional engineer.
- B. Welding certificates.
- C. Product Test Reports: For each listed product, for tests performed by a qualified testing agency.
 - 1. Steel sheet.
 - 2. Power-actuated anchors.
 - 3. Mechanical fasteners.
 - 4. Vertical deflection clips.
 - 5. Horizontal drift deflection clips
 - 6. Miscellaneous structural clips and accessories.
- D. Evaluation Reports: For nonstandard cold-formed steel framing post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated.

Engineering services are defined as those performed for installations of cold-formed metal framing that are similar to those indicated for this Project in material, design, and extent.
- C. Product Tests: Mill certificates or data from a qualified independent testing agency, indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.
- D. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association, the Steel Framing Industry Association or the Steel Stud Manufacturers Association.
- E. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."
- F. AISI Specifications: Comply with AISI's "Specification for the Design of Cold-Formed Steel Structural Members" for calculating structural characteristics of cold-formed metal framing:
 - 1. CCFSS Technical Bulletin: "AISI Specification Provisions for Screw Connections."

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect cold-formed steel framing from corrosion, moisture staining, deformation, and other damage during delivery, storage, and handling.
- B. Store cold-formed metal framing, protect with a waterproof covering, and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide cold-formed metal framing by one of the following:
 - 1. All Steel and Gypsum Products.
 - 2. CEMCO; California Expanded Metal Products Company.
 - 3. Clark-Dietrich Building Systems.
 - 4. Custom Stud, Inc.
 - 5. Engineered Steel Products, Inc.
 - 6. MBA Building Supplies.

7. MarinoWare; a division of Ware Industries.
8. SCAFCO Corporation.
9. Steel Construction Systems.
10. Steel Network, Inc.
11. Steel Structural Systems.
12. United Metal Products, Inc.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design cold-formed steel framing.
- B. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.
 1. Design Loads: As indicated in per Code and the Structural General Notes.
 2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
 - a. Exterior Load-Bearing Wall Framing: Horizontal deflection of 1/240 of the wall height, except for walls indicated to receive brick horizontal deflection of 1/600 of the wall height.
 - b. Soffit Framing: Vertical deflection of 1/240 of the span for live loads and 1/240 for total loads of the span.
 - c. Roof Rafter Framing: Vertical deflection of 1/240 of the horizontally projected span for live loads.
 3. Design framing systems to provide for movement of framing members located outside the insulated building envelope 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.
 4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
 - a. Upward and downward movement of 3/4 inch.
 5. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.
- C. Cold-Formed Steel Framing Design Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100, AISI S200, and the following:
 1. Floor and Roof Systems: AISI S210.
 2. Wall Studs: AISI S211.
 3. Headers: AISI S212.
 4. Lateral Design: AISI S213.

D. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.3 COLD-FORMED STEEL FRAMING, GENERAL (054000.A01)

A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:

1. Grade: As required by structural performance.
2. Coating: G60.

B. Steel Sheet for Vertical Deflection and Drift Clips: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:

1. Grade: As required by structural performance.
2. Coating: G60.

2.4 MISCELLANEOUS FRAMING (054000.A07)

A. General: Manufacturer's standard Z-shaped and hat-shaped steel sections, of web depths indicated, and as follows:

1. Minimum Uncoated Base-Metal Thickness: 0.0538 inch.
2. Z-Furring: Manufacturer's standard slotted or non-slotted web, face flange of at least 1-1/4 inches and wall attachment flange of 7/8 inch.
3. Hat Channels: Manufacturer's standard profile.
4. Depth/Height:
 - a. For Z-furring: 3 inches, unless otherwise indicated.
 - b. For hat channels: 7/8 inch, unless otherwise indicated.

2.5 FRAMING ACCESSORIES

A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.

B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:

1. Supplementary framing.
2. Bracing, bridging, and solid blocking.
3. Web stiffeners.
4. Anchor clips.
5. End clips.

6. Foundation clips.
7. Gusset plates.
8. Stud kickers and knee braces.
9. Hole-reinforcing plates.
10. Backer plates.

2.6 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
- B. Anchor Bolts: ASTM F 1554, Grade 55, threaded carbon-steel headless bolts, with encased end threaded, and carbon-steel nuts; and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C.
- C. Post-Installed Anchors: Fastener systems with bolts of same basic metal as fastened metal, if visible, unless otherwise indicated; with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC508 or ICC-ES AC308 as appropriate for the substrate.
 1. Uses: Securing cold-formed steel framing to structure.
 2. Type: Torque-controlled adhesive anchor or adhesive anchor.
 3. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.
 4. Material for Exterior or Interior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.
- D. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E 1190 conducted by a qualified testing agency.
- E. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.
 1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.
- F. Welding Electrodes: Comply with AWS standards.

2.7 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: SSPC-Paint 20 or ASTM A 780.
- B. Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, and plasticizing and water-reducing agents, complying with ASTM C 1107/C 1107M, with fluid consistency and 30-minute working time.

- C. Shims: Load bearing, high-density multimonomer plastic, and non-leaching; or of cold-formed steel of same grade and coating as framing members supported by shims.
- D. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.
- E. Isolation Strip beneath Runner Tracks at Exterior Walls (054000.A08): Provide one of the following:
 - 1. Polyethylene-sheet backed rubberized asphalt membrane, 40 mils thick. Field cut to match widths of runners.
 - 2. Lamatek; 0.25 inch by 5.87 inches SCE-41 plain neoprene sponge rubber. Furnish in not less than 50 foot rolls.

2.8 FABRICATION

- A. Fabricate cold-formed steel 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 steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
 - a. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by no fewer than three exposed screw threads.
 - 4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, 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 and as follows:
 - 1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
 - 2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch.

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 of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.
- B. Install isolation strips beneath runner tracks at exterior walls.

3.3 INSTALLATION, GENERAL

- A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.
- B. Install cold-formed steel framing according to AISI S200, AISI S202, and manufacturer's written instructions unless more stringent requirements are indicated.
 - 1. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to manufacturer's written recommendations and requirements in this Section.
- 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.
- D. Install cold-formed steel 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 steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
 - a. Comply with AWS D1.3/D1.3M 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.
- F. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- G. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.

- H. Install insulation, specified in Section 07 21 00 "Thermal Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
- I. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.
- J. Erection Tolerances: Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
 - 1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.4 LOAD BEARING WALL INSTALLATION

- A. Install continuous top and bottom tracks sized to match studs. Align tracks accurately and securely anchor at corners and ends, and at spacings as follows:
 - 1. Anchor Spacing: As shown on Shop Drawings.
- B. Squarely seat studs against top and bottom tracks, with gap not exceeding 1/8 inch between the end of wall-framing member and the web of track. Fasten both flanges of studs to top and bottom tracks. Space studs as follows:
 - 1. Stud Spacing: 16 inches, unless specifically indicated otherwise.
- C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar configurations.
- D. Anchor studs abutting structural columns or walls, including masonry walls, to supporting structure.
- E. Install headers over wall openings wider than stud spacing. Locate headers above openings. Fabricate headers of compound shapes indicated or required to transfer load to supporting studs, complete with clip-angle connectors, web stiffeners, or gusset plates.
 - 1. Frame wall openings with not less than a double stud at each jamb of frame. Fasten jamb members together to uniformly distribute loads.
 - 2. Install tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with clip angles or by welding, and space jack studs same as full-height wall studs.
- F. Install supplementary framing, blocking, and bracing in stud framing indicated to support fixtures, equipment, services, casework, heavy trim, furnishings, and similar work requiring attachment to framing.
 - 1. If type of supplementary support is not indicated, comply with stud manufacturer's written recommendations and industry standards in each case, considering weight or load resulting from item supported.
- G. Install horizontal bridging in stud system, spaced vertically 48 inches as indicated on Shop Drawings. Fasten at each stud intersection.

1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs with a minimum of two screws into each flange of the clip angle for framing members up to 6 inches deep.
 2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges, and secure solid blocking to stud webs or flanges.
- H. Install steel sheet diagonal bracing straps to both stud flanges; terminate at and fasten to reinforced top and bottom tracks. Fasten clip-angle connectors to multiple studs at ends of bracing and anchor to structure.
- I. Install horizontal strapping at center line of masonry flashing termination bar. Coordinate locations with mason.
- J. Install miscellaneous framing and connections, including supplementary framing, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.5 EXTERIOR AND INTERIOR NON-LOAD BEARING WALL INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.
- B. Fasten both flanges of studs to top and bottom track unless otherwise indicated. Space studs as follows:
1. Do not fasten studs to outer track of double deflection tracks.
 2. Stud Spacing: 16 inches, maximum.
 3. Additional Studs: Space 8 inches from opening jambs and each side of veneer expansion joints.
Coordinate stud spacing with other masonry anchor locations.
- C. Set studs plumb, except as needed for diagonal bracing or required for nonplumb walls or warped surfaces and similar requirements.
- D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
1. Do not fasten studs to outer track of double deflection tracks.
 2. Install single deep-leg deflection tracks and anchor to building structure.
 3. Install double deep-leg deflection tracks and anchor outer track to building structure.
 4. Connect vertical deflection clips to bypassing and infill studs and anchor to building structure.
 5. Connect drift clips to cold-formed metal framing and anchor to building structure.
- E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
 2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.

- F. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 18 inches of single deflection track. Install a combination of bridging and stud or stud-track solid blocking of width and thickness matching studs, secured to stud webs or flanges.
 - 1. Install solid blocking at centers indicated on Shop Drawings.
- G. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.
 - 1. Strapping: Before installing sheathing, install continuous strapping at backup location for termination bar at the top of veneer base flashing and lintel flashing.
- H. Install horizontal strapping at center line of masonry flashing termination bar. Coordinate locations with mason.

3.6 MISCELLANEOUS FRAMING INSTALLATION

- A. General:
 - 1. Where miscellaneous framing is installed parallel to stud framing in wall, align miscellaneous framing over studs. Securely anchor at corners and ends, and at spacings as follows:
 - a. Anchor Spacing: As shown on Shop Drawings.
 - 2. Where miscellaneous framing is installed perpendicular to stud framing in wall, secure over studs. Securely anchor at corners and ends, and at spacing as follows:
 - a. Anchor Spacing: As shown on Shop Drawings.
 - 3. Set miscellaneous framing plumb, level and true to plane.

3.7 ERECTION TOLERANCES

- A. Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
 - 1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.8 FIELD QUALITY CONTROL

- A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Field and shop welds will be subject to testing and inspecting.
- C. Testing agency will report test results promptly and in writing to Contractor and Architect.
- D. Remove and replace work where test results indicate that it does not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION

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SECTION 061000 - ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Miscellaneous framing with dimension lumber (061000.A01).
2. Rooftop support curbs (061000.A14, 061000.A17).
3. Wood blocking, cants, and nailers (061000.A13)
4. Preservative-treated wood blocking, cants and nailers (061000.A12).
5. Fire-Retardant-Treated Wood blocking and nailers (061000.A16).
6. Fire retardant treated plywood blocking and backing panels (061000.A20).
7. Preservative-treated plywood blocking panels (061000.A22)
8. Flexible Strip Flashing (061000.A24).

B. Related Requirements:

1. Section 012300 "Alternates" for those alternates effecting work of this Section.
2. Section 061063 "Exterior Rough Carpentry"
3. Section 061600 "Sheathing" for sheathing, subflooring, and underlayment.

1.2 DEFINITIONS

- A. Boards or Strips:** Lumber of less than 2 inches nominal size in least dimension.
- B. Dimension Lumber:** Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.
- C. Lumber grading agencies, and the abbreviations used to reference them, include the following:**
1. NLGA: National Lumber Grades Authority.
 2. SPIB: The Southern Pine Inspection Bureau.
 3. WCLIB: West Coast Lumber Inspection Bureau.
 4. WWPA: Western Wood Products Association.

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 fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.4 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For the following, from ICC-ES:
 1. Wood-preservative-treated wood.
 2. Fire-retardant-treated wood.
 3. Power-driven fasteners.
 4. Post-installed anchors.
 5. Expansion anchors and metal framing anchors.

1.5 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 that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 1. Factory mark each piece of lumber with grade stamp of grading agency.
 2. Dress lumber, S4S, unless otherwise indicated.

- B. Maximum Moisture Content of Lumber: 19 percent for 2-inch nominal thickness or less; no limit for more than 2-inch nominal thickness unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC2[for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground].
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
 - 2. For exposed items indicated to receive a stained or natural finish, chemical formulations shall not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
 - 1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.
- D. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 - 3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
 - 4. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, materials shall comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
 - 1. Treatment shall not promote corrosion of metal fasteners.

2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
 4. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D 5664 and design value adjustment factors shall be calculated according to ASTM D 6841. For enclosed roof framing, framing in attic spaces, and where high temperature fire-retardant treatment is indicated, provide material with adjustment factors of not less than 0.85 modulus of elasticity and 0.75 for extreme fiber in bending for Project's climatological zone.
- C. Kiln-dry lumber after treatment to maximum moisture content of 19 percent. Kiln-dry plywood after treatment to maximum moisture content of 15 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- E. Application: Treat items indicated on Drawings, and the following:
1. Framing for raised platforms and stages.
 2. Plywood blocking and backing panels.
 3. Roof construction.

2.4 DIMENSION LUMBER FRAMING

- A. Miscellaneous Framing (061000.A01): No. 2 grade.
1. Species:
 - a. Hem-fir (north); NLGA.
 - b. Mixed southern pine; SPIB.
 - c. Douglas fir-larch; WCLIB or WWPA.
 2. Refer to Article 2.2 and Article 2.3 for locations of preservative treated wood and fire retardant treated wood.

2.5 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
1. Preservative-treated blocking, grounds and nailers (061000.A12).
 2. Blocking, grounds and nailers (061000.A13).
 - a. Blocking for wall-mounted cabinets and casework shall be 2x6, minimum.
 3. Curbs and cants (061000.A14).
 4. Furring (061000.A15).
 5. Fire-retardant treated wood blocking and nailers (061000.A16).

6. Fire-retardant treated wood curbs and cants (061000.A17).
 - a. Rooftop equipment bases and support curbs.
 7. Fire-retardant treated wood furring: (061000.A18).
- B. Dimension Lumber Items: Construction or No. 2 grade lumber of any of the following species:
1. Mixed southern pine or southern pine; SPIB.
 2. Spruce-pine-fir; NLGA.
 3. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
 4. Western woods; WCLIB or WWPA.
- C. Concealed Boards: 19 percent maximum moisture content and any of the following species and grades:
1. Mixed southern pine or southern pine; No. 2 grade; SPIB.
 2. Spruce-pine-fir (south) or spruce-pine-fir; Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
 3. Western woods; WCLIB or WWPA.
- D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.6 MISCELLANEOUS PLYWOOD PANELS

- A. General: DOC PS 1, Exposure 1, CD, non-fire-retardant treated and fire-retardant treated as noted below, in thickness indicated or, if not indicated, not less than 5/8-inch nominal thickness.
1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
 2. Plywood blocking and backing panels, non-fire-retardant treated (061000.A19).
 3. Fire-Retardant-Treated Plywood blocking and backing panels (061000.A20).
 - a. Note that plywood equipment backing panels are specified in Article below.
 4. Preservative Treated Plywood blocking and backing panels, non-fire-retardant treated (061000.A22).

2.7 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels (061000.A20): Plywood, DOC PS 1, Exterior, A-C, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.8 FASTENERS

- A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.
 1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
 2. Where rough carpentry is preservative treated or fire-retardant-treated wood materials, provide Type 304 stainless steel fasteners or fasteners with corrosion-protective coating have a salt-spray resistance of more than 800 hours according to ASTM B117.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC58 or ICC-ES AC308 as appropriate for the substrate.
 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.9 METAL FRAMING ANCHORS (061000.A10)

- A. Allowable design loads, as published by manufacturer, shall meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.
- B. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
 1. Use for interior locations unless otherwise indicated.
- C. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A 653/A 653M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 coating designation; and not less than 0.036 inch thick.
 1. Use for wood-preservative-treated lumber and where indicated.
- D. Stainless-Steel Sheet: ASTM A 666, Type 304 or Type 316.

1. Use for exterior locations and where indicated.
- E. Top Flange Hangers: U-shaped joist hangers, full depth of joist, formed from metal strap with tabs bent to extend over and be fastened to supporting member.
 1. Strap Width: 2 inches.
 2. Thickness: 0.062 inch.
- F. Bridging: Rigid, V-section, nailless type, 0.050 inch thick, length to suit joist size and spacing.
- G. Post Bases: Adjustable-socket type for bolting in place with standoff plate to raise post 1 inch above base and with 2-inch-minimum side cover, socket 0.062 inch thick, and standoff and adjustment plates 0.108 inch thick.
- H. Wall Bracing: T-shaped bracing made for letting into studs in saw kerf, 1-1/8 inches wide by 9/16 inch deep by 0.034 inch thick with hemmed edges.
- I. Wall Bracing: Angle bracing made for letting into studs in saw kerf, 15/16 by 15/16 by 0.040 inch thick with hemmed edges.

2.10 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets (061000.A11): Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.
- B. Flexible Strip Flashing (061000.A24): Provide self-adhering, membrane, 40 mils thick.
 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work included, but are not limited to, the following:
 - a. Air-Shield by W. R. Meadows, Inc.
 - b. Blueskin by Henry Corp.
 - c. CCW 705 by Carlisle Coatings & Waterproofing.
 - d. Hyload S/A Through Wall Flashing by Hyload, Inc.
- C. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
 1. Adhesives shall have a VOC content of 70 g/L or less.
- D. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chlorpyrifos as its active ingredient.

PART 3 EXECUTION

3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

- C. Install plywood blocking and backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.
- D. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- E. Do not splice structural members between supports unless otherwise indicated.
- F. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- G. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
 - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
- H. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- I. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use inorganic boron for items that are continuously protected from liquid water.
 - 2. Use copper naphthenate for items not continuously protected from liquid water.
- J. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- K. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.10.1, "Fastening Schedule," in ICC's International Building Code.
 - 3. ICC-ES evaluation report for fastener.
- L. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
- M. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.

1. Comply with approved fastener patterns where applicable. Before fastening, mark fastener locations, using a template made of sheet metal, plastic, or cardboard.
2. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- B. Furring to Receive Plywood: Install 1-by-3-inch nominal-size furring vertically at 16 inches o.c.
- C. Furring to Receive Gypsum Board: Install 1-by-2-inch nominal-size furring vertically at 16 inches o.c.

3.4 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION

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SECTION 061600 - SHEATHING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Roof Sheathing (061600.A06).
2. Miscellaneous sheathing as indicated for backup to sheet metal flashing, coping, and other applications indicated.
3. Sheathing joint and penetration treatment.

B. Related Requirements:

1. Section 012200 "Unit Prices" for those unit prices affecting work of this Section.
2. Section 012300 "Alternates" for those alternates affecting work of this Section.
3. Section 061000 "Rough Carpentry" for plywood backing panels.
4. Section 072500 "Weather Barriers" for water-resistive barrier applied over wall sheathing.

1.2 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 plywood complies 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 plywood complies with requirements. Include physical properties of treated materials.
3. For fire-retardant treatments, include physical properties of treated plywood both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5516.
 - a. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
4. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.**

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance Ratings: As tested according to ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 WOOD PANEL PRODUCTS - GENERAL

- A. Plywood: DOC PS1.
 - 1. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
 - 2. Factory mark panels to indicate compliance with applicable standard.

2.3 WOOD-PRESERVATIVE-TREATED PLYWOOD

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category UC2[for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground].
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
 - 2. For exposed items indicated to receive a stained or natural finish, chemical formulations shall not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
 - 1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.
- D. Application: Treat items indicated on Drawings and plywood in contact with masonry or concrete, plywood used with roofing, coping, flashing, vapor barriers, and waterproofing.

2.4 ROOF SHEATHING (061600.A06)

- A. Plywood Roof Sheathing (061600.A06): Exterior, Structural I, fire-retardant treated plywood sheathing.
 - 1. Span Rating: Not less than 24/0.
 - 2. Nominal Thickness: Not less than 5/8 inch, unless noted otherwise on Structural Drawings.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof and parapet sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
 2. For wall sheathing, provide fasteners with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- D. Screws for Fastening Sheathing to Wood Framing: ASTM C 1002.
- E. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
- F. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached, with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.
1. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C 1002.
 2. For steel framing from 0.033 to 0.112 inch thick, use screws that comply with ASTM C 954.

PART 3 EXECUTION

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. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
 2. ICC-ES evaluation report for fastener.
- D. Coordinate 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.
- E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

- F. 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.

END OF SECTION

SECTION 070150 - PREPARATION FOR REROOFING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Full tear-off of roof areas indicated.
 - 2. Partial tear-off of roof areas indicated to be repaired.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for use of the premises and phasing requirements.
 - 2. Section 015000 "Temporary Facilities" for temporary construction and environmental-protection measures for reroofing preparation.

1.2 UNIT PRICES

- A. Work of this Section is affected by removal of existing roofing system to expose metal deck below. Architect will examine and delineate extent of existing metal deck to be repaired. Deck repair will be in accordance with Section 012200 "Unit Prices"

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.
- B. Full Roof Tear-Off: Removal of existing roofing system from deck.
- C. Partial Roof Tear-Off: Removal of selected components and accessories from existing roofing system. Where indicated by repairs required, or where required by unit price when selected by Architect and Owner.
 - 1. Remove loose aggregate and re-seal/repair all loose felts, cracks and blisters prior to repairs as noted on drawings.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include plans, sections, and details.
- C. Temporary Roofing Submittal: Product data and description of temporary roofing system. If temporary roof remains in place, include surface preparation requirements needed to receive permanent roof, and submit a letter from roofing manufacturer, stating acceptance of the temporary roof and that its inclusion does not adversely affect the roofing system's resistance to fire and wind.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer making roof repairs.
 - 1. Include certificate that Installer is approved by warrantor of existing roofing system.

- B. Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including exterior and interior finish surfaces, which might be misconstrued as having been damaged by reroofing operations. Submit before Work begins.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Approved by warrantor of existing roofing system to work on existing roofing.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning roofing removal. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Reroofing Conference: Conduct conference at Project site, Refer to Roofing Section.
 - 1. Meet with Owner; Architect; Owner's insurer if applicable; testing and inspecting agency representative; roofing system manufacturer's representative; roofing Installer, including project manager, superintendent, and foreman; and installers whose work interfaces with or affects reroofing, including installers of roof deck, roof accessories, and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing system tear-off and replacement, including, but not limited to, the following:
 - a. Reroofing preparation, including roofing system manufacturer's written instructions.
 - b. Temporary protection requirements for existing roofing system components that are to remain.
 - c. Existing roof drains and roof drainage during each stage of reroofing, and roof-drain plugging and plug removal.
 - d. Construction schedule and availability of materials, Installer's personnel, equipment, and facilities needed to avoid delays.
 - e. Existing roof deck conditions requiring notification of Architect.
 - f. Existing roof deck repair procedures and Owner notifications.
 - g. Condition and acceptance of existing roof deck and base flashing substrate for reuse.
 - h. Structural loading limitations of roof deck during reroofing.
 - i. Base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that affect reroofing.
 - j. HVAC shutdown and sealing of air intakes.
 - k. Shutdown of fire-suppression, -protection, and -alarm and -detection systems.
 - l. Governing regulations and requirements for insurance and certificates if applicable.
 - m. Existing conditions that may require notification of Architect before proceeding.

1.7 FIELD CONDITIONS

- A. Existing Roofing System:
 - 1. As indicated in project-specific general notes on drawings.
- B. Owner will occupy portions of building immediately below reroofing area. Conduct reroofing so Owner's operations are not disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.
 - 1. Coordinate work activities daily with Owner so Owner can place protective dust and water-leakage covers over sensitive equipment and furnishings, shut down HVAC and fire-alarm or -detection equipment if needed, and evacuate occupants from below work area.

2. Before working over structurally impaired areas of deck, notify Owner to evacuate occupants from below affected area. Verify that occupants below work area have been evacuated before proceeding with work over impaired deck area.
- C. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.
- D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
- E. Conditions existing at time of inspection for bidding are maintained by Owner as far as practical.
 1. A roof moisture survey of existing roofing system is available for Contractor's reference.
 2. Contractor is responsible for investigating all existing roofing system conditions prior to reroofing.
- F. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.
 1. Remove only as much roofing in one day as can be made watertight in the same day.
- G. Hazardous Materials: Coal Tar pitch roofing is present on existing roof areas and should be removed and disposed of by the Contractor in a manner consistent with all local, state, and federal work safety regulations.

1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during reroofing, by methods and with materials so as not to void existing roofing system warranty. Notify warrantor before proceeding.
 1. Notify warrantor of existing roofing system on completion of reroofing, and obtain documentation verifying that existing roofing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

PART 2 PRODUCTS

2.1 TEMPORARY PROTECTION MATERIALS

- A. Expanded Polystyrene (EPS) Insulation: ASTM C 578, 1 inch thick.
- B. Plywood: DOC PS1, Grade CD Exposure 1, 15/32 inch thick.

2.2 INFILL AND REPLACEMENT MATERIALS

- A. Use infill materials matching existing roofing system materials unless otherwise indicated.
 1. Infill materials are specified in the following sections as indicated
 - a. Section 075213 "Modified Bituminous Membrane Roofing".
- B. Steel deck is specified in Section 053100 "Steel Decking."
- C. Wood blocking, curbs, and nailers are specified in Section 061000 "Rough Carpentry."
- D. Plywood Parapet Sheathing: Pressure-preservative-treated plywood wall sheathing, 19/32 inch thick, complying with Section 061600 "Sheathing."

2.3 AUXILIARY REROOFING MATERIALS

- A. General: Use auxiliary reroofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of existing and new roofing system.

PART 3 EXECUTION

3.1 PREPARATION

- A. Shut off rooftop utilities and service piping before beginning the Work.
- B. Test existing roof drains to verify that they are not blocked or restricted. Immediately notify Architect of any blockages or restrictions.
- C. Protect existing roofing system that is not to be reroofed.
 - 1. Loosely lay 1-inch- minimum thick, expanded polystyrene (EPS) insulation over existing roofing in areas where roof will be accessed, at roof top material storage and drop areas, and along traffic paths over existing roofing to remain. Loosely lay 15/32-inch plywood panels over EPS. Extend EPS past edges of plywood panels a minimum of 1 inch.
 - 2. Limit traffic and material storage to areas of existing roofing that have been protected.
 - 3. Maintain temporary protection and leave in place until replacement roofing has been completed. Remove temporary protection on completion of reroofing.
- D. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.
- E. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.
- F. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
 - 1. If roof drains are temporarily blocked or unserviceable due to roofing system removal or partial installation of new roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing roofing system components that are to remain.

3.2 ROOF TEAR-OFF

- A. General: Notify Owner each day of extent of roof tear-off proposed for that day and obtain instructions to proceed.
- B. Full Roof Tear-Off: Where indicated, remove existing roofing and other roofing system components down to the deck.
 - 1. Remove roof insulation and cover board.

2. Remove wood blocking, curbs, and nailers.
 3. Remove existing roofing membrane and associated perimeter metal edging.
 4. Remove fasteners from deck.
- C. Partial Roof Tear-Off: Where indicated, remove existing roofing and immediately check for presence of moisture by visually observing substrate that is to remain.
1. Coordinate with Owner's inspector to schedule times for tests and inspections immediately after removal.
 2. With an electrical capacitance moisture-detection meter, spot check substrate that is to remain.
 3. Remove wet or damp materials below existing roofing and above deck as directed by Architect and Owner.
 4. Inspect wood blocking, curbs, and nailers for deterioration and damage. If wood blocking, curbs, or nailers have deteriorated, immediately notify Architect.
 5. Bitumen and felts that are firmly bonded to concrete decks are permitted to remain if felts are dry. Remove unadhered bitumen, unadhered felts, and wet felts.
 6. Remove excess asphalt from steel deck that is exposed by removal of wet or damp materials. A maximum of 15 lb/100 sq. ft. of asphalt is permitted to remain on steel decks.
 7. Remove fasteners from deck.

3.3 DECK PREPARATION

- A. Inspect deck after tear-off of roofing system.
- B. If broken or loose fasteners that secure deck panels to one another or to structure are observed, or if deck appears or feels inadequately attached, immediately notify Architect. Do not proceed with installation until directed by Architect.
- C. If deck surface is unsuitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Architect. Do not proceed with installation until deck areas requiring remediation have been quantified by Architect and Architect authorizes direction to proceed in writing.
- D. Provide additional deck securement as indicated on Drawings.
- E. Perform repairs on steel deck as directed by Architect and as set forth in Section 053100. Deck replacement will be paid for by adjusting the Contract Sum according to unit prices included in the Contract Documents.

3.4 INFILL MATERIALS INSTALLATION

- A. Immediately after roof tear-off, and inspection and repair, if needed, of deck, fill in tear-off areas to match existing roofing system construction.
 1. Installation of infill materials is specified in Section 075213 "Modified Bituminous Membrane Roofing."
 2. Installation of wood blocking, curbs, and nailers is specified in Section 061000 "Rough Carpentry."

- B. Install new roofing patch over roof infill area. If new roofing is installed the same day tear-off is made, roofing patch is not required.

3.5 BASE FLASHING REMOVAL

- A. Remove existing base flashings. Clean substrates of contaminants, such as asphalt, sheet materials, dirt, and debris.
- B. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings specified in Section 076200 "Sheet Metal Flashing and Trim."
- C. Inspect parapet sheathing, wood blocking, curbs, and nailers for deterioration and damage. If parapet sheathing, wood blocking, curbs, or nailers have deteriorated, immediately notify Architect.
- D. Remove existing parapet sheathing and replace with new parapet sheathing to comply with Section 061000 "Rough Carpentry." If parapet framing, wood blocking, curbs, or nailers have deteriorated, immediately notify Architect.
- E. When directed by Architect, replace parapet framing, wood blocking, curbs, and nailers to comply with Section 061000 "Rough Carpentry."

3.6 DISPOSAL

- A. Collect demolished materials and place in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
 - 1. Storage or sale of demolished items or materials on-site is not permitted.
- B. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION 070150

SECTION 072100 - THERMAL INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Extruded polystyrene rigid insulation board (072100.A01)
2. Glass-fiber blanket (072100.A08).
3. Mineral-wool blanket (072100.A17).
4. Spray polyurethane foam insulation (072100.A12).

B. Related Requirements:

1. Section 061600 "Sheathing" for composite nail-base insulated roof sheathing.
2. Section 075216 "Modified Bituminous Membrane Roofing" for roof insulation.
3. Section 078446 "Fire-Resistive Joint Systems" for insulation installed as part of a perimeter fire-resistive joint system.
4. Section 092900 "Gypsum Board" for sound attenuation blanket used as acoustic insulation.

C. Products Furnished but not Installed Under Work of this Section:

1. Cavity-wall insulation.

1.2 ACTION SUBMITTALS

- A. Product Data:** For each type of product.

1.3 INFORMATIONAL SUBMITTALS

- A. Product Test Reports:** For each product, for tests performed by a qualified testing agency.
- B. Evaluation Reports:** For foam-plastic insulation, from ICC-ES.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to 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 foam-plastic board insulation as follows:**
1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site until just before installation time.
 3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

PART 2 PRODUCTS

2.1 EXTRUDED POLYSTYRENE FOUNDATION PERIMETER INSULATION (072100.A01)

- A. Extruded polystyrene boards in this article are also called "XPS boards." Roman numeral designators in ASTM C 578 are assigned in a fixed random sequence, and their numeric order does not reflect increasing strength or other characteristics.
- B. Extruded Polystyrene Board (072100.A01): ASTM C 578, Type IV, 25-psi minimum compressive strength; unfaced; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84.
 - 1. Thermal Resistance: (180 day real-time aging as mandated by ASTM C578, measured per ASTM C 518 at mean temperature of 75F): R-5.0 per inch of thickness, with 90% lifetime limited warranty on thermal resistance.
 - 2. Edge Condition: Scored Square Edge (SSE).
 - 3. Panel Size: Provide 2 inch thick by 4 feet wide by 8 feet long, except at limited space condition provide 1.5 inch.

2.2 POLYISOCYANURATE FOAM-PLASTIC BOARD

- A. Polyisocyanurate Board, Glass-Fiber-Mat Faced (072100.A04): ASTM C 1289, glass-fiber-mat faced, Type II, Class 2, Grade 2. Facers shall be coated.
 - 1. Locations:
 - a. Cavity wall insulation
 - 2. Thicknesses:
 - a. Cavity wall applications, 3 inches thick, unless otherwise indicated.
 - b. Behind metal wall panels, 3 inches, unless otherwise indicated.
 - c. At Kitchen refrigerator/freezer, provide an overall thickness of at least 6 inches. First layer shall be 1-1/2 inches thick.
 - 3. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
 - 4. Insulation, associated components and adhesives shall be compatible with fluid-applied air barrier coating specified in Section 072729.
 - 5. Manufacturers and Products: Subject to compliance with requirements, provide one of the following products:
 - a. Carlisle Coatings and Waterproofing; "R2+ Matte."
 - b. Firestone Building Products; "Enverge CI."
 - c. Hunter; "Xci CG".
 - d. Atlas; comparable product submitted to and accepted by Architect prior to bidding.

2.3 GLASS-FIBER BOARD INSULATION

- A. Glass-Fiber Board Insulation (072100.A05): ASTM C 612, Type IA; unfaced, with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

1. Nominal density of 3 lb/cu. ft., thermal resistivity of 4.3 deg F x h x sq. ft./Btu x in. at 75 deg F.
2. Thickness: As indicated.

2.4 GLASS-FIBER BLANKET

- A. Glass-Fiber Blanket, Unfaced (072100.A08): ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
 1. Thickness: As indicated.

2.5 MINERAL-WOOL INSULATION

- A. Mineral-Wool Blanket, Unfaced (072100.A17): 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, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
 1. Thickness: As indicated.
- B. Pre-manufactured Head-of-Wall Mineral Wool Insulation: Meeting same criteria as specified above; manufactured into various shapes and sizes to fill voids between top-of-wall and metal decking.

2.6 SPRAY POLYURETHANE FOAM INSULATION

- A. Closed-Cell Polyurethane Foam Insulation (072100.A12): ASTM C1029, Type II, with maximum flame-spread and smoke-developed indexes of 75 and 450 respectively, per ASTM E84.
 1. 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:
 - a. BASF Corporation
 - b. Dow Chemical Company (The)
 - c. NCFI; Division of Barnhardt Mfg. Co.
 - d. Icynene "ProSeal".
 - e. Demilec; "Heatlok XT High Lift".
 2. Minimum density of 1.5 lb/cu. ft., thermal resistivity of 6.2 deg F x h x sq. ft./Btu x in. at 75 deg. F.

2.7 ACCESSORIES

- A. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.
 1. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
 2. Adhesives shall be compatible with fluid-applied air barrier coating specified in Section 072729.
 3. Adhesives shall have a VOC content of 70 g/L or less.
 4. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

PART 3 EXECUTION

3.1 PREPARATION

- A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Water-Piping Coordination: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.
- E. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.3 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- B. Foam-Plastic Board Insulation: Seal joints between units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.
- C. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 - 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
 - 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 - 3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
 - 4. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.

- D. Mineral-Wool Blanket Insulation: Install at tops of non-rated interior walls to fill cavities between top of wall and underside of deck/structure above. Install in parapet walls over runner track as shown. Provide lengths that will produce a snug fit between ends.
- E. Spray-Applied Insulation at Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
1. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.
 2. Do not apply insulation until installation of pipes, ducts, conduits, wiring, and electrical outlets in walls is completed and windows, electrical boxes, and other items not indicated to receive insulation are masked. After insulation is applied, make flush with face of CMU by using method recommended by insulation manufacturer.
 3. Fill voids of joist bearing pockets in exterior walls.
 4. Fill voids between double studs at openings in exterior walls.
 5. Fill voids between framing members of boxed headers, including header.
 6. Fill voids at tops of exterior walls or provide pre-manufactured head-of-wall mineral wool insulation.
 7. At raised Platform between framing members for sound deadening.

3.4 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION

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SECTION 072500 - WEATHER BARRIERS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Self-adhering building wrap/weather barrier.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. For self-adhering building wrap, include data on air and water-vapor permeance based on testing according to referenced standards.

B. Shop Drawings: For weather-barrier assemblies.

1. Include details for substrate joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.

1.3 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For water-resistive barrier, from ICC-ES.

1. Weather resistive barrier shall meet ICC-ES AC308 "Acceptance Criteria for Water Resistive Barriers".

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

PART 2 PRODUCTS

2.1 WATER-RESISTIVE BARRIER (072500.A02).

A. Basis-of-Design Products: Provide weather resistive barrier as a complete system, including but not limited to; self-adhering building wrap, self-adhering flashing, reinforced liquid flashing, tape and sealants. Subject to compliance with requirements, provide one of the following:

1. VaproShield LLC; "VaproShield WrapShield SA".
2. Henry Company; "BlueskinVP 160".
3. Cosella-Dorken; "Delta-Vent SA".
4. Comparable substitute meeting specified requirements, and which is submitted to and accepted by Architect prior to bidding.

B. Performance Characteristics:

1. Water-Vapor Permeance: Not less than 29 perms per ASTM E 96/E 96M, Method B.
2. Air Leakage: Not greater than 0.004 CFM/sqft at 1.57 lbs/sqft when tested in accordance with ASTM E2178.

3. Thickness shall not be less than 0.023 inches.
4. Allowable UV Exposure Time: Not less than three months.
5. Fire Performance Characteristics: Class A when tested in accordance with ASTM E 84.

2.2 MISCELLANEOUS MATERIALS

- A. General: Accessory materials recommended by weather-barrier manufacturer to produce a complete assembly and compatible with primary weather-barrier material
- B. Flexible Flashing: Weather resistive barrier manufacturer's standard composite, self-adhesive, flashing product.
- C. Liquid Flashing: Weather resistive barrier manufacturer's standard composite, liquid flashing and reinforcing mesh.
- D. Termination Mastic: Air-barrier manufacturer's standard cold fluid-applied elastomeric liquid; trowel grade.
- E. Primer for Flexible Flashing: Product recommended by manufacturer of flexible flashing for substrate.

PART 3 EXECUTION

3.1 EXAMINATION AND SURFACE PREPARATION

- A. General: Examine and prepare surfaces to receive self-adhering building wrap/weather barrier in strict accordance with barrier manufacturer's written instructions, and as follows:
 1. All surfaces must be dry, sound, clean and free of oil, grease, dirt, excess mortar and other contaminants detrimental to adhesion of barrier membrane and flashings.
 2. Remove fins, ridges, mortar, and other projections.
 3. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.

3.2 WATER-RESISTIVE BARRIER INSTALLATION

- A. General: Install weather-barrier and accessory materials according to manufacturer's written instructions to form a seal with adjacent construction and maintain a continuous weather barrier.
 1. Apply flashing (liquid and membrane types) to comply with manufacturer's written instructions.
- B. Where recommended by weather barrier manufacturer, apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by fluid air-barrier material on same day. Reprime areas exposed for more than 24 hours.
 1. Where indicated, cover exposed exterior surface of sheathing indicated to receive metal fascia with water-resistive barrier securely adhered to sheathing as occurs. Stagger all end lap seams.
- C. Cover sheathing with water-resistive barrier as follows:
 1. Cut back barrier 1/2 inch on each side of the break in supporting members at expansion- or control-joint locations.

2. Apply barrier to cover vertical flashing with a minimum 4-inch overlap.
 3. Lap over adjacent construction and adhere to substrate. Cut back weather resistive barrier so it will not be exposed to view and will allow for edge of barrier to be covered with sealant.
 4. Install weather barrier and auxiliary materials to lap and seal to adjacent waterproofing and air barrier coating as occurs, to provide continuity of building envelope barrier
- D. At end of each working day, seal top edge of weather barrier to substrate with termination mastic.
- E. Openings: Prime concealed, perimeter frame surfaces of windows, storefronts, and doors. Apply transitions and flashing (liquid or membrane) so that a minimum of 3 inches of coverage is achieved over each substrate. Maintain 3 inches of full contact over firm bearing to perimeter frames with not less than 1 inch of full contact.
- F. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of weather-barrier material with flexible low-rise foam sealant.
- G. Seal top of through-wall flashings to weather barrier. Provide termination bar as recommended by weather barrier manufacturer.
- H. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.
- I. Repair punctures, voids, and deficient lapped seams. Slit and flatten fishmouths and blisters. Extend patches 6 inches beyond repaired areas.
- J. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air-barrier components.

3.3 FLEXIBLE FLASHING INSTALLATION

- A. Apply flexible flashing where indicated to comply with manufacturer's written instructions.
1. Prime substrates as recommended by flashing manufacturer.
 2. Lap seams and junctures with other materials at least 4 inches except that at flashing flanges of other construction, laps need not exceed flange width.
 3. Lap flashing over water-resistive barrier at bottom and sides of openings.
 4. Lap water-resistive barrier over flashing at heads of openings.
 5. After flashing has been applied, roll surfaces with a hard rubber or metal roller to ensure that flashing is completely adhered to substrates.

END OF SECTION

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SECTION 074213 - FORMED METAL WALL AND SOFFIT PANELS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concealed-fastener, lap-seam metal wall panels (074213.A03).

B. Related Sections:

1. Section 054000 "Cold-Formed Metal Framing" for miscellaneous support framing.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of doors, windows, and louvers.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
5. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that affect metal panels.
6. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
7. Review temporary protection requirements for metal panel assembly during and after installation.
8. Review of procedures for repair of metal panels damaged after installation.
9. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

B. Shop Drawings:

1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, locations and types of sealants, and accessories; and special details. Show locations of all cutouts.
2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.
 - a. Indicate flashing and trim to be provided under work of this Section and to be provided by others.
 - b. Indicate shape and method of attachment.
 - c. Anchorage systems. Show locations for any exposed fasteners.
 - d. Sealants: Indicate locations and types for factory-applied and field-installed sealants.
 - e. Where panels are indicated to receive custom perforated artwork, manufacturer shall provide elevations indicating location and extent of artwork proposed.
- C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied finishes.
 1. Include Samples of trim and accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish and panel type required, prepared on Samples of size indicated below.
 1. Metal Wall Panels: 6 to 12 inches long by actual panel width for each color. Include fasteners, closures, and other metal wall panel accessories.
 - a. Where panels are indicated to receive custom perforated artwork, provide a full size sample of area containing artwork. Architect shall select region of artwork to be provided on sample.
 2. Trim and Closures: 6 to 12 inches in length for each trim profile. Include fasteners and other exposed accessories.
 3. Accessories: 6 to 12-inch-long Samples for each type of accessory.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal panels to include in maintenance manuals.
- B. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall have a minimum of five (5) years of experience in production of metal panels similar in design to those specified.
- B. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer, with not less than seven (7) years of successful experience under the current company name installing metal panels similar to those required for this Project.
- C. Integrated Field Sample: Build field sample of wall panles to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

1. Build integrated field sample of typical wall panel area as shown on Drawings, including furring system, insulation, supports, attachments, trim, and accessories.
 - a. Field sample area shall be at least 70 sq ft. Locate as directed by Architect.
 - b. Commence installation of remaining metal wall panels only after Architect's acceptance of integrated field sample.
 2. Water-Spray Test: Conduct water-spray test of metal panel assembly mockup, testing for water penetration according to AAMA 501.2.
 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- D. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
1. Water-Spray Test: Conduct water-spray test of metal panel assembly mockup, testing for water penetration according to AAMA 501.2.
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.

1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements: Verify locations of structural members and opening dimensions by field measurements before metal panel fabrication, and indicate measurements on Shop Drawings.

1.9 COORDINATION

- A. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.
 - b. Deterioration of metals and other materials beyond normal weathering.
 - 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Metal wall panel assemblies shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592:
 - 1. Wind Loads: Determine loads based on the following minimum design wind pressures:
 - a. Uniform pressure as indicated on Drawings.
 - 2. Deflection Limits: Metal wall panel assemblies shall withstand wind loads with horizontal deflections no greater than 1/240 of the span.
- C. Air Infiltration: Air leakage through assembly of not more than 0.06 cfm/sq. ft. of wall area when tested according to ASTM E 283 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 1.57 lbf/sq. ft.
- D. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 331 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 2.86 lbf/sq. ft.

- E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

- 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

2.2 CONCEALED-FASTENER, LAP-SEAM METAL WALL PANELS (074213.A03)

- A. General: Provide factory-formed metal panels designed to be field assembled by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners[and factory-applied sealant] in side laps. Include accessories required for weathertight installation.
- B. Flush Profile, Concealed-Fastener Metal Wall Panels (074213.A03): Formed with vertical panel edges with narrow reveal joint between panels[and two inverted narrow reveal joint stiffening ribs, symmetrically spaced between panel edges].
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Berridge Manufacturing Company; "FW-12 Panel", or comparable product by one of the following:
 - a. Atas.
 - b. Centria.
 - c. Fabral.
 - d. Morin (Kingspan).
 - e. Comparable products from other manufacturers will be considered that match specified colors and that are submitted to and accepted by Architect prior to bidding.
 - 2. Material: Zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet, 24 gauge thickness.
 - 3. Exterior Finish: 2-coat Mica fluoropolymer for color selected and as standard by panel manufacturer for colors specified.
 - a. Colors: As selected by Architect from manufacturer's full range to match existing as indicated on drawings.
 - 4. Panel Coverage: 12 inches.
 - 5. Panel Height: 1 to 1-1/2 inches.

2.3 MISCELLANEOUS MATERIALS

- A. Miscellaneous Metal Subframing and Furring (074213.A06): ASTM C 645, cold-formed, metallic-coated steel sheet, ASTM A 653/A 653M, G90 coating designation or ASTM A 792/A 792M, Class AZ50 aluminum-zinc-alloy coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.
- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal panels.
 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch-thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- C. Flashing and Trim (074213.A07): Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- D. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.
- E. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
 2. Joint Sealant: ASTM C 920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311.
- F. Weep Strips (074213.A08): Mesh Weep/Vent: Free-draining mesh; made from polyethylene strands, 1/4 –inch thick by 2-inch high strips and continuous for entire width of panel installation; in grey color. Weep strips shall be custom cut to height specified.
1. Products: Subject to compliance with requirements, provide the following:
 - a. Mortar Net USA, Ltd.
- G. Weep Tubes: Refer to Section 079200 for requirements.

2.4 FABRICATION

- A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

- C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
 - 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 - 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
 - 3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
 - 4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
 - 5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
 - 6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

2.5 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Aluminum Panels and Accessories:
 - 1. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
 - 1. Verify that prefinished metal flashing "by others" has been installed and weather-lapped to drain moisture to exterior.
 - 2. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.
 - 3. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal wall panel manufacturer.
 - a. Verify that self-adhering water-resistive barriers have been installed over sheathing or backing substrate to prevent water penetration.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action as recommended by metal panel manufacturer.
- B. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.
- C. Weep Strip Installation: Prior to installing panel trim moldings, install weep strips between weather-resistive barrier and panel trim moldings at tops and bottoms of panels. Temporarily hold strips in place with manufacturer's recommended adhesive. Adhesive shall be applied in 3/4-inch diameter dots spaced at 12-inch centers. Bottom of weep strips shall align with top and bottom of wall panel system.

3.3 METAL PANEL INSTALLATION

- A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Commence metal wall panel installation and install minimum of 200 sq. ft. in presence of factory-authorized representative.
 - 2. Shim or otherwise plumb substrates receiving metal panels.

3. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
 4. Install screw fasteners in predrilled holes.
 5. Locate and space fastenings in uniform vertical and horizontal alignment.
 6. Install flashing and trim as metal panel work proceeds.
 7. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
 8. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
 9. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
- B. Fasteners:
1. Steel Panels: Use stainless-steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
- C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.
- D. Lap-Seam Metal Panels: Fasten metal panels to supports with fasteners at each lapped joint at location and spacing recommended by manufacturer.
1. Apply panels to avoid "panel creep" or application not true to line.
 2. Lap ribbed or fluted sheets one full rib. Apply panels and associated items true to line for neat and weathertight enclosure.
 3. Provide metal-backed washers under heads of exposed fasteners bearing on weather side of metal panels.
 4. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
 5. Install screw fasteners with power tools having controlled torque adjusted to compress washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
 6. Flash and seal panels with weather closures at perimeter of all openings.
 7. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps; on side laps of nesting-type panels; on side laps of corrugated nesting-type, ribbed, or fluted panels; and elsewhere as needed to make panels weathertight.
 8. At panel splices, nest panels with minimum 6-inch end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.

9. Soffit panels shall be fastened to supports with concealed fasteners in according to manufacturer's instructions. Provide perforated (vented) soffit panels for every fourth panel where indicated.
- E. Rainscreen-Principle Installation for Wall Panels: Install using pre-manufactured furring system assembly with vertical channel that provides support and secondary drainage assembly, draining at base of wall. Notch vertical channel to receive support pins. Install vertical channels supported by channel brackets or adjuster angles and at locations, spacings, and with fasteners recommended by manufacturer. Attach metal composite material wall panels by inserting horizontal support pins into notches in vertical channels and into flanges of panels. Leave horizontal and vertical joints with open reveal.
- F. Watertight Installation:
1. Apply a continuous ribbon of sealant or tape to seal lapped joints of metal panels, using sealant or tape as recommend by manufacturer on side laps of nesting-type panels; and elsewhere as needed to make panels watertight.
 2. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
 3. At panel splices, nest panels with minimum 6-inch end lap, sealed with sealant and fastened together by interlocking clamping plates.
- G. Metal Plate Wall Panel Attachment Assembly, General: Install attachment assembly required to support metal plate wall panels and to provide a complete weathertight wall system, including subgirts, perimeter extrusions, tracks, drainage channels, panel clips, and anchor channels.
1. Include attachment to supports, panel-to-panel joinery, panel-to-dissimilar-material joinery, and panel-system joint seals.
 2. Installation: Attach metal plate wall panels to supports at locations, spacings, and with fasteners recommended by manufacturer to achieve performance requirements specified.
 - a. Rainscreen Systems: Do not apply sealants to joints unless otherwise indicated.
- H. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal wall panel manufacturer; or, if not indicated, provide types recommended by metal panel manufacturer.
- I. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that are permanently watertight.

1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Water-Spray Test: After installation, test area of assembly as directed by Architect for water penetration according to AAMA 501.2.
- C. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect completed metal wall panel installation, including accessories.
- D. Remove and replace metal wall panels where tests and inspections indicate that they do not comply with specified requirements.
- E. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.
- F. Prepare test and inspection reports.

3.5 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.
- C. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

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SECTION 075216 - MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 GENERAL

1.1 SUMMARY

- A. This Section specifies requirements for the modified bituminous sheet roofing system (075216.A01) including but not limited to, the following:
1. Modified bituminous surfacing ply with factory-applied mineral surfacing.
 2. Modified bituminous field ply/plies (smooth).
 3. Modified bituminous 2-ply base flashing.
 4. Roof insulation, tapered roof insulation, and cover board.
 5. Roof cant strips and tapered edge strips.
 6. Lead flashing at roof drains and plumbing vents.
 7. Liquid flashing.
 8. Walkway protection boards.
 9. All accessories and fasteners needed to complete the roofing systems indicated.
 10. Remove the existing base flashing, sheet metal flashing, and noted wet roof insulation.
 11. Self-Adhered Vapor Barrier.
 12. Substrate Board.
 13. Vented Base Sheet.
- B. Related Requirements:
1. Section 012200 "Unit Prices" for unit prices effecting the work of this Section.
 2. Section 012300 "Alternates" for alternates effecting the work of this section.
 3. Section 053100 "Steel Decking" for steel decking requirements and installation.
 4. Section 061000 "Rough Carpentry" for wood framing, blocking, and nailers associated with roofing.
 5. Section 076200 "Sheet Metal Flashing and Trim" for metal roof flashings and counter flashings.

1.2 SYSTEM DESCRIPTIONS

- A. General System Performance Requirements:
1. Roof covering shall meet UL Class A material rating.
 2. Construction shall meet FM 1-90 windstorm uplift resistance requirements.
- B. Modified Bitumen Roofing System (Re-Roof on Steel Deck): Roofing system shall consist of a base layer of insulation, total thickness to match existing thickness and shall be mechanically fastened to deck; second layer of insulation shall be tapered and set in low-rise foam adhesive; a 1/2 inch thick cover board set in low rise foam adhesive; a smooth surfaced modified bitumen membrane adhered with manufacturer's cold adhesive; a modified

bitumen surfacing ply (cap sheet) with factory-applied mineral surfacing. Surfacing ply shall be adhered with manufacturer's cold adhesive. Provide all related accessories for a complete and watertight roofing system.

- C. Modified Bitumen Roofing System (Re-Roof on Gypsum Deck): Roofing system shall consist of a Type II glass fiber felt mechanically fastened to deck; base layer of insulation, total thickness to match existing thickness, and shall be adhered to base sheet; second layer of insulation shall be tapered and set in low-rise foam adhesive; a 1/2 inch thick cover board set in low rise foam adhesive; an modified bitumen (120 mil) smooth surfaced membrane with a single reinforcement of fiberglass mat adhered with manufacturer's cold adhesive; a surfacing ply (cap sheet) shall be an dual reinforced (glass fiber mat and a polyester mat) modified bitumen ply (180 mil thick) with factory-applied mineral surfacing. Surfacing ply shall be adhered with manufacturer's cold adhesive. Provide all related accessories for a complete and watertight roofing system.
- D. Modified Bitumen Roofing System (Re-Roof on Concrete Deck): Roofing system shall consist of base layer of insulation, total thickness to match existing thickness, and shall be adhered to concrete deck with low rise foam insulation adhesive; second layer of insulation shall be tapered and set in low-rise foam adhesive; a 1/2 inch thick cover board set in low rise foam adhesive; an modified bitumen (120 mil) smooth surfaced membrane with a single reinforcement of fiberglass mat adhered with manufacturer's cold adhesive; a surfacing ply (cap sheet) shall be an dual reinforced (glass fiber mat and a polyester mat) modified bitumen ply (180 mil thick) with factory-applied mineral surfacing. Surfacing ply shall be adhered with manufacturer's cold adhesive. Provide all related accessories for a complete and watertight roofing system.
- E. Modified Bitumen Roofing System (Re-Roof DDL on Steel Deck): Roofing system shall consist of base layer of insulation, total thickness to match existing thickness and shall be mechanically fastened to deck; second layer of insulation shall be tapered and set in low-rise foam adhesive; a 1/2 inch thick cover board set in low rise adhesive; two plies of an modified bitumen (120 mil) smooth surfaced membrane with a single reinforcement of fiberglass mat; one ply adhered in cold adhesive and one ply heat welded; a surfacing ply (cap sheet) shall be an dual reinforced (glass fiber mat and a polyester mat) modified bitumen ply (180 mil thick) with factory-applied mineral surfacing. Surfacing ply shall be adhered with manufacturer's cold adhesive. Provide all related accessories for a complete and watertight roofing system.

1.3 ACTION SUBMITTALS

- A. Manufacturer's technical product data, installation instructions and recommendations for each type of roofing product/component required. Include data and certified test reports substantiating that materials comply with requirements.
1. Submit Factory Mutual and Underwriter's Laboratory material and systems approvals.
 2. Submittals shall be reviewed and accepted by roofing membrane manufacturer's technical representative with a submittal cover letter stating all products for the roof assembly including roofing membrane, base

- flashing, and roof insulation are acceptable.
- B. Shop Drawings: Indicate dimensions, general construction, specific modifications, component connections, details at adjoining construction and roof top accessories, anchorage methods, hardware and installation procedures; plus the following specific requirements:
1. Indicate insulation fasteners, sheet layout and fastening pattern to comply with FM construction requirements specified. If insulation and cover board is adhered with low rise foam adhesive indicated adhesive ribbons patters to comply with FM construction requirement specified.
 2. Confirm insulation fasteners, sheet layout and fastening pattern to comply with ASCE 7-10 construction requirements specified. If insulation is adhered with low rise foam adhesive, indicate adhesive ribbons patterns for corner, perimeter and field-of-roof locations to comply with ASCE 7-10 construction requirement specified.
 - a. **[BV NOTE]**
 3. Indicate layout and thicknesses for tapered insulation and crickets.
 4. Indicate details for perimeter, penetrations, and field fabricate curbs and tie-in flashing details as approved by roof membrane manufacturer and in accordance with FM recommendations for wind uplift classification specified.
 5. Shop drawing shall show sequence of placement of roofing system, set-up locations of equipment and traffic patterns. Installation sequence shall be arranged so traffic across finished roofing system is minimized.
 6. Shop drawings shall be reviewed and accepted by roofing membrane manufacturer's technical representative. A shop drawing cover letter shall be submitted by the roofing membrane manufacturer's technical representative stating all products for the roof assembly including roofing membrane, base flashing and roof insulation are acceptable.
 - a. Shop drawings for Section 076200 "Sheet Metal Flashing and Trim" shall be reviewed concurrently with shop drawings for Section 075216 "Modified Bituminous Membrane Roofing."
- C. Samples: Submit two sets of samples indicating manufacturer's full range of standard colors for mineral surfaced cap sheet.
- D. Wind Uplift Resistance Submittal: For roofing system indicating compliance with wind uplift performance requirements.

1.4 INFORMATIONAL SUBMITTALS

- A. Certifications: Submit written copy of guaranty application.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing system to include in maintenance manuals.

- B. Certified statement from existing roof membrane manufacturer stating that existing roof warranty has not been affected by Work performed under this Section.

1. **[RETAIN PARAGRAPH ABOVE FOR EXISTING BLDGS W/ WARRANTED ROOF SYSTEMS
INTERFACING W/ NEW ROOFING UNDER THIS SECTION]**

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide primary roofing products including modified bitumen field and surfacing membranes, base sheet, modified bitumen flashing and bitumen/adhesive, successfully produced by a manufacturer, which has produced that type of product for not less than 5 years. Provide secondary products recommended by primary manufacturer.
- B. Installer Qualifications: The Roofing Contractor shall perform the work of this Section; and shall be a firm with not less than seven (7) years of successful experience in installation of modified bitumen roofing systems similar to those required for this project. Roofing Contractor shall be licensed by, trained by or otherwise approved in writing by the manufacturer of primary roof materials. The Contractor must be a member of NRCA or one its affiliates.
1. Roofing Contractor must have successfully completed 2 projects of comparable scale within the past two years using the specified system.
 2. Installer shall have an EMR (Experience Modification Ratio) rating of 0.90 or less.
 - a. **[VERIFY WITH KP]**
 3. Installer Certification: Obtain written certification from manufacturer of roofing system certifying that Installer is approved by manufacturer for installation of specified roofing system. Provide copy of certification to Architect prior to award of roofing work.
 4. Installer must be approved by roofing system manufacturer to offer specified manufacturer's warranty.
 5. Installer's Field Supervision: Require Installer to maintain a full-time supervisor/foreman who is on jobsite during times that roofing work is in progress and who is experienced in installation of roofing system similar to the type and scope required for this Project.
 6. All roofing shall be installed by employees of the installer; contract labor is not allowed.
- C. Pre-application Roofing Conference: Approximately two weeks prior to scheduled commencement of modified bitumen roofing installation and associated work, the Contractor shall conduct a meeting at Project site with Roofing Contractor, roofing membrane manufacturer's technical representative, Installer of each component of associated work, installer of rooftop units and other work in and around roofing which must precede or follow roofing work (including mechanical work), Architect if requested, roofing system manufacturer's technical representative third party inspection agency representative, and other representatives directly concerned with performance of the work. Contractor to record discussions of conference and decisions and agreements (or

disagreements) reached, and furnish copy of record to each party attending. Review foreseeable methods and procedures related to roofing work, including but not necessarily limited to the following:

1. Tour representative areas of roof substrates (decks), inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work performed by other trades. Identify and record items to be corrected prior to commencement of work of this Section.
 2. Review roofing systems requirements (drawings, specifications and other contract documents).
 3. Review required submittals (all required submittals shall be completed prior to pre-application roofing conference).
 4. Review and finalize construction schedule related to roofing work and verify availability of materials, Installer's personnel, equipment and facilities needed to make progress and avoid delays.
 5. Review required inspection, testing, certifying and material usage accounting procedures.
 6. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not a mandatory requirement.)
 7. Review temporary protection requirements for roofing system during and after installation.
 8. Review governing regulations and requirements for insurance and certificates.
 9. Roofing work will not be allowed to commence until submittals (or other language) phase has been completed.
- D. Insurance Certification: Assist the Owner in preparation and submittal of roof installation certification as may be necessary with fire and extended coverage insurance on roofing and associated work.
- E. UL Listing: Provide modified bitumen roofing materials which have been tested for application and slopes indicated and are listed by Underwriter's Laboratories, Inc. (UL) for Class A external fire exposure.
1. Provide roof covering materials bearing Classification Marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-up Service.
 2. Provide roof insulation approved in writing by roof system manufacturer as acceptable substrate for this project.
 3. Provide roofing system that can be installed to comply with UL 790 requirements specified for resistance to external fire.
- F. ASCE 7-16 Roofing System Design: Roofing system shall be designed and constructed to meet the requirements of ASCE 7-16.
- G. FM Approvals' RoofNav Listing: Modified bitumen roofing materials, base flashings, and component materials shall comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roofing system, and shall be listed in FM Approvals' RoofNav for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals Certification markings.

1. Fire/Windstorm Classification: Class 1A-90.
2. Hail-Resistance Rating: SH.
3. Wind Rating: System shall be capable of withstanding straight-line 3 second wind gust of at least 120 mph.

H. Product/Material Qualifications:

1. Components of the roofing system shall be manufactured or approved by the roofing system manufacturer to comply with guaranty and construction class requirements.
2. Fastener corrosion resistance shall be in accordance with FM Standard 4470.

I. Independent Third-Party Services: May be used for roof moisture and ES-1 coping and/or edge metal flashing surveys as described in the warranty section. Third party services shall be provided copies of roof plan for moisture survey and approved shop drawings for coping and/or edge metal (ES-1 standards) for sheet metal surveys. Third party services shall attend the roofing pre-installation conference if they are to perform the roof moisture or coping and metal edge surveys.

1.7 FIELD QUALITY CONTROL

A. Field Audits: A technical representative shall perform in progress site audits and review completed contractor's quality control forms, prepare and submit reports to roofing contractor and owner's representative. Site audits include first day of construction and a site audit for every two weeks of construction.

B. Quality Control Form:

1. Contractor to complete daily quality control form provided by the roofing membrane manufacturer which is included in the documents. Contractor is to note on provided roof plan areas of daily construction.
Completed forms are to be submitted with warranty completion notice.

C. Roof Moisture Survey: Owner may retain a third-party roof moisture survey.

1. If wet areas are noted, contractor will repair areas prior to final acceptance.

D. Final Roof Inspection: As a part of the roofing membrane manufacturer's standard warranty, arrange for roof membrane manufacturer's technical representative.

1. Notify Architect and Owner 48 hours in advance of date and time of inspection.

E. Roofing system will be considered defective if it does not pass tests and inspections.

1. Additional testing and inspecting, at Contractor's expense will be performed to determine if replaced or additional work complies with specified requirements.

1.8 PROJECT CONDITIONS

A. Weather Condition Limitation: Proceed with roofing work only when existing and forecasted weather conditions will permit in conjunction with manufacturer's recommendation and guaranty requirements.

- B. Project Phasing: All roof insulation, cover board, edge strips, flashing, and field ply(s) shall be installed in a timely manner to allow for all other work by other trades to be completed on the roof prior to application of the surface ply and associated final layer flashing and stripping.
- C. Protect roofing system as specified in Article 2.5 of this Section.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle modified bitumen membrane and roofing system components in accordance with roofing system manufacturer's written instructions. Store and handle components in a manner which will ensure that there is no possibility of significant moisture pickup. Unless protected from weather or other moisture sources do not leave unused membrane on the roof overnight or when roofing work is not in progress. Store modified bitumen sheets and other materials on end on pallets or other raised surface. Handle and store materials or equipment in a manner to avoid significant or permanent deflection of deck.
 - 1. Cover all materials with breathable tarpaulins. Secure tarpaulins such that weather events cannot displace them after installation.
 - 2. Remove roofing components from job site that show indications of moisture damage and replace with undamaged materials/components.
- B. Where heavy loads are placed up on or transported over decking, or where materials are repeatedly landed, provide temporary planking or plywood to distribute imposed loads.
- C. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

1.10 WARRANTY

- A. Special Project Warranty: Submit two (2) executed copies of MRCA "Roofing Contractor Materials and Workmanship Warranty; Form 2004A", for a period of two (2) years, covering work of this Section including roof membrane, composition flashing, roof insulation, fasteners, walkway pads, and roofing accessories, all stated on face of Warranty, signed and counter signed by Installer (Roofer) and Contractor.
- B. Manufacturer's Warranty: Submit executed copy of roofing manufacturer's "Full Systems – No Dollar Limit" material and workmanship warranty. Submission shall include a written a description of specified services as noted below and shall be endorsed by the Manufacturer's Technical Director. Warranty shall be from the existing decking up, including roofing system, and flashing endorsement signed by authorized representative of roofing system manufacture, on form which was published with product literature as of date of contract documents, for the following period of time:
 - 1. Twenty (20) years after date of substantial completion. This warranty shall include the following:

- a. Membrane roofing, base flashings, roof insulation, fasteners, cover boards, and other components of membrane roofing system.
 - b. Flashing system at roofing system penetrations, including but not limited to pitch pans.
 2. Two-year re-inspection of the modified bitumen system.
- C. Additional Warranty Services : The following services must be provided by the roofing membrane manufacturer's technical representative:
1. Submittals shall be reviewed and accepted by roofing membrane manufacturer.
 2. Shop drawings shall be reviewed and accepted by roofing membrane manufacturer.
 3. Pre-installation conference attendance.
 4. Project start up site visit, typically first or second day of construction.
 5. Interim site visit, one for every two weeks of construction.
 6. Daily Quality Control Reports: On a form provided by roofing manufacturer, contractor documents daily activities.
 7. Roof Moisture Survey of New Roofing System: Report to include date of survey, findings, and methods used.
- D. Shop-Fabricated Sheet Metal Warranty : The following must be provided by the roofing membrane manufacturer's technical department and be included as part of the roofing warranty:
1. Shop-fabricated sheet metal coping and metal edge meeting ANSI SPRI ES-1 standard.
 2. Coping and metal edge sheet metal shop drawings shall be reviewed and accepted by roofing membrane manufacturer.
 3. Pre-installation conference attendance.
 4. Minimum two site visits (100 squares or less) and maximum four site visits (over 100 squares). Site visit documentation shall include gauging the continuous cleat and sheet metal material, photographs of the fastening patterns, and dimensional measurements.
 5. Documentation from ES-1 certified contractor to the roofing manufacturer's warranty department.
 6. Sheet Metal Warranty Coverage: Attachment.
 7. Sheet Metal Warranty Period: 20 years from date of Substantial Completion.
 8. Sheet metal fabricator must use roofing membrane manufacturer's sheet metal.
- E. Roof Management Warranty: The following services must be provided by the roofing membrane manufacturer's technical department:
1. Web-based roof management program for building owner's use.
 2. Annual inspections for five (5) years with information entered into roof management program.
- F. Existing Warranty: Coordinate work of this Section with Owner. Remove, replace, patch and repair materials and roofing surfaces by methods and with materials so as not to void existing roofing system warranties.

1. If possible, retain original Installer of existing roofing system to perform work of this Section necessary to accommodate new construction associated with existing roofing system. When it is not possible to engage the original Installer of existing roofing system, engage another recognized and experienced Installer acceptable to roofing system manufacturer so as not to void existing warranties.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. General: Subject to compliance with specified requirements, provide roofing system from the manufacturer listed below.
 1. Basis of Design: Derbigum Americas, Inc.
 - a. No-Slope Roofs (Re-Roof): At locations indicated to receive roofing where no slope exists, provide a system comparable to Derbigum APP DDL system which will provide a warranty for products installed in a no-slope application as indicated on drawings.
 - 1) (Steel) 2I1G-FR-DC with 20 year warranty.
 - 2) (Concrete Deck): 2C1G-FR-DC with 20 year warranty.
 - 3) (Gypsum Concrete Deck): 2C1G-FR-DC with 20 year warranty.
 - 4) (Cementitious Wood Deck): 2C1G-FR-DC with 20 year warranty.
 - b. Low-Slope Roofs (Overlay): At locations indicated to receive roofing where a low slope or tapered roof exists, provide a system comparable to Derbigum APP system which will provide a warranty for products installed as indicated on drawings.
 - 1) 1RC1G-FR-DC with 20 year warranty.
 - c. Low-Slope Roofs (Re-Roof): At locations indicated to receive roofing where a low slope or tapered roof exists, provide a system comparable to Derbigum APP system which will provide a warranty for products installed as indicated on drawings.
 - 1) (Concrete Deck): 1C1G-FR-DC with 20 year warranty.
 - 2) (Gypsum Concrete Deck): 1C1G-FR-DC with 20 year warranty.
 - d. Existing Warranted Roofs: At locations where the existing roof is currently under warranty, all work performed shall be verified by all parties involved in the original warranty and coordinated so that work performed will preserve existing warranty.
 - e. Multiple Systems: At roof locations where multiple systems (DDL and non-DDL), manufacturer's warranty shall not restrict joints between roofing systems, where both systems are covered by same manufacturer.
 2. Additional Manufacturers: Substitutions from the following manufacturers will be considered when submitted prior to bidding and when judged as acceptable to the Architect and Owner.
 - a. Tremco
 - b. Garland Company

2.2 BASE-SHEET MATERIALS

- A. Base Sheet (Cementitious Wood Fiber Deck and Gypsum Deck): ASTM D 4601, Type II, nonperforated, asphalt-impregnated and coated, glass-fiber sheet, dusted with fine mineral surfacing on both sides.
- B. Base Sheet Fastener: 1.4-inch twin lock fastener as approved by roofing manufacturer.
- C. Vented Base Sheet (Gypsum Concrete Deck) : ASTM 4897, Type II, venting, non-perforated, heavyweight, asphalt-impregnated and –coated, glass-fiber base sheet with coarse granular surfacing or embossed venting channels on bottom surface.
 1. Basis of Design Products: Subject to compliance with requirements and acceptance by manufacturer of primary roofing materials, provide one of the following:
 - a. Derbigum: PRS Vented Base Sheet.

- b. Comparable product submitted to and accepted by Architect and roofing material manufacturer prior to bidding.

2.3 ROOF INSULATION

- A. General: If one of the approved roof insulation systems is provided that alters the system thickness from that specified, Contractor is responsible for any additional cost to add additional courses of cut brick or changes in wood blocking, flashing gravel, guards, etc.
- B. Insulation Products: Acceptable products must be approved by the roofing system manufacturer.
 - 1. UL approved insulation meeting requirements specified for fire resistance.
 - 2. FM approved insulation meeting wind uplift resistance requirements specified.
 - 3. ASCE 7-16 for wind uplift requirements.
- C. Polyisocyanurate Foam Board (075216.A03) Basis-of-Design: Derbiboard rigid board of polyisocyanurate based foam core, permanently bonded to roofing glass facer sheets. Complying with requirements of ASTM C1289-11, Type II and meeting physical property requirements of RIC/TIMA Standard Specification for Polyurethane and Polyisocyanurate Roof Insulations.
 - 1. Bottom layer of insulation shall be 1.8 to 2 inches thick and shall provide minimum aged R-value of 10.3. 4' by 8' board size preferred.
 - 2. Subsequent layer of insulation shall be 3.5 inches thick and shall provide minimum aged R-value of 20.5.; 4' by 4' board size preferred.
 - 3. Total thickness of insulation shall not be less than 5 inches and shall provide minimum aged R-value of 30. Thickness at drains shall be 1.5 inches minimum.
- D. Tapered Insulation (075216.A04): For use on roof areas and at crickets as designated on drawings.
 - 1. Tapered polyisocyanurate insulation, complying with ASTM C1289-11, Type II.
 - a. Match slope of existing roof at each location.
 - 2. Tapered insulation shall have the following characteristics:
 - a. Manufacturer's standard sizes
 - b. Slopes shall match slope of existing roof except at crickets and saddles where slope shall be twice the slope of existing roof.
 - 3. Minimum thickness of tapered insulation shall not be less than 1/2 inch.
 - 4. All pieces shall be numbered in correspondence with approved shop drawings.
 - 5. Miter corners of tapered insulation, lacing-in of corners is prohibited.
 - 6. Provide tapered insulation boards for crickets, saddles and sumps at roof drains, minimum 4 feet by 4 feet sump, and elsewhere to promote positive roof drainage.
- E. Cover Board Insulation (075216.A08): Provide 1/2 inch thick ~~Type X~~ glass-mat gypsum roof board compliant with ASTM C1177. Basis of Design shall be "Dens Deck Prime Roof Board" as manufactured by Georgia Pacific or a comparable product submitted to and accepted by Architect prior to bidding.

- F. Substrate Board (Acoustical Steel Deck) (075216.A12): ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum board or ASTM C 1278/C 1278M, fiber-reinforced gypsum board.
1. Thickness: ½ inch.
 2. Surface Finish: Unprimed.
- G. Insulation Fasteners (steel deck areas only): Basis-of-Design: Derbigum Perlock standard mechanical fasteners for roofing system which has been tested for the required pull-out strength where applicable and compatible with deck type and roofing products used. Roofing Contractor is responsible for testing that may be required to substantiate required fastening methods or procedures.
1. Fasteners shall meet requirements of FM 4470 for corrosion resistance.
 2. Fastener Plates for Insulation: Provide 3 inch diameter, galvalume coated steel plates as recommended by roofing system manufacturer.
 3. Fastener length shall be adequate to penetrate load bearing surface of steel deck ¾ inch.
- H. Base Layer Insulation (concrete deck areas and cementitious fiber deck areas), Tapered Insulation and Cover Board Adhesive - Basis of Design: Derbibond Dual Component Low Rise Urethane Adhesive (asbestos free) .
1. VOC Emissions: 245 grams per liter, maximum, per ASTM D 3960-92
 2. Flash Point (COC): 105 degrees F, minimum , per ASTM D 92
 3. Solids Content: 77.5 percent, minimum, by weight per ASTM D 4479
 4. Density: 9.5 pounds/gallon, minimum, at 77 degrees F per ASTM D 70

2.4 MODIFIED BITUMEN ROOFING COMPONENTS

- A. Field Ply – Basis-of-Design Product: Deribase Ultra: Provide glass fiber reinforced, high tensile strength modified bitumen membrane with the following properties:
1. Thickness: 120 mils, minimum each ply
 2. Reinforcement: Reinforcement comprised of one fiberglass mat with a minimum weight of 2.65 lbs./sq.
 3. Tensile Strength (maximum Load): 150 pounds per inch of width, minimum, at 0 degrees F, per ASTM D 6509.
 4. Tear Resistance – Weakest Direction 110 pounds, minimum, per ASTM D 6509.
- B. Surface Ply – Basis-of-Design Product: Derbicolor GP-FR: Provide dual-reinforced, high tensile strength modified bitumen membrane with the following properties:
1. Thickness: 180 mils, minimum.
 2. Granule Material: Mineral.
 3. Granule Color: As indicated on Drawings..
 4. Reinforcement: Composite fiberglass/polyester. Multiple reinforcements comprised of, one fiberglass mat with a minimum weight of 2.65 lbs./sq. and one polyester scrim with a minimum weight of 0.91 lbs./sq.

5. Tensile Strength (maximum Load): 170 (machine direction) and 160 (cross direction) pounds per inch of width minimum, at 0 degrees F, per ASTM D 5147.
 6. Tear Resistance – Weakest Direction: 135 pounds, minimum, per ASTM D 5147.
 7. Elongation: 5.0 percent.
 8. Dimensional Stability: Absolute dimensional change shall be 0.05 percent, after heat conditioning at 80 degrees C, per ASTM D 5147.
 9. Fungus Resistance: No growth of fungi as tested per ASTM G 21
- C. Cold-Applied Adhesive – Basis-of-Design Product: Permastic (field membrane) and Perflash (base flashing application, asphalt-based, asbestos-free and VOC compliant, cold-applied adhesive specially formulated for compatibility and use with modified bituminous membrane roofing and flashing. Cold-applied adhesive shall have the following properties:
1. VOC Emissions: 180 grams per liter, maximum per ASTM D 3960-92
 2. Flash Point (COC): 110 degrees F, minimum per ASTM D 92
 3. Solids Content: 80 percent, minimum by weight per ASTM D4479
 4. Asphalt Content: 50 percent, minimum per ASTM D4479
 5. Density: 9.0 lb./gallon at 77 degrees F, per ASTM D 70
 6. Viscosity: 30,000 cps at 77 degrees F, per ASTM D2196
- D. Modified Bitumen Vertical Wall Flashing (075216.A10): Provide 2-ply base flashing of same base layer and same surfacing (cap sheet) ply as specified for field of roof. Both plies shall be adhered with manufacturer's cold-applied adhesive with heat-welded seams or by heat welding.
1. Granule Material: Mineral.
 2. Granule Color: As selected by Architect from manufacturer's full range.

2.5 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Roof Cant Strips (075216.A05) and Preformed Edge Strips (075216.A07): Asphalt impregnated organic fiber insulation units, factory molded to form 3-1/2" x 3-1/2" x 45 degree cant strips and 1-5/8" x 18" tapered edge strips to receive roofing ply sheet courses and lift edges above main roofing surface.
1. Wood cant strips: Provide wood cant strips, 2" in nominal thickness, where indicated and as required by roofing system manufacturer.
 2. Locations of nailable wood cant strips shall be determined by roofing system manufacturer's written recommendations. For manufacturers without written recommendations, refer to NRCA's Roofing Manual for industry standard practice and minimum requirements.
- B. Asphalt Flashing Cement: Manufacturer's recommended asbestos-free cement, complying with ASTM D 4586.
- C. Asphalt Primer: Comply with ASTM D 41.

- D. Vertical Sheet Flashing EPDM (075216.A11): ASTM D 4637, Type II, uniform, flexible EPDM sheet.
1. Thickness: 75 mils min, nominal.
 2. Exposed Face Color: Black.
 3. Contractor shall use roofing system manufacturer's seam tape required by to achieve specified guaranty/warranty. EPDM membrane shall have seam tape factory-applied when required by roofing system manufacturer
- E. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing membrane components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer (these fasteners are used to fasten roofing material to substrate; not to be confused with roof insulation fasteners).
- F. Lead Flashing Sheet (drains): 30" by 30" square, 4 pound per square foot.
- G. Lead Flashing Sheet (plumbing vents): 30" by 30" square, 4 pound per square foot.
- H. Walkway Protection Boards (075216.A16): Mineral-surfaced bituminous membrane manufactured specifically for hot bituminous application on modified bitumen roofing as a protection course for foot traffic.
1. Granule Material: Mineral.
 2. Granule Color: As selected by Architect from manufacturer's full range.
- I. Liquid-Applied Flashing: Provide a catalyzed acrylic resin specialty flashing system, consisting of liquid-applied, fully reinforced, multi-component acrylic membrane installed over a prepared and/or primed substrate. Flashing system shall consist of a primer, basecoat and topcoat, combined with a non-woven polyester fleece. Use of specialty liquid flashing system shall be specifically approved in advance by the membrane manufacturer for each application.
- J. Set on Accessories: Where small roof accessories are set on modified bitumen roofing membrane, roofing cement, and sealants.
- K. Self-Adhered Vapor Barrier: Subject to compliance with requirements, provide "VapAir Seal MD" by Carlisle Syntec Systems or a comparable product submitted to and accepted by Architect with the following product characteristics:
1. Peel Adhesion : 14 lbs minimum per ASTM D903.
 2. Tensile Strength: 250 psi minimum per ASTM D412.
 3. Tear Strength: 135 lb minimum per ASTM D1970.
 4. Puncture Resistance: 54.5 lbs minimum per ASTM D5602.
 5. Water Vapor Permeability: 0.03 perms per ASTM D1970 and ASTM E96.

PART 3 EXECUTION

3.1 INSPECTION OF SUBSTRATE

- A. Roofing Contractor shall examine substrate surfaces to receive modified bitumen roofing system and associated work and conditions under which roofing will be installed. Do not proceed with roofing until unsatisfactory conditions have been corrected in a manner acceptable to the Architect.
- B. Examine surfaces for adequate anchorage, foreign materials, moisture and other conditions which would adversely affect roofing application and performance.
- C. Examine substrate to ensure roof openings, curbs, pipes sleeves, ducts or vents through roof are solidly set and cant strips and reglets are in place.
- D. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
 - 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and nailers match thicknesses of insulation.
 - 3. Verify that surface plane flatness and fastening of steel roof deck complies with industry standards.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.
- F. Prepare existing surfaces to receive new roof system.
- G. Prepare written documentation of conditions which could be detrimental to completion or performance of specified Work before commencing such Work. Work shall not start until defects have been corrected.
- H. Photograph interior and exterior equipment and surrounding areas and after completion of construction which may be misconstrued as damage related to demolition operations. File photographs with owner's representative.
- I. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- D. Demolition and Preparation (Re-Roof Areas):

1. Provide temporary barricades and other forms of protection for Owner's personnel and public from injury due to demolition work.
2. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
3. Remove existing roof system, existing base flashings, and sheet metal flashings. Notify Designer of any deteriorated substrate or other condition which will not allow installing the specified systems. Clear roof drain of any material that could restrict drainage.
4. Perform demolition in a systematic manner.
5. Protect against any material or debris dropping into the building or damaging new roof membrane.

E. Partial Demolition and Preparation (Overlay Areas):

1. Provide temporary barricades and other forms of protection for Owner's personnel and public from injury due to demolition Work.
2. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
3. Remove identified wet roof insulation from the existing roof system and replace with like material.

Mechanically fasten base layer of insulation and adhere subsequent layers, taper, and crickets. Remove existing base flashings and sheet metal. Clear roof drains of any material that could restrict drainage.

Existing roof system to remain. Cut existing roof membrane using a 10' by 10' grid pattern. Fasten through existing system using specified fasteners and penetrating metal deck minimum of 3/4 inches.
4. Perform demolition in a systematic manner.
5. Protect against any material or debris dropping into the building or damaging new roof membrane.

3.3 INSTALLATION, GENERAL

- A. Cooperate with inspection and test agencies engaged or required to perform services in connection with modified bitumen roofing system installation.
- B. Protect other work from spillage of modified bitumen roofing materials, and prevent liquid materials from entering or clogging drains and conductors. Protect lawn areas, building walls and windows and building equipment. Replace/restore other work damaged by installation of roofing system work.
- C. Coordinate flow of work, equipment, materials and personnel to eliminate traffic across completed new roofing systems. Provide plywood walkways for the movement of personnel, equipment and materials.
- D. Insurance/Code Compliance: Install modified bitumen roofing system and insulations for (and test where required to show) compliance with governing regulations and with the following insurance requirements.
 1. Underwriters Laboratories "Fire Classified Class A

2. Factory Mutual requirements for "Class I" or "Noncombustible", including zoned wind resistance as specified by FM 1-90.
 3. ASCE 7-16 Roofing System Design: Roofing system shall be designed and constructed to meet the requirements of ASCE 7-16.
- E. Cutoffs: At end of each day's roofing installation, protect exposed edge of incomplete work, including ply sheets and insulation. Provide temporary tie off one ply of modified bitumen membrane set in cold adhesive; remove at beginning of next day's work.
- F. Roof surfaces shall be thoroughly dry before application of roofing.
- G. Roofing Manufacturer's Inspection: Inspection of roofing shall be made by a responsible representative of the roofing manufacturer during application and after completion.
- H. When application of roofing is begun, total roof system shall be completed before end of day and before wet by elements (with exception of cap sheet). Install water cut-off at completion of each day's work and remove upon resumption of work.
1. Precautions shall be taken to protect membrane from punctures, refer to Article 2.4 of this Section.

3.4 BASE-SHEET INSTALLATION

- A. Install lapped base-sheet course (Cementitious Wood Fiber Deck and Gypsum Deck), extending sheet over and terminating beyond cants. Attach base sheet as follows:
1. Mechanically fasten to substrate. On 4 inch lap, fasten 12 inches on center; field of sheet, fasten two rows 18 inches on center.
- B. Install a vented base sheet (Gypsum Concrete Deck) in accordance with roofing system manufacturer's written instructions and recommendations to suit conditions involved.
1. Extend vented base sheet a minimum of 6 inches above top edge of cant strip. Modified bitumen base sheet shall be extended 4 inches above cant strip (as noted below), leaving 2 inches of vented base sheet exposed behind flashing for venting.

3.5 INSULATION AND COVER BOARD INSTALLATION

- A. General: Comply with insulation manufacturer's instructions and recommendation for the handling, installation, and bonding or anchorage of insulation to each different type of substrate. Roof insulation and cover board shall be dry when installed and shall be protected from weather. All materials that become wet shall be removed before the end of the day.
1. Steel Deck Installation: Secure first layer of insulation to metal deck areas indicated on plans using corrosive resistant mechanical fasteners specifically designed and sized for attachment of specified board type insulation to deck type shown. Run long joints of insulation in continuous straight line, perpendicular to

roof slope with ends joints staggered at least 12" between rows.

- a. Secure insulation over entire field area of roofing, including corners and perimeters, at spacing as required by FM for Windstorm Resistance Classification specified and per applicable requirements of FM Loss Prevention Data Sheet 1-28.
 - 1) Mechanically fasten first layer.
 - b. Set prefabricated tapered insulation in low-rise foam adhesive and offset joints 12" each way from preceding insulation layer and to provide positive drainage to all exterior gutters and roof drains. Provide saddles at crickets as needed to insure there is no ponded water.
 - 1) Insulation board gaps shall not exceed 1/4". Where joints exceed 1/4", add baseboard to gap.
 - 2) No more insulation shall be applied than can be covered with required membrane specification on the same day.
2. Concrete Deck Installation: Adhere first layer of insulation to concrete deck areas indicated on plans using manufacturer's recommended adhesive specifically designed and sized for attachment of specified board type insulation to substrate indicated. Run long joints of insulation in continuous straight line, perpendicular to roof slope with ends joints staggered at least 12" between rows.
- a. Secure insulation over entire field area of roofing, including corners and perimeters, at spacing as required by FM for Windstorm Resistance Classification specified and per applicable requirements of FM Loss Prevention Data Sheet 1-28.
 - b. Set prefabricated tapered insulation in low-rise foam adhesive and offset joints 12" each way from preceding insulation layer and to provide positive drainage to all exterior gutters and roof drains. Provide saddles at crickets as needed to insure there is no ponded water.
 - 1) Insulation board gaps shall not exceed 1/4". Where joints exceed 1/4", add baseboard to gap.
 - 2) No more insulation shall be applied than can be covered with required membrane specification on the same day.
3. Cementitious Fiber Deck and Gypsum Deck Installation: Adhere first layer of insulation to mechanically fastened base sheets at areas indicated on plans using manufacturer's recommended adhesive specifically designed and sized for attachment of specified board type insulation to substrate indicated. Run long joints of insulation in continuous straight line, perpendicular to roof slope with ends joints staggered at least 12" between rows.
- a. Secure insulation over entire field area of roofing, including corners and perimeters, at spacing as required by FM for Windstorm Resistance Classification specified and per applicable requirements of FM Loss Prevention Data Sheet 1-28.
 - b. Set prefabricated tapered insulation in low-rise foam adhesive and offset joints 12" each way from preceding insulation layer and to provide positive drainage to all exterior gutters and roof drains. Provide saddles at crickets as needed to insure there is no ponded water.
 - 1) Insulation board gaps shall not exceed 1/4". Where joints exceed 1/4", add baseboard to gap.
 - 2) No more insulation shall be applied than can be covered with required membrane specification on the same day.
4. Cover boards: Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows and stagger joints a minimum of 6" from preceding insulation layer. Loosely butt cover boards together. Adhere cover boards in low rise foam adhesive over entire field area of roofing, including corners and perimeters, at spacing as required by FM for Windstorm Resistance Classification specified and per applicable requirements of FM Loss Prevention Data Sheet 1-28.
5. Roof cant strips and tapered edge strips shall be provided at junctures of modified bitumen membrane with vertical surface, unless otherwise indicated. Roof cant strips and edge strips must be set in mastic.

6. Wood cant strips shall be mechanically fastened to supporting structure with hot-dip galvanized or stainless steel fasteners.

3.6 ROOFING MEMBRANE INSTALLATION

- A. General: Install in strict accordance with roofing manufacturer's written specifications and recommended details to achieve Warranty specified.
- B. Multiple-Ply, Modified Bituminous Membrane: Install 2 plies of modified bituminous membrane, consisting of one (1) field ply and one (1) surfacing ply, starting at low point of roofing system (for DDL installation, add one additional field ply). Extend field ply to 2" (nominal) above top edge of cant strip and extend surfacing ply 4" (nominal) above top edge of cant strip; terminate in accordance with requirements to manufacturer of primary roofing materials. For DDL, the second field plies shall be heat welded. Set both plies of membrane in asphalt based cold adhesive.
 1. Nail edges of roofing membrane to exterior side of wood blocking at perimeter edges of roof prior to installing metal gravel stops/fascia. Space nails at minimum of 4" on center.
 2. Shingle in direction to shed water.
 3. Accurately align sheets, without stretching, and maintain uniform side and end laps. Stagger end laps a minimum of 18 inches or as required by manufacturer, no header sheets (belly bands) allowed for surface ply. Completely bond and seal laps, leaving no voids.
 - a. Repair tears and voids in laps and lapped seams not completely sealed.
 4. Side and end laps shall be heat welded or hot-air welded.
 - a. For DDL, side laps shall be a minimum of 4" and end laps shall be a minimum of 6".
- C. Vertical Flashing (075216.A10): Install vertical base flashing in accordance with the roofing system manufacturer's written instructions and current published details. Install multiple ply flashing consisting of one ply of APP modified bitumen field ply and one ply of modified bitumen surfacing ply at cant strips, other sloping and vertical surfaces. Flashing shall extend a minimum of 8" above roof surface and 6" onto roof surface. Install modified bitumen surface ply portion of vertical flashing system after installing surface membrane.
 1. Heat weld all seams and laps.
 2. Fasten top of base flashing membranes every 8 inches. Three course the top of base flashing and over the fasteners; layer of asphalt mastic, fabric, and second layer of asphalt mastic.
- D. Vertical Flashing (EPDM) (075216.A11): Fully adhere EPDM vertical wall flashing in accordance with the roofing system manufacturer's written instructions and current published details.
- E. Horizontal Flashing (metal edge): Install modified bitumen surfacing ply using specified adhesive (no heat welding permitted). Install 12 inches of stripping ply prior to fastening metal edge. Install surfacing membrane over primed metal flanges. Surfacing membrane shall serve as strip in ply for horizontal details if approved by roofing system

manufacturer.

3.7 MISCELLANEOUS INSTALLATION REQUIREMENTS

- A. Set on Accessories: Where small roof accessories are set on modified bitumen roofing membrane, prime top surface of metal flange, set metal flange in a bed of manufacturer's recommended roofing cement and seal penetration of membrane. The metal flanges that are required to be fastened with a pattern of 3" on-center (O.C.) Staggered using angular or ring shank nails. Use surfacing ply as strip in membrane.
- B. Install liquid flashing and fleece reinforcement for roof penetrations according to roofing system manufacturer's written instructions.
- C. Roof Drains: Install drain sump using tapered edge strip. Set 30-by-30-inch square lead flashing in bed of roofing-manufacturer-approved asphaltic adhesive on completed roofing membrane. Prime surface of lead flashing. Cover lead flashing with roofing membrane cap-sheet stripping and extend a minimum of 4 inches beyond edge of metal flashing onto field of roofing membrane. Clamp roofing membrane, metal flashing, and stripping into roof-drain clamping ring. Install stripping according to roofing system manufacturer's written instructions.
- D. Lead Flashing Sheet (plumbing vents): Set 30 by 30 inch square lead flashing in a bed of roofing manufacturer approved asphaltic adhesive on completed membrane. Prime surface of lead flashing. Cover lead flange with roofing membrane cap sheet and extend 4 inches beyond edge of lead flashing onto field of roof membrane. Bend top of lead flashing down into the penetration a minimum of two inches.
- E. Roof Pipe Supports: Beneath pipe supports, provide a sacrificial piece of field membrane (cap sheet) permanently adhered to field membrane.
- F. Walkway Strips: Install walkway cap sheet strips over roofing membrane using same application method as used for roofing membrane cap sheet.

3.8 PROTECTION OF ROOFING

- A. Upon completion of roofing work (including associated work), Installer shall advise Contractor of recommended procedures for surveillance and protection of roofing during remainder of construction period. At end of construction period, or at a time when remaining construction work will in no way affect or endanger roofing (at Contractor's option), Installer shall make a final inspection of roofing and prepare a written report (to Contractor with copy to Owner) describing nature and extent of deterioration or damage found in the work.
 - 1. Plan work so traffic over new roofing system is kept to a minimum. Where traffic must continue over new roofing system, provide protection for the finished roof.
- B. Installer shall repair or replace (as required) deteriorated or defective work found at time of final inspection. Installer shall be engaged by Contractor to repair damages to roofing which occurred subsequent to roofing installation and prior to final inspection. Repair or replace the roofing and associated work to a condition free of

damage and deterioration at time of substantial completion.

- C. Existing items, structures or areas damaged during course of construction work shall be restored/repared to a condition equal or better than it was prior to commencement of work.

3.9 CLEANING

- A. As work progresses and prior to completion of roofing membrane installation, clean off cold-applied adhesive, asphalt and other asphalt-based mastic spills to prevent discoloration of roofing membrane as recommended by roofing system manufacturer.
- B. Clean off footprints tracked onto roofing membrane surface as recommended by roofing system manufacturer.
- C. For general cleaning prior to Substantial Completion, power wash as recommended by roofing system manufacturer.
- D. Remove all debris and extra materials from roof surface and the project site.
- E. Contractor shall be responsible for the cost of roofing system cleanup and, damage to any property and equipment as a result of a leak during roof system installation. If the cleanup is not performed or contracted for immediately, the District (Owner) will perform or contract the cleanup at the Contractor's expense.

END OF SECTION

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Formed Products:

- a. Formed roof drainage sheet metal fabrications.
- b. Formed low-slope roof sheet metal fabrications.
- c. Formed wall sheet metal fabrications.
- d. Formed equipment support flashings.
- e. Premanufactured pitch pockets.
- f. Roof drains.

B. Related Sections:

- 1. Section 061000 "Rough Carpentry " for wood nailers, curbs, and blocking.
- 2. Section 072100 "Thermal Insulation"
- 3. Section 075216 "Modified Bituminous Membrane Roofing" for installing sheet metal flashing and trim integral with roofing.

1.2 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints and seams to provide leakproof, secure and non-corrosive installation.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct Conference at Project Site.

- 1. Review construction schedule. Verify availability of materials, Installer's personnel, equipment and facilities needed to make progress and avoid delays.
- 2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs and condition of other construction that affects sheet metal flashing and trim.
- 3. Review requirements for insurance and certificates, if applicable.
- 4. Review sheet metal flashing observation and repair procedures – post flashing installation.
- 5. Meet with Owner, Architect, Installer and other Installers whose work interfaces with or affects sheet metal flashing and trim – including installers of roofing materials, roof accessories and roof-mounted equipment.
- 6. Review methods and procedures related to sheet metal flashing and trim.
- 7. Review special roof details, roof drainage, roof penetrations, equipment curbs and condition of other construction that will affect sheet metal flashing.
- 8. Review sequencing of sheet metal flashing installation with other related trades to coordinate installation.

9. Document proceedings, including corrective measures and actions required, and furnish copy of records to each participant.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.
- B. Shop Drawings: Show fabrication and installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work. Include the following:
 1. Identification of material, thickness, weight, and finish for each item and location in Project.
 2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
 3. Details for joining, supporting, and securing sheet metal flashing and trim, including layout of fasteners, cleats, clips, and other attachments. Include pattern of seams.
 4. Details of termination points and assemblies, including fixed points.
 5. Details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counterflashing as applicable.
 6. Details of special conditions and of connections to adjoining work.
 7. Detail formed flashing and trim at a scale of not less than 3 inches per 12 inches.
 8. Include details of roof-penetration flashing.
 9. Include details of expansion joints and expansion-joint covers – show direction of expansion and contraction joints from fixed points.
 10. Shop drawings for Section 076200 “Sheet Metal Flashing and Trim” shall be reviewed concurrently with shop drawings for Section 075216 “Modified Bituminous Membrane Roofing”.
- C. Samples for Verification: For each type of exposed finish required, prepared on 6 inch square samples of actual metal to be used in the work.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified fabricator.
- B. Maintenance Data: For sheet metal flashing, trim, and accessories to include in maintenance manuals.
- C. Warranty: Sample of special warranty.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1. For copings and roof edge flashings that are SPRI ES-1 compliant, shop shall be SPRI ES-1 certified and listed as able to fabricate required details as tested and approved.
- B. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual", Sixth Edition, unless more stringent requirements are specified or shown on Drawings.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing and trim installation.

1.8 WARRANTY

- A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
 1. Sheet metal flashings shall be installed in accordance with ANSI/SPRI/FM 4435/ES-1 "Wind Design Standard for Edge Systems used with Low Slope Roofing Systems" as applicable for locations and configurations indicated on Drawings.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. Recycled Content: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.

- D. Fabricate and install roof edge flashing capable of resisting the following forces according to recommendations in FMG Loss Prevention Data Sheet 1-49:
1. Wind Zone 1: For velocity pressures of 21 to 30 lbf/sq. ft.: 60-lbf/sq. ft. perimeter uplift force, 90-lbf/sq. ft. corner uplift force, and 30-lbf/sq. ft. outward force.
- E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.
1. Contractor shall use gauges or thicknesses specified or as prescribed in the referenced standards for specific girths, whichever is greater.
- B. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304, dead soft, fully annealed.
1. Finish: 2D (dull, cold rolled).
 2. Surface: Smooth, flat.
- C. Metallic-Coated Steel Sheet: Restricted flatness steel sheet, metallic coated by the hot-dip process and pre-painted by the coil-coating process to comply with ASTM A 755/A 755M.
1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation; structural quality.
 2. Surface: Smooth, flat.
 3. Exposed Coil-Coated Finish: To match existing school.
 - a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - b. Three-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - c. Metallic Fluoropolymer: AAMA 2605. Three-coat fluoropolymer finish with suspended metallic flakes containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 4. Colors: As selected by Architect from manufacturer's full range. Refer to Exterior Finish Legend for color matching requirements for sheet metal flashing and trim installed adjacent to metal wall panels, storefront and curtain wall.

5. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

2.3 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Sheet (076200.A01): Minimum 30 to 40 mils () thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer and compatible with self-adhering air barrier transition membrane.
 1. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F.
 2. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F.
 3. Products: Subject to compliance with requirements, provide one of the following:
 - a. Carlisle Coatings & Waterproofing Inc.; CCW WIP 300HT.
 - b. Grace Construction Products, a unit of W. R. Grace & Co.; Ultra.
 - c. Henry Company; Blueskin PE200 HT.
- B. Slip Sheet: Building paper, 3-lb/100 sq. ft. minimum, rosin sized.
- C. Flexible Membrane Closure (076200.A04): EPDM Sheet membrane; at roof expansion joints provide non-reinforced flexible, black EPDM synthetic rubber sheet flashing of 45 to 60 mils thickness. EPDM sheet shall have a tensile strength of not less than 1200 psi, a tear resistance of at least 20 lbs per inch and an ultimate elongation of at least 250 percent. Provide with seam and splice tape, adhesives and all other accessories required for proper and watertight installation.

2.4 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
 2. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
 3. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329 or Series 300 stainless steel.
- C. Solder:
 1. For Stainless Steel: ASTM B 32, Grade Sn60, with an acid flux of type recommended by stainless-steel sheet manufacturer.

- D. Sealant Tape (076200.A02): Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, non-sag, nontoxic, non-staining tape 1/2 inch wide and 1/8 inch thick.
- E. Elastomeric Sealant (076200.A03): ASTM C 920, elastomeric silicone polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- G. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
- H. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.
- I. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.
- J. Pre-Manufactured Pourable Sealer Pockets: Use only on non-structural penetrations that are flexible and those that are closely spaced. Provide pre-fabricated pourable sealer pocket system filled with fast-setting, solvent-free, multi-use waterproof sealer. Pre-fabricated pourable sealer pocket components shall connect together by means of tongue-and-groove joints, and shall be manufactured from a high-strength, flexible polyurethane elastomer. Pocket components shall join together to create pockets of varying sizes.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide "Lockin Pocket interlocking Pitch Pocket System" as manufactured by Weather-Tite, or comparable product submitted to and accepted by Architect prior to bidding.
 - 2. Product Characteristics:
 - a. Pourable sealer pocket components and sealer color shall be black.
 - b. Height: Not less than 4 inches above field of roof.
 - c. Warranty: Not less than 2 years.

2.5 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.
 - 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 - 2. Obtain field measurements for accurate fit before shop fabrication.
 - 3. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
 - 4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.

- B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch () offset of adjoining faces and of alignment of matching profiles.
- C. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.
- D. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
 - 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
 - 2. Use lapped expansion joints only where indicated on Drawings.
- E. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
- F. Cleats (076200.A36): Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" and by FMG Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.
 - 1. Cleats for coping, gravel stop edges and fascia caps shall be fabricated from not less than 0.040 inch thick (20 gauge) galvanized steel and shall be continuous 10 foot lengths with ¼ inch gap between sections.
- G. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- H. Do not use graphite pencils to mark metal surfaces.

2.6 ROOF DRAINAGE SHEET METAL FABRICATIONS

- A. Hanging Gutters (076200.A05): Fabricate to cross section required, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch-long sections. Furnish flat-stock gutter brackets and flat-stock gutter spacers and straps fabricated from same metal as gutters, of size recommended by cited sheet metal standard but with thickness not less than twice the gutter thickness. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters.
 - 1. Gutter Profile and sizes: As indicated on drawings according to cited sheet metal standard.
 - 2. Expansion Joints: Butt type with cover plate.
 - 3. Accessories: Wire-ball downspout strainer and Valley baffles.
 - 4. Gutters with Girth up to 15 Inches: Fabricate from the following materials:
 - a. Coil-Coated Galvanized Steel: 0.022 inch thick.
 - 5. Gutters with Girth 16 to 20 Inches: Fabricate from the following materials:
 - a. Coil-Coated Galvanized Steel: 0.028 inch thick.
- B. Downspouts (076200.A07): Fabricate rectangular 4 x 6 inch downspouts complete with mitered elbows. Furnish with metal hangers, from same material as downspouts, and anchors.
 - 1. Fabricate downspouts similar to SMACNA (Sixth Edition), Figure 1-32B.

2. Fabricated Hanger Style: SMACNA figure designation 1-35I.
 - a. Hangers shall be spaced evenly not greater than 10 feet on center between eave and finished grade.
3. Fabricate from the following materials:
 - a. Coil-Coated Galvanized Steel: 0.034 inch thick.
- C. Parapet Scuppers (076200.A08): Fabricate scuppers of dimensions required with closure flange trim to exterior, 4-inch- wide wall flanges to interior, and base extending 4 inches beyond cant or tapered strip into field of roof.
Fabricate from the following materials:
 1. Fabricate scupper similar to SMACNA (Sixth Edition), Figures 1-26A, 1-26B and 1-27A.
 2. Coil-Coated Galvanized Steel: 0.034 inch thick.
 3. Stainless Steel: 0.029 inch thick.
 - a. Provide stainless steel at conditions where parapet scuppers are built into masonry walls.
- D. Conductor Heads (076200.A09): Fabricate conductor heads to configurations and sizes indicated, similar to those shown in SMACNA (Sixth Edition), Figures 1-25F, 1-26A and 1-27A. Fabricate leading edge of scupper into conductor head similar to Figure 1-28, Section A-A with locked drip edge.
 1. Fabricate from the following materials:
 - a. Coil-Coated Galvanized Steel: 0.034 inch thick.
- E. Splash Pans (076200.A10): Fabricate from the following materials:
 1. Galvanized Steel: 0.034 inch thick.
 2. Fabricate similar to SMACNA (Sixth Edition), Figure 1-36. Fabricate with 2 to 3 corrugations.
- F. Splash Block (076200.A10):
 1. Materials: Fabricate from UV-resistant precast 5,000 p.s.i. concrete 28 days reinforcement with grade 60 steel. Basis of Design: Century Group.
 2. Minimum dimension: 4"H x 12"W x 30"L.
 3. Weight: 48 lbs.

2.7 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Roof Edge Flashing (Gravel Stop 076200.A11) and Fascia (076200.A12): Fabricate in minimum 96-inch- long, but not exceeding 12-foot- long sections. Furnish with 6 inch wide cover plates. Shop fabricate interior and exterior corners.
 1. Joint Style: Butted with expansion space and 12-inch-wide, concealed backup plate.
 2. Fabricate edging similar to SMACNA (Sixth Edition), Figures 2-1B and 2-5C.
 3. Fabricate fascia similar to SMACNA (Sixth Edition), Figures 2-7A and 2-7B.
 - a. Coil-Coated Galvanized Steel: 0.034 inch thick.
- B. Copings and Caps (076200.A13): Fabricate in minimum 96-inch- long, but not exceeding 10-foot- long, sections.
Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and drill elongated holes for fasteners on interior leg. Miter corners, seal, and solder or weld watertight.

1. Coping Profile: Similar to SMACNA figures designation 3-1A, 3-4A and 3-8D.
 2. Cap Profile: Similar to SMACNA figure designation 4-5C, with 4inch high flange.
 3. Joint Style:
 - a. At coping: Similar to SMACNA, Figure 3-1, Detail 2, with drive cleat over top and "J1" 3-inch lap joint on vertical faces.
 - b. At caps: Similar to SMACNA, Table 3-1, joint "J2" with butt and backup plate.
 4. Fabricate from the following materials:
 - a. Coil-Coated Galvanized Steel: 0.034 inch thick.
- C. Roof-to- Roof Expansion-Joint Cover (076200.A14): Fabricate from the following materials:
1. Coil-Coated Galvanized Steel: 0.034 inch thick.
 2. Fabricate roof-to-roof expansion joint similar to SMACNA (Sixth Edition), Figure 5-5A.
 3. Where expansion joint occurs beneath metal wall panels, vertical legs of receiver shall be 4 inches tall and extend up behind rigid insulation.
- D. Roof to Wall Transition Expansion-Joint Cover (076200.A15): Fabricate from the following materials:
1. Coil-Coated Galvanized Steel: 0.034 inch thick.
 2. Fabricate roof-to-wall expansion joint similar to SMACNA (Sixth Edition), Figures 5-1 and 5-6B.
 3. Where expansion joint occurs beneath metal wall panels, vertical legs of receiver shall be 4 inches tall and extend up behind weather resistive barrier/air barrier transition flashing.
- E. Counterflashing (076200.A18): Fabricate from the following materials:
1. Coil Coated Galvanized Steel: 0.034 inch thick.
 2. Fabricate similar to SMACNA (Sixth Edition), Figure 4-4D, spring action and two piece (with receiver).
 3. Where indicated, fabricate counterflashing with integral reglet flange similar to SMACNA (Sixth Edition), Figure 4-4B.
- F. Flashing Receivers (076200.A19): Fabricate from the following materials:
1. Stainless Steel: 0.019 inch thick.
 2. Where receivers are indicated to project through exterior wythe, horizontal leg of receiver shall be 3 to 3-1/2 inches long.
 3. Where receivers are cut-in to masonry joint or partially embedded in masonry joint, fabricate similar to SMACNA (Sixth Edition), Figure 4-4C.
 4. Where receivers are mechanically fastened to vertical surface, vertical leg of receiver shall be at least 4 inches tall, similar to SMACNA, Figure 4-5C with receiver formed similar to Figure 4-4D.
- G. Roof-Penetration Flashing (076200.A20): Fabricate from the following materials:
1. Coil-Coated Galvanized Steel: 0.034 inch thick.

2.8 WALL SHEET METAL FABRICATIONS

- A. Opening Flashings in Frame Construction: Fabricate head, sill, and similar flashings to extend 4 inches beyond wall openings. Form head and sill flashing with 2-inch-high, end dams. Fabricate from the following materials:
1. Coil-Coated Galvanized Steel: 0.034 inch thick.

2.9 MISCELLANEOUS SHEET METAL FABRICATIONS

- A. Equipment Support Flashing (076200.A33): Fabricate from the following materials:
1. Galvanized Steel: 0.034 inch thick.
- B. Pre-Finished Miscellaneous Metal Flashing and Trim (076200.A35): Fabricated from the following materials:
1. Coil-Coated Galvanized Steel: 0.034 inch thick.
 2. At metal wall panels, fabricate to configurations indicated, with vertical leg not less than 4 inches tall to extend up and behind rigid insulation. Fabricate ends of flashing with end dams not less than 2 inches tall, and extending out to face of wall panel.
 3. At pan flashing for windows, storefront and curtain wall; fabricate to configurations indicated, with horizontal leg to extend 2 inches beneath window, storefront or curtain wall sill as occurs.
 4. Fabricate trim to configurations indicated.
 5. Fabricate pre-finished miscellaneous metal flashing in lengths of 8 to 10 feet. Overlap adjoining pieces 4 inches and seal joint watertight.

2.10 ROOF DRAINS

- A. General: Contractor shall provide clamping ring, clamps, and strainer dome replacement for existing roof drains and overflow roof drains as indicated on drawings. Contractor shall coordinate drain selection with existing conditions and manufacturer's installation requirements for a warranted successful installation.
- B. Cast-Iron Roof Drains Components (Clamping Ring, Clamps, and Strainer Dome):
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Josam Company
 - b. Jay R. Smith Manufacturing Company
 - c. Tyler Pipe, Wade Division
 - d. Watts Drainage Products
 - e. Zurn Plumbing Products Group.
 2. Provide manufacturer's recommended replacements for components indicated. Contractor shall field verify existing roof drains prior to ordering roof drain components.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.
 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
 3. Verify that air or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

- A. General: Install underlayment as indicated on Drawings.
- B. Self-Adhering High Temperature Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Apply primer if required by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.
- C. Flexible Membrane Closure EPDM Underlayment: Install EPDM underlayment wrinkle free and continuously sealed between sheets and all laps for watertight installation at roof expansion joints to form a bellows. Install an additional sheet over the top of coping, wall caps, and expansion joint bellows securely attached to wall substrate and adhered to over top of blocking/curb and turned down 1-1/2 inches.
- D. Apply slip sheet, wrinkle free, over underlayment before installing sheet metal flashing and trim.

3.3 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
 3. Space cleats not more than 12 inches apart. Anchor individual cleats with two fasteners and bend tabs over fasteners.. At continuous cleats, interlock bottom edge of roof edge flashing with continuous cleat. Anchor continuous cleat to substrate at 2 inches in from each end and then at not greater than 12-inch centers. Bend tabs over fasteners.

4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
 5. Install sealant tape where indicated.
 6. All lap joints in pre-finished miscellaneous metal flashing shall be sealed watertight.
 7. Torch cutting of sheet metal flashing and trim is not permitted.
 8. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
1. Coat back side of stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of EDPM underlayment and cover with a slip sheet or install a course of polyethylene sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection.
1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
 2. Use lapped expansion joints only where indicated on Drawings.
- D. Fastener Sizes: Use fasteners of sizes that will penetrate wood sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.
- E. Seal joints as shown and as required for watertight construction.
1. Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
 2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."
- F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches, except reduce pre-tinning where pre-tinned surface would show in completed Work.
1. Do not solder metallic-coated steel sheet.
 2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.

3. Stainless-Steel Soldering: Tin edges of uncoated sheets using solder recommended for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.
- G. Expansion-Joint Covers: Install expansion-joint covers at locations and of configuration indicated. Lap joints a minimum of 4 inch in direction of water flow. Provide EPDM bellows and EPDM cap flashing beneath expansion joint cover as specified.

3.4 ROOF DRAINAGE SYSTEM INSTALLATION

- A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.
- B. Hanging Gutters: Join sections with joints sealed with sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchor them in position. Provide end closures and seal watertight with sealant. Slope to downspouts.
 1. Fasten gutter spacers to front and back of gutter.
 2. Anchor and loosely lock back edge of gutter to continuous cleat.
 3. Anchor back of gutter that extends onto roof deck with cleats spaced not more than 24 inches apart.
 4. Anchor gutter with gutter brackets spaced not more than 36 inches apart to roof deck, unless otherwise indicated, and loosely lock to front gutter bead.
 5. Install gutter with expansion joints at locations indicated, but not exceeding, 50 feet apart. Install expansion-joint caps.
- C. Downspouts: Join sections with 1-1/2-inch telescoping joints.
 1. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately 60 inches o.c. in between.
 2. Provide elbows at base of downspout to direct water away from building.
 3. Connect downspouts to underground drainage system indicated.
- D. Splash Pans: Install where downspouts discharge on low-slope roofs. Set on slip sheet strip cut from extra cap sheet.
- E. Parapet Scuppers: Install scuppers where indicated through parapet. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.
 1. Anchor scupper closure trim flange to exterior wall and seal with elastomeric sealant to scupper.
 2. Loosely lock front edge of scupper with adjacent flashing.

- F. Conductor Heads: Anchor securely to wall, with elevation of conductor head rim at minimum of 1 inch below scupper or gutter discharge.

3.5 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
- B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated.
 - 1. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at 2 inches in from each end and then at not greater than 12-inch centers.
- C. Copings: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated.
 - 1. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 2 inches in from each end and then at not greater than 12-inch centers.
 - 2. Anchor interior leg of coping with screw fasteners and washers at 16 inch centers.
- D. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending a minimum of 4 inches over base flashing. Install stainless-steel draw band and tighten.
- E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches over base flashing. Lap counterflashing joints a minimum of 4 inches and bed with sealant. Secure in a waterproof manner.
- F. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.
- G. Pourable Sealer Pocket Installation: Prepare substrates and install pockets in strict accordance with pocket manufacturer's written instructions to accommodate substrates involved.

3.6 WALL FLASHING INSTALLATION

- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.
- B. Through-Wall Flashing: Installation of through-wall flashing is specified in Section 042000 "Unit Masonry."

- C. Opening Flashings in Frame Construction: Install continuous head, sill, and similar flashings to extend ()4 inches beyond wall openings.

3.7 ROOF DRAIN INSTALLATION

- A. Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions.
 - 1. Install roof-drain flashing collar or flange so that there will be no leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.
 - 2. Position roof drains for easy access and maintenance.
- B. Coordinate drain installation with existing site conditions.
- C. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.

3.8 MISCELLANEOUS FLASHING INSTALLATION

- A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.
- B. Pre-Finished Miscellaneous Metal Flashing: Coordinate installation of flashing with adjoining construction and air barrier coating. Seal lap joints watertight.

3.9 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- B. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

3.10 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturers' written installation instructions. On completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction.
- E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

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SECTION 079200 - JOINT SEALANTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.

B. Related Sections:

1. Section 088000 "Glazing" for glazing sealants.

1.2 PRECONSTRUCTION TESTING

A. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:

1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
2. Conduct field tests for each application indicated below:
 - a. Each kind of sealant and joint substrate in exterior walls.
 - b. Sealant around perimeter of exterior windows/storefront.
3. Notify Architect seven days in advance of dates and times when test joints will be erected.
4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.
 - a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory.

Do not use sealants that fail to adhere to joint substrates during testing.

1.3 ACTION SUBMITTALS

- A. Product Data:** For each joint-sealant product indicated.
- B. Samples for Initial Selection:** Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Joint-Sealant Schedule:** Include the following information:
1. Joint-sealant application, joint location, and designation.
 2. Joint-sealant manufacturer and product name.

3. Joint-sealant formulation.

4. Joint-sealant color.

D. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer.

B. Preconstruction Field-Adhesion Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.

C. Field-Adhesion Test Reports: For each sealant application tested.

D. Warranties: Sample of special warranties.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

C. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1. Refer to Section 042000 "Unit Masonry" for sealant joint in masonry mockups.

D. Preinstallation Conference: Conduct conference at Project site.

1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.

2. When joint substrates are wet.

3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.

4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. VOC Content: Sealants and sealant primers shall comply with the following:
1. Architectural sealants shall have a VOC content of 250 g/L or less.
 2. Sealants and sealant primers for nonporous substrates shall have a VOC content of 250 g/L or less.
 3. Sealants and sealant primers for porous substrates shall have a VOC content of 775 g/L or less.
- C. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- D. Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- E. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- F. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.
- G. Keynote Designations: Refer to schedule at end of this Section for types and applicable substrates.
1. Sealant: (079200.A01).
 2. Sealant with backer rod: (079200.A02).
 3. Acoustical sealant: (079200.A04): Refer to Section 092900.
 4. Tape Sealant (079200.A05).

2.2 SILICONE JOINT SEALANTS

- A. Single-Component, Non-Staining, Non-sag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50 minimum, for Use NT.
1. Products:
 - a. Tremco Incorporated; Spectrem 2
 - b. Sika Products; Sikasil WS-295 FPS
 - c. Dow; Dowsil 756 SMS Building Sealant
 - d. Pecora; 890NST
- B. Single-Component, Non-sag, Traffic-Grade, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use T.
1. Products:
 - a. Dow; Dowsil 790 Silicone Building Sealant.
 - b. Sika Products; Sikasil 728 NS
 - c. Pecora Corporation; 311 NS
- C. Mildew-Resistant, Single-Component, Non-sag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25 minimum, for Use NT.
1. Products:
 - a. Tremco Incorporated; Spectrem 2
 - b. Sika Products; Sikasil GP

2.3 URETHANE JOINT SEALANTS

- A. Multicomponent, Non-sag, Urethane Joint Sealant: ASTM C 920, Type M, Grade NS, Class 25 minimum, for Use NT.
1. Products:
 - a. BASF Building Systems; Master Seal NP 2
 - b. Tremco Incorporated; Dymeric 240FC
 - c. Sika Products; Sikaflex; 2c NS EZ Mix
 - d. Pecora Corporation; Dynatrol II
- B. Multicomponent, Non-sag, Traffic-Grade, Urethane Joint Sealant: ASTM C 920, Type M, Grade NS, Class 25 minimum, for Use T.
1. Products:
 - a. BASF Building Systems; Master Seal NP 2
 - b. Tremco Incorporated; Dymeric 240FC
 - c. Sika Products; Sikaflex; 2c NS EZ Mix
 - d. Pecora Corporation; Dynatrol II
- C. Multicomponent, Pourable, Traffic-Grade, Urethane Joint Sealant: ASTM C 920, Type M, Grade P, Class 25 minimum, for Use T.
1. Products:
 - a. BASF Building Systems; Master Seal SL 2
 - b. Sika Products; Sikaflex; 2c SL
 - c. Pecora Corporation; Dynatrol II SG

2.4 LATEX JOINT SEALANTS

- A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Products: Subject to compliance with requirements, provide one of the following:

- a. BASF Building Systems; Sonolac.
- b. May National Associates, Inc.; Bondaflex Sil-A 700.
- c. Pecora Corporation; AC-20+.
- d. Tremco Incorporated; Tremflex 834.

2.5 POLYUREA SEALANTS

- A. Polyurea Sealant: Semi-rigid, self-leveling, 2-part type. Shore D hardness of 85 when tested in accordance with ASTM D 2240. Tensile strength of 1160 pounds per square inch when tested in accordance with ASTM D 412.

1. Products: Subject to compliance with requirements, provide one of the following:

- a. Curecrete Distribution Company, Inc.; Ashford Crete-Fill.
- b. L&M Construction Chemical, Inc. Joint Tite 750.
- c. Adhesives Technologies Corp.; Crackbond JF311.

2.6 HYBRID SILICONE SEALANTS FOR RESINOUS WALL TREATMENTS

- A. Basis of Design: Subject to compliance with requirements, provide one of products listed below or a comparable product, with the following product characteristics, submitted to and accepted by Architect.

1. Products:

- a. BASF; MasterSeal NP 100.

2. Product Characteristics:

- a. Classification: ASTM C920, Type S, Grade NS, Class 50, Use T.
- b. Movement Capacity: +/- 50 percent
- c. Shore A Hardness: 17 to 23 per ASTM C 661.
- d. Tensile Strength: 160-200 psi per ASTM D 412.
- e. Tear Strength 22 lbs per inch per ASTM 1004.
- f. Color: As selected by Architect from manufacturer's full range of custom options.

2.7 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings (079200.A04): ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape (079200.A05): Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.8 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way and formulated to promote optimum adhesion of sealants to joint

substrates.

- C. Masking Tape: Non-staining, 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:
 - a. Metal.
 - b. Glass.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
 - 4. As sealant work progresses, install tube weeps at 24 inches on center along base of metal wall panels and where indicated.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
 - 4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE (079200.A01)

- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.
 - 1. Joint Locations:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Joints between different materials listed above.
 - 2. Urethane Joint Sealant: Multicomponent, pourable/non-sag, traffic grade, Class 25.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Locations:
 - a. Construction joints in cast-in-place concrete.
 - b. Control and expansion joints in unit masonry.
 - c. Joints in formed metal wall panels.
 - d. Joints within and at perimeter of storefront and curtain wall assemblies.
 - e. Control and expansion joints.
 - f. Joints between different materials listed above.
 - g. Perimeter joints between materials listed above and frames of doors, windows and louvers.
 - h. Control and expansion joints in ceilings and other overhead surfaces.
 - 2. Silicone Joint Sealant: Single component, non-staining, non-sag, neutral curing, Class 50.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
 - 1. Joint Locations:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Other joints as indicated, except for expansion and control joints.
 - 2. Urethane Joint Sealant: Multicomponent, non-sag, traffic grade, Class 25.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- D. Joint-Sealant Application: Interior control/contraction joints in horizontal traffic surfaces.
 - 1. Joint Locations:
 - a. Control/contraction joints in concrete slabs indicated to receive sealed finish, polished concrete finish, resinous flooring and joints in slabs on grade extending to building exterior, seal watertight.
 - 2. Polyurea Joint Sealant: Polyurea, multi component, self-leveling, traffic grade.
 - 3. Joint Sealant Color: As selected by Architect from manufacturer's full range of colors.
- E. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Locations:

- a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Vertical joints on exposed surfaces of interior unit masonry and concrete.
 - 2. Joint Sealant: Urethane, multicomponent, non-sag, Class 25, paintable.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- F. Joint Sealant Application: Interior joints in vertical surfaces.
- 1. Joint Locations:
 - a. Vertical joints in exposed surfaces of gypsum drywall partitions.
 - b. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
 - 2. Joint Sealant: Acrylic based, paintable.
 - 3. Joint Sealant Color: As selected by Architect from manufacturer's full range of colors.
- G. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.
- 1. Joint Sealant Location:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Tile control and expansion joints where indicated.
 - 2. Joint Sealant: Single component, non-sag, mildew resistant, acid curing, Silicone.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- H. Joint-Sealant Application: Interior control/contraction joints in vertical surfaces (Resinous Wall treatments)
- 1. Joint Locations:
 - a. Control and expansion joints in CMU, cement board, or gypsum board indicated to receive resinous wall treatment.
 - 2. Joint Sealant: Hybrid Silicone, single component, non-sag, Class 50, traffic grade.
 - 3. Joint Sealant Color: As selected by Architect from manufacturer's full range of custom colors.

END OF SECTION

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SECTION 084113 - ALUMINUM FRAMED ENTRANCES AND STOREFRONTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Thermal Broken Storefront Framing (6") (084113.A02).
2. Aluminum Door (Heavy Duty) (084113.A12).
3. Aluminum Subsills (084113.A21).
4. Aluminum Closure Flashing (084113.A22).
5. Aluminum Pan Flashing (084113.A23).
6. Concealed Flashing (084113.A24).
7. Jamb Closure Membrane (084113.A25).
8. Aluminum Receptor (084113.A26).
9. Insulated Spandrel Panels (084113.A27).

B. Related Requirements:

1. Section 012300 "Alternates" for alternates effecting work of this Section.
2. Section 079200 "Joint Sealants" for installation of joint sealants installed in storefronts and entrance framing and for sealants not specified in this Section.
3. Section 084413 "Glazed Aluminum Curtain Walls" for curtain walls to receive doors and subframes.
4. Section 088000 "Glazing" for glass within storefront and entrance systems.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, installation instructions, material descriptions, dimensions of individual components and profiles, hardware, accessories and finishes.

B. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work.

1. Elevations shall be drawn at ½ inch scale.
2. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
3. Include full-size isometric details of each vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:
 - a. Joinery, including concealed welds.

- b. Anchorage.
 - c. Interface with adjoining building construction.
 - d. Expansion provisions.
 - e. Glazing.
 - f. Flashing and drainage.
 - g. Locations and attachment for exterior sun shades.
- 4. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- 5. Include details for exterior sun shade and show provisions for attachment to storefront framing.
- 6. Shop Drawings shall be signed and sealed by a structural engineer licensed in the state where the project is located.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
 - 1. Intent is to verify matching of painted outrigger of sunshade with anodized finish of storefront and louvers of sun shade.
 - 2. Architect reserves the right to require additional samples for verification purposes that show fabrication techniques and workmanship.
- E. Fabrication Sample: Of each vertical-to-horizontal intersection of assemblies, made from 12-inch lengths of full-size components and showing details of the following:
 - 1. Joinery, including concealed welds.
 - 2. Anchorage.
 - 3. Expansion provisions.
 - 4. Glazing.
 - 5. Flashing and drainage.
- F. Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.
- G. Delegated-Design Submittal: For aluminum-framed entrances and storefronts indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 1. Detail fabrication and assembly of aluminum-framed systems.
 - 2. Include design calculations.
 - 3. Indicate design solutions for deflections of overhead structure as indicated on Structural Drawings.
 - 4. For aluminum-framed entrances and storefronts indicated to receive laminated (security) glazing systems, indicate design solutions recommended by laminated (security) glazing manufacturer to provide forced

entry resistance level indicated in Section 088000 "Glazing".

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and field-testing agency.
- B. Energy Performance Certificates: For aluminum-framed entrances and storefronts, accessories, and components, from manufacturer.
 - 1. Basis for Certification: NFRC-certified energy performance values for each aluminum-framed entrance and storefront.
- C. Product Test Reports: For aluminum-framed entrances and storefronts, for tests performed by manufacturer and witnessed by a qualified testing agency.
- D. Preconstruction Test Reports: For sealant.
- E. Quality-Control Program: Developed specifically for Project, including fabrication and installation, according to recommendations in ASTM C 1401. Include periodic quality-control reports.
- F. Source quality-control reports.
- G. Field quality-control reports.
- H. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For aluminum-framed entrances, storefronts and sunshade to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Engineering Responsibility: Prepare data for aluminum-framed systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.
- B. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- C. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.
- D. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
 - 1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.

- E. Structural-Sealant Glazing: Comply with ASTM C 1401 for design and installation of storefront systems.
- F. Listings and Labels for Fire-Rated Framing: Fire rated framing and glazing shall be under current follow-up services by an approved independent agency and maintain a current listing or certification. Assemblies shall be labeled in accordance with limits of listings.
- G. Source Limitations:
 - 1. For Aluminum-Framed Storefront Systems: Obtain from single source from single manufacturer.
 - 2. For Heavy-Duty Door Systems: Obtain from single source from single manufacturer.

1.7 MOCKUPS

- A. Mockups/Field Samples: Build mockups/field samples, to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Mockups/Field Samples: Furnish and install quantity and size of aluminum windows indicated on Drawings within mockup constructed under Section 042000 "Unit Masonry." Mockup/Field Sample will be used set quality standards for materials and execution.
 - a. Install aluminum window to demonstrate surface preparation and installation of: jamb closure membrane, subsill, window framing, and application of perimeter window sealant and associated flashing.
 - b. Window shall include specified glazing where mockup is erected.
 - c. Maintain a 3/8 to 1/2 inch wide gap around entire perimeter of window to receive sealant.
 - d. Coordinate installation of window within mockups to permit inspection by Architect. Approved window installation will set quality standard of installation and aesthetic qualities of workmanship for project.
 - 2. Field Samples: Build field sample/mockup of typical wall areas as shown on Drawings.
 - a. Note: Mockup shall be a field sample of storefront, entrance and punched opening areas in Project. Architect and manufacturer's representative will observe installation of first 100 square feet of storefront installation and 100 square feet of entrance framing installation.
 - 3. Field testing shall be performed on field sample areas according to requirements in "Field Quality Control" Article.
 - 4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 5. Subject to compliance with requirements, approved mockups/field sample areas may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver aluminum framing components in manufacturer's original protective packaging.
- B. Store aluminum components in a clean dry location away from uncured masonry and concrete. Cover components with waterproof paper, tarpaulin or polyethylene sheeting in a manner to permit circulation of air.
 - 1. Stack framing components in a manner that will prevent bending and avoid damage.

1.9 PROJECT CONDITIONS

- A. Field Measurements: Check openings by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay in the work.
- B. Commencement of aluminum entrance and storefront work will be construed as Installer's acceptance of substrate surfaces and rough openings indicated to receive work of this Section.

1.10 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration created by wind and thermal and structural movements.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - d. Water penetration through fixed glazing and framing areas.
 - e. Failure of operating components.
 - 2. Warranty Period: Two years from date of Substantial Completion.
 - 3. Warranty period for heavy-duty doors and associated frames shall be ten (10) years from date of Substantial Completion.
- B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design aluminum-framed entrances and storefronts.
- B. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
 - 1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.

2. Failure also includes the following:
 - a. Thermal stresses transferring to building structure.
 - b. Glass breakage.
 - c. Noise or vibration created by wind and thermal and structural movements.
 - d. Loosening or weakening of fasteners, attachments, and other components.
 - e. Failure of operating units.
- C. Structural Loads:
 1. Wind Loads: As indicated on Drawings.
 2. Other Design Loads: As indicated on Drawings.
- D. Deflection of Framing Members: At design wind pressure, as follows:
 1. Deflection Normal to Wall Plane: Limited to $1/175$ of clear span for spans up to 13 feet 6 inches and to $1/240$ of clear span plus $1/4$ inch for spans greater than 13 feet 6 inches or an amount that restricts edge deflection of individual glazing lites to $3/4$ inch, whichever is less.
 2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components to less than $1/8$ inch.
 - a. Operable Units: Provide a minimum $1/16$ -inch clearance between framing members and operable units.
 - b. Refer to Structural Drawings for additional information regard structure and deflection criteria.
 3. Cantilever Deflection: Where framing members overhang an anchor point, as follows:
 - a. Perpendicular to Plane of Wall: No greater than $1/240$ of clear span plus $1/4$ inch for spans greater than 11 feet 8- $1/4$ inches or $1/175$ times span, for spans less than 11 feet 8- $1/4$ inches.
- E. Structural: Test according to ASTM E 330 as follows:
 1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
 2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
 3. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- F. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
 1. Fixed Framing and Glass Area:
 - a. Maximum air leakage of 0.04 cfm/sq. ft. at a static-air-pressure differential of 6.24 lbf/sq. ft.
 2. Entrance Doors:
 - a. Pair of Doors: Maximum air leakage of 1.0 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.
 - b. Single Doors: Maximum air leakage of 0.5 cfm/sq. ft. at a static-air-pressure differential of 6.24 lbf/sq. ft.
- G. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:
 1. No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less

- than 10.0 lbf/sq. ft. for entrance/storefront framing.
2. Maximum Water Leakage: No uncontrolled water penetrating assemblies or water appearing on assemblies' normally exposed interior surfaces from sources other than condensation. Water leakage does not include water controlled by flashing and gutters, or water that is drained to exterior.
- H. Heavy Duty Aluminum Storefront Doors and Frames:
1. Swing Door Cycle Test: Test doors and frames according to ANSI A250.4 as follows:
 - a. Minimum 16,000,000 cycles.
 2. Cycle Slam Test Method: Test according to NWWDA T.M. 7-90 as follows:
 - a. Minimum 1,000,000 cycles.
- I. Interstory Drift: Accommodate design displacement of adjacent stories indicated.
1. Design Displacement: As indicated on Drawings.
 2. Test Performance: Complying with criteria for passing based on building occupancy type when tested according to AAMA 501.4 at design displacement and 1.5 times the design displacement.
- J. Seismic Performance: Aluminum-framed entrances and storefronts shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
1. Seismic Drift Causing Glass Fallout: Complying with criteria for passing based on building occupancy type when tested according to AAMA 501.6 at design displacement and 1.5 times the design displacement.
 2. Vertical Interstory Movement: Complying with criteria for passing based on building occupancy type when tested according to AAMA 501.7 at design displacement and 1.5 times the design displacement.
- K. Energy Performance: Certify and label energy performance according to NFRC as follows:
1. Thermal Transmittance (U-factor): Fixed glazing and framing areas shall have U-factor of not more than 0.40 Btu/sq. ft. x h x deg F as determined according to NFRC 100.
 2. Solar Heat Gain Coefficient: Fixed glazing and framing areas shall have a solar heat gain coefficient of no greater than 0.40 as determined according to NFRC 200.
 3. Condensation Resistance: Fixed glazing and framing areas shall have an NFRC-certified condensation resistance rating of no less than 45 as determined according to NFRC 500.
- L. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:
1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
 2. Thermal Cycling: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.
 - a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of 180 deg F.
 - b. Low Exterior Ambient-Air Temperature: 0 deg F.
 - c. Interior Ambient-Air Temperature: 75 deg F.
- M. Structural-Sealant Joints:

1. Designed to carry gravity loads of glazing.
 2. Designed to produce tensile or shear stress of less than 20 psi.
- N. Structural Sealant: Capable of withstanding tensile and shear stresses imposed by structural-sealant-glazed storefront system without failing adhesively or cohesively. When tested for preconstruction adhesion and compatibility, cohesive failure of sealant shall occur before adhesive failure.
1. Adhesive failure occurs when sealant pulls away from substrate cleanly, leaving no sealant material behind.
 2. Cohesive failure occurs when sealant breaks or tears within itself but does not separate from each substrate because sealant-to-substrate bond strength exceeds sealant's internal strength.

2.2 MANUFACTURERS AND PRODUCTS

- A. Basis-of-Design Criteria: Drawings indicate sizes, profiles, and dimensional requirements for storefront, entrance and window framing systems required, that are based on specific types, models and performance criteria indicated. Systems from other manufacturers may be considered, provided deviations in dimensions, profiles and performance are minor and do not change the design concept as judged by the Architect. Burden of proof is on the proposer.
- B. Basis-of-Design Products for Storefront Framing System: Subject to compliance with requirements, provide or one of the systems listed below or comparable product submitted to and accepted by Architect prior to bidding.
1. Thermally Broken Storefront and Entrance Framing (084113.A02 – Front Plane Glazed):
 - a. Basis-of-Design: Kawneer North America; Trifab 601T.
 - b. EFCO Corporation; Series 406.
 - c. Manko; Series 2650.
 - d. Tubelite; T24650 Series.
 2. Heavy-Duty (Stile and Rail Construction) Manual-Swing Doors and Associated Frames (084113.A12):
 - a. Basis-of-Design: Special-Lite, Inc. No substitutions allowed.
 - 1) Exterior heavy-duty manual-swing entrance doors: Model "SL-15" (wide stile).
- C. Source Limitations: Obtain all components of aluminum-framed entrance and storefront system, including framing and accessories, from single manufacturer.

2.3 FRAMING

- A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
1. Construction:
 - a. Thermally broken
 - b. Non-Thermal
 2. Glazing System:
 - a. Retained mechanically with gaskets on four sides.
 3. Glazing Plane:
 - a. Exterior Locations:
 - 1) Front plane glazed
 4. Finish: Refer to Exterior Finish Legend on Drawings for locations.

- a. High-performance organic finish
- 5. Fabrication Method: Field-fabricated stick system.
- B. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- C. Pressure Caps: Manufacturer's standard snap-on aluminum caps that mechanically retain glazing.
 - 1. Provide extended caps where indicated.
 - 2. At 90 degree outside corners, provide pre-manufactured mullion cap/trim as single unit to cover both sides where shown.
- D. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- E. Materials:
 - 1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - a. Sheet and Plate: ASTM B 209.
 - b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
 - c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
 - d. Structural Profiles: ASTM B 308/B 308M.
 - 2. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.
 - a. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
 - b. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
 - c. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.4 ENTRANCE DOOR SYSTEMS

- A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.
 - 1. General:
 - a. Thermal Construction: Manufacturer's standard elastomeric type.
 - b. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets.
 - 1) Provide nonremovable glazing stops on outside of door.
 - 2. Heavy Duty - Stile and Rail Door Construction (084113.A12): 1-3/4-inch overall thickness, with minimum 0.125-inch-thick, extruded-aluminum tubular rail and stile members. Corners shall be mortised and tenon construction, reinforced with 3/8-inch diameter galvanized steel concealed tie rods. Glass stops shall be integral with stile and rail extrusions on one side
 - a. Exterior heavy-duty manual-swing entrance doors: Doors shall have 4-3/4-inch-wide stiles, 6-1/2-inch top rail, 12-inch intermediate rail and 10 inch bottom rail. **VERIFY, TO MATCH EXISTING.**
 - 3. Interior horizontal sliding doors (084113.A16): Doors shall be as indicated. Tracks shall be low-profile type to suit stacking indicated. Track shall be surface-mounted unless indicated otherwise.
- B. Entrance Door Framing and Subframing:
 - 1. Door Framing (Heavy Duty Doors):

- a. For 4-1/2 inch framing – Basis of Design: Special-Lite, Inc.; “SL-245FG”, compatible with storefront framing system.
 - b. At the request of the Owner, substitutions for this product are not allowed.
- 2. Door Subframing: Manufacturer’s standard, not greater than 1-inch face dimension for use at entrances within curtain wall. Finish to match adjacent curtain wall framing.

2.5 ENTRANCE DOOR HARDWARE

- A. Entrance Door Hardware: Hardware not specified in this Section is specified in Section 087100 "Door Hardware."
 - 1. Hardware for heavy-duty aluminum doors shall be installed at the door manufacturer’s factory and be included in the warranty.
- B. General: Provide entrance door hardware and entrance door hardware sets indicated in door and frame schedule, Section 087100 “Door Hardware”, and as specified hereinafter.
 - 1. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.
 - 2. Opening Force Requirements:
 - a. Egress Doors: Not more than 15 lbf to release the latch and not more than 30 lbf to set the door in motion and not more than 15 lbf to open the door to its minimum required width.
 - b. Accessible Interior Doors: Not more than 5 lbf to fully open door.
- C. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of entrance door hardware are indicated in "Entrance Door Hardware Sets" Article. Products are identified by using entrance door hardware designations as follows:
 - 1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in "Entrance Door Hardware Sets" Article.
 - 2. References to BHMA Standards: Provide products complying with these standards and requirements for description, quality, and function.
- D. Strikes: Provide strike with black-plastic dust box for each latch or lock bolt; fabricated for aluminum framing.
- E. Weather Stripping: Manufacturer's standard replaceable components. “Fin” type stops and vinyl weatherstripping are not acceptable.
 - 1. Compression Type: Made of ASTM D 2000, molded neoprene, or ASTM D 2287, molded PVC.
 - 2. Sliding Type: AAMA 701/702, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.
- F. Weather Sweeps: Manufacturer's standard exterior-door bottom sweep with concealed fasteners on mounting strip.
- G. Silencers: BHMA A156.16, Grade 1.

- H. Thresholds: BHMA A156.21, raised thresholds beveled with a slope of not more than 1:2, with maximum height of 1/2 inch.
- I. Finger Guards: Manufacturer's standard collapsible neoprene or PVC gasket anchored to frame hinge-jamb at center-pivoted doors.

2.6 GLAZING

- A. Glazing: Comply with Section 088000 "Glazing."
- B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.
- C. Glazing Sealants: As recommended by manufacturer.
 - 1. Sealant shall have a VOC content of 250 g/L or less.
 - 2. Sealant shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- D. Structural Glazing Sealants: ASTM C 1184, chemically curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by structural-sealant manufacturer for use in storefront system indicated.
 - 1. Color: As selected by Architect from manufacturer's full range of colors.
- E. Weatherseal Sealants: ASTM C 920 for Type S; Grade NS; Class 25; Uses NT, G, A, and O; chemically curing silicone formulation that is compatible with other system components with which it comes in contact; recommended by weatherseal-sealant and glazed storefront manufacturers for this use.
 - 1. Color: As selected by Architect from manufacturer's full range of colors.
 - 2. Color: Match structural sealant.

2.7 INSULATED SPANDREL PANELS (084113.A27)

- A. Insulated Spandrel Panels: Laminated, metal-faced flat panels with no deviations in plane exceeding 0.8 percent of panel dimension in width or length.
 - 1. Overall Panel Thickness: 1 inch.
 - 2. Exterior Skin: Aluminum.
 - a. Thickness: Manufacturer's standard for finish and texture indicated.
 - b. Finish: Painted to match adjacent storefront.
 - c. Texture:
 - 1) Smooth
 - d. Backing Sheet:
 - 1) 1/8-inch-thick, tempered hardboard
 - 3. Interior Skin: Aluminum.
 - a. Thickness: Manufacturer's standard for finish and texture indicated.
 - b. Finish:
 - 1) Low-gloss, white baked enamel, verify with existing.

- c. Texture:
 - 1) Smooth
 - d. Backing Sheet:
 - 1) 1/8-inch-thick, tempered hardboard
- 4. Thermal Insulation Core: Manufacturer's standard
 - a. Extruded-polystyrene board.
- B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Developed Index: 450 or less.

2.8 ACCESSORIES

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 - 2. Reinforce members as required to receive fastener threads.
 - 3. Exposed Fasteners: Do not use exposed fasteners except for application of hardware. For application of exposed hardware, use exposed fasteners with countersunk Phillips screw heads or flat-head machine screws, fabricated from 300 series stainless steel.
- B. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
 - 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- C. Aluminum Subsills (084113.A21): Provide high performance subsill that incorporates a watertight interior back leg with end dams and integral water collection trough that weeps to exterior. Subsill shall be of profile and dimensions required for installation indicated. Finish subsill to match adjacent aluminum framing. Seal all penetrations through subsills to be watertight.
 - 1. Provide high performance subsills at all storefront, entrance and window framing, unless specifically indicated otherwise.
- D. Aluminum Closure Flashing (084113. A22): Provide prefinished aluminum, not less than 0.090 inch thick, of alloy and type selected by manufacturer for compatibility with other components. Fabricate closure flashing to configurations indicated. Finish to match adjacent storefront, entrance and window framing. Seal closure flashing to be watertight.

- E. Aluminum Pan Flashing (084113.A23): Provide prefinished aluminum, not less than 0.090 inch thick, of alloy and type selected by manufacturer for compatibility with other components. Fabricate pan flashing to configurations indicated to direct water to exterior away from storefront and window framing. Finish to match adjacent storefront and window framing.
- F. Aluminum Jamb Extensions: prefinished aluminum of finish, size, profile and material to match framing system. Anchor to framing member. Extension depth as indicated on drawings.
- G. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.
- H. Jamb Closure Membrane (084113.A25):
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide one of the following products:
 - a. "CCW-705-TWF"; as manufactured by Carlisle Coatings and Waterproofing.
 - b. "Perm-A-Barrier Wall Flashing"; as manufactured by Grace Construction Products.
 - c. "Air-Shield"; as manufactured by W. R. Meadows, Inc.
 - d. "Blueskin"; as manufactured by Henry Corp.
 - 2. Product Characteristics:
 - a. Self-adhering, membrane, 40 mils thick.
 - b. Flashing shall function as an air, vapor and water barrier.
 - c. Flashing shall be compatible with air barrier coating specified in Section 072729.
- I. Aluminum Receptor (084113.A26): Provide manufacturer's high performance head compensating receptor as required. Provide prefinished aluminum, of alloy and type selected by manufacturer for compatibility with other components. Finish to match adjacent storefront, entrance and window framing. Seal all penetrations through head to be watertight.
 - 1. Provide high performance head compensating receptor as indicated on the drawings.
- J. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil thickness per coat.

2.9 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Physical and thermal isolation of glazing from framing members.
 - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 5. Provisions for field replacement of glazing from interior.

- 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.
- F. Storefront Framing: Fabricate components for assembly using shear-block system, or screw-spline system, or head-and-sill-receptor system with shear blocks at intermediate horizontal members.
- G. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
 - 1. At exterior door frames, provide compression weather stripping at fixed stops.
 - 2. At interior door frames, provide silencers at stops to prevent metal-to-metal contact. Install three silencers on strike jamb of single-door frames and two silencers on head of frames for pairs of doors.
 - 3. Fin-type door stops are not acceptable.
- H. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
 - 1. Heavy Duty – Stile and Rail Construction (084113.A12): Aluminum standard doors shall be fabricated as previously specified.
 - 2. Reinforce doors as required for installing entrance door hardware.
 - 3. At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.
 - 4. At exterior doors, provide weather sweeps applied to door bottoms.
- I. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
- J. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.10 ALUMINUM FINISHES

- A. High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2604 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 1. Color and Gloss: As selected by Architect from manufacturer's full range, to match existing.

2.11 SOURCE QUALITY CONTROL

- A. Structural Sealant: Perform quality-control procedures complying with ASTM C 1401 recommendations including, but not limited to, assembly material qualification procedures, sealant testing, and assembly fabrication reviews and checks.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare surfaces that are in contact with sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.

3.3 INSTALLATION

- A. General:
 - 1. Comply with manufacturer's written instructions.
 - 2. Do not install damaged components.
 - 3. Fit joints to produce hairline joints free of burrs and distortion.
 - 4. Rigidly secure nonmovement joints.
 - 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
 - 6. Seal perimeter and other joints watertight unless otherwise indicated.
 - 7. Completely fill gaps between shims and adjacent construction with loose fiberglass insulation or spray foam insulation.
- B. Metal Protection:
 - 1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
 - 2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Set continuous sill members and flashing in full sealant bed as specified in Section 079200 "Joint Sealants" to produce weathertight installation.
- D. Install components plumb and true in alignment with established lines and grades.
- E. Prior to installation of perimeter vertical members, install jamb closure membrane at cavity walls to cover gap/joint between interior and exterior substrates. Intent is to seal air cavity and joints between substrates. Extend membrane from interior face of framing/blocking to exterior. Trim membrane so that it will not be exposed to view after vertical members are set, and edge of membrane is terminated in sealant installed around perimeter of

aluminum framing.

1. Seal tops of end dams at jambs to adjacent construction or extend jamb closure membrane over end dam to direct water into subsill in order to drain to exterior.
- F. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.
- G. Install glazing as specified in Section 088000 "Glazing."
- H. Install weatherseal sealant according to Section 079200 "Joint Sealants" and according to sealant manufacturer's written instructions to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.
- I. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.
 1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
 2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

3.4 ERECTION TOLERANCES

- A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:
 1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
 2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
 3. Alignment:
 - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
 - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.
 - c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.
 4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Field Quality-Control Testing: Perform the following test on representative areas of aluminum-framed entrances and storefronts.
 1. Water-Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
 - a. Perform tests in each test area as directed by Architect.
 - 1) For punched openings, test 25 percent of installation, in each type of exterior finish substrate, unless noted otherwise.
 - 2) For storefront, and clerestories; test each installation, unless noted otherwise.

- C. Structural-Sealant Adhesion: Test structural sealant according to recommendations in ASTM C 1401, Destructive Test Method A, "Hand Pull Tab (Destructive)," Appendix X2.
 - 1. Test a minimum of four areas on each building facade.
 - 2. Repair installation areas damaged by testing.
- D. Aluminum-framed entrances and storefronts will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports.

END OF SECTION

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SECTION 084413 - GLAZED ALUMINUM CURTAIN WALLS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Glazed aluminum curtain walls for vertical applications (084413.A01).

B. Related Requirements:

1. Section 079200 "Joint Sealants" for installation of joint sealants installed in curtain walls and for sealants not specified in this Section.
2. Section 084113 "Aluminum-Framed Entrances and Storefronts" for doors and subframes within curtain wall systems.
3. Section 088000 "Glazing" for glass within curtain walls, storefront and entrance systems.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Conduct preinstallation conference for glazed aluminum curtain wall concurrently with preinstallation conference for aluminum entrances and storefronts.
2. Require representatives of each entity directly concerned with curtain wall and, aluminum entrances and storefronts to attend, including the following:
 - a. Contractor's superintendent.
 - b. Architect.
 - c. Sealant Subcontractor.
 - d. Glazing Subcontractor.
 - e. Architect's door hardware consultant.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For glazed aluminum curtain walls. Include plans, elevations, sections, full-size details, and attachments to other work.

1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
2. Include full-size isometric details of each vertical-to-horizontal intersection of glazed aluminum curtain walls, showing the following:
 - a. Joinery, including concealed welds.
 - b. Anchorage.
 - c. Interface with adjoining building construction.
 - d. Expansion provisions.
 - e. Glazing.

- f. Flashing and drainage.
- 3. Include details and sections for insulated spandrel panels and application of panels into curtain wall framing.
- 4. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- 5. Shop Drawings shall be signed and sealed by a structural engineer licensed in the state where the project is located.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
 - 1. Architect reserves the right to require additional samples for verification purposes that show fabrication techniques and workmanship.
- E. Delegated-Design Submittal: For glazed aluminum curtain walls indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 1. Detail fabrication and assembly of aluminum-framed systems.
 - 2. Include design calculations.
 - 3. For curtain wall indicated to receive laminated (security) glazing systems, indicate design solutions recommended by laminated (security) glazing manufacturer to provide forced entry resistance level indicated in Section 088000 "Glazing".

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and field testing agency.
- B. Energy Performance Certificates: For glazed aluminum curtain walls, accessories, and components from manufacturer.
 - 1. Basis for Certification: NFRC-certified energy performance values for each glazed aluminum curtain wall.
- C. Product Test Reports: For glazed aluminum curtain walls, for tests performed by manufacturer and witnessed by a qualified testing agency. Tests must be current, within the past 5 years.
- D. Source quality-control reports.
- E. Field quality-control reports.
- F. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For glazed aluminum curtain walls to include in maintenance manuals.
- B. Maintenance Data for Structural Sealant: For structural-sealant-glazed curtain walls to include in maintenance manuals. Include ASTM C 1401 recommendations for post-installation-phase quality-control program

1.6 QUALITY ASSURANCE

- A. Engineering Responsibility: Prepare data for aluminum-framed systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.
- B. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- C. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.
- D. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
 - 1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.
- E. Structural-Sealant Glazing: Comply with ASTM C 1401 for design and installation of curtain wall assemblies.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of structural supports for glazed aluminum curtain walls by field measurements before fabrication and indicate measurements on Shop Drawings.
- B. Commencement of aluminum curtain wall work will be construed as Installer's acceptance of substrate surfaces and rough openings indicated to receive work of this Section.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver aluminum framing components in manufacturer's original protective packaging.
- B. Store aluminum components in a clean dry location away from uncured masonry and concrete. Cover components with waterproof paper, tarpaulin or polyethylene sheeting in a manner to permit circulation of air.
 - 1. Stack framing components in a manner that will prevent bending and avoid damage.

1.9 MOCKUPS

- A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockup of typical wall area as shown on Drawings.
 - a. Include at least one sample area of insulated spandrel panel.
 - b. Note: Mockup shall be a field sample of curtain wall areas in Project. Architect and manufacturer's representative will observe installation of first 200 square feet of curtain wall installation.
 - 2. Field testing shall be performed on field sample areas according to requirements in "Field Quality Control" Article.

3. Approval of mockups/field samples does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups/field samples may become part of the completed Work if undisturbed at time of Substantial Completion.

1.10 WARRANTY

- A. Special Assembly Warranty: Installer agrees to repair or replace components of glazed aluminum curtain wall that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration created by wind and thermal and structural movements.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - d. Water penetration through fixed glazing and framing areas.
 - e. Failure of operating components.
 2. Warranty Period: Five years from date of Substantial Completion.
- B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design glazed aluminum curtain walls.
 1. Include comprehensive engineering analysis by qualified professional engineer, using performance requirements and design criteria indicated.
- B. General Performance: Comply with performance requirements specified, as determined by testing of glazed aluminum curtain walls and sloped glazing assemblies representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
 1. Glazed aluminum curtain walls shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
 2. Failure also includes the following:
 - a. Thermal stresses transferring to building structure.
 - b. Glass breakage.
 - c. Noise or vibration created by wind and thermal and structural movements.
 - d. Loosening or weakening of fasteners, attachments, and other components.

- e. Failure of operating units.
- C. Structural Loads:
 - 1. Wind Loads: As indicated on Drawings.
 - 2. Other Design Loads: As indicated on Drawings.
- D. Deflection of Framing Members: At design wind pressure, as follows:
 - 1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches and to 1/240 of clear span plus 1/4 inch for spans greater than 13 feet 6 inches or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
 - 2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components to less than 1/8 inch.
 - a. Operable Units: Provide a minimum 1/16-inch clearance between framing members and operable units.
- E. Structural: Test according to ASTM E 330 as follows:
 - 1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
 - 2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
 - 3. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- F. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
 - 1. Fixed Framing and Glass Area:
 - a. Maximum air leakage of 0.06 cfm/sq. ft. at a static-air-pressure differential of 6.24 lbf/sq. ft.
- G. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:
 - 1. No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 15 lbf/sq. ft and not less than 10 lbf/sq.ft. for sloped glazing.
- H. Energy Performance: Certify and label energy performance according to NFRC as follows:
 - 1. Thermal Transmittance (U-factor): Fixed glazing and framing areas shall have U-factor of not more than 0.40 Btu/sq. ft. x h x deg F as determined according to NFRC 100.
 - 2. Solar Heat Gain Coefficient: Fixed glazing and framing areas shall have a solar heat gain coefficient of no greater than 0.40 as determined according to NFRC 200.
 - 3. Condensation Resistance: Fixed glazing and framing areas shall have an NFRC-certified condensation resistance rating of no less than 67 as determined according to NFRC 500.

- I. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes:
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- J. Noise Reduction: Test according to ASTM E 90, with ratings determined by ASTM E 1332, as follows:
 - 1. Outdoor-Indoor Transmission Class: Minimum 30.

2.2 MANUFACTURERS AND PRODUCTS

- A. Basis-of-Design Products: Subject to compliance with requirements, provide Kawneer North America; "1600UT System 1." curtain wall system for outside glazing with mechanical glass retainage along with two or four-sided structural glazing capability or one of the systems listed below or comparable product submitted to and accepted by Architect prior to bidding.
 - 1. EFCO Corporation; "System 5600."
 - 2. Manko; "250xpt Series."
 - 3. Tubelite; "400TU Series."
- B. Source Limitations: Obtain all components of curtain wall system, including framing and accessories, from single manufacturer.

2.3 FRAMING

- A. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
 - 1. Construction: High Performance Thermally isolated (thermal struts).
 - 2. Glazing System: Retained mechanically with gaskets on four sides depending on the Type called out.
System shall be capable of accommodating up to 1-1/4 inch thick glazing.
 - a. Glazing Plane: Front.
 - 3. Sightline: 2-1/2 inches.
 - 4. Frame Types:
 - a. Type 2: 7 1/2 inch minimum depth members.
 - 5. Finish:
 - a. Baked-enamel or powder-coat finish: Extended covers as indicated on the drawings. Color to match existing blue.
 - 6. Fabrication Method: Field-fabricated stick system.
- B. Pressure Caps: Manufacturer's standard rectangular snap-on aluminum components that mechanically retain glazing.
 - 1. Include snap-on aluminum caps/trim that conceals fasteners.
 - 2. Provide extended caps of indicated depths where shown.
 - 3. At 90 degree outside corners, provide pre-manufactured mullion cap/trim as single unit to cover both sides where shown.

4. System shall be capable of installing concealed structural supports instead of pressure caps where structural glazing is indicated.
- C. Head Compensating Receptor (084413.A03): Provide manufacturer's high performance head compensating receptor as required. Provide prefinished aluminum, of alloy and type selected by manufacturer for compatibility with other components. Finish to match adjacent storefront, entrance and window framing. Seal all penetrations through head to be watertight.
1. Provide high performance head compensating receptor as indicated on the drawings.
- D. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- E. Materials:
1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - a. Sheet and Plate: ASTM B 209.
 - b. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
 - c. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
 - d. Structural Profiles: ASTM B 308/B 308M.
 2. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.
 - a. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
 - b. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
 - c. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.4 ENTRANCES

- A. Entrances: Comply with Section 084113 "Aluminum-Framed Entrances and Storefronts."

2.5 GLAZING

- A. Glazing: Comply with Section 088000 "Glazing."
- B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.
- C. Glazing Sealants: As recommended by manufacturer.
- D. Weatherseal Sealants: ASTM C 920 for Type S; Grade NS; Class 50; Uses NT, G, A, and O; chemically curing silicone formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and structural-sealant-glazed curtain-wall manufacturers for this use.
1. Color: Match structural sealant.
- E. Security Glazing: Provide a minimum edge engagement of 5/8" to augment performance.

2.6 ACCESSORIES

- A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 - 2. Reinforce members as required to receive fastener threads.
 - 3. Use exposed fasteners with countersunk Phillips screw heads, fabricated from 300 series stainless steel.
- B. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
 - 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- C. Aluminum Closure Flashing and Trim (084413.A05): Provide pre-finished 0.090 inch thick aluminum of alloy and type selected by manufacturer for compatibility with other components. Fabricate flashing and trim to configurations indicated. Finish for closures and trim shall match adjacent aluminum framing.
- D. Jamb Closure Membrane (084413.A08):
 - 1. Fire Propagation Characteristics: When flexible strip flashing is used in exterior walls, the flashing shall pass NFPA 285 testing as part of an approved assembly. Flashing shall be compatible with air barrier coating specified in Section 072729.
 - 2. Product Characteristics:
 - a. Self-adhering, membrane, 40 mils thick.
 - b. Flashing shall function as an air, vapor and water barrier.
 - 3. Basis-of-Design Product: Subject to compliance with requirements, provide Carlisle Coatings and Waterproofing; "Fire Resist 705FR-A."
 - a. Comparable products from the following, meeting specified requirements, will be considered when submitted to and accepted by Architect prior to bidding:
 - 1) Henry Corp.
 - 2) R. Grace.
- E. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.
- F. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil thickness per coat.
- G. Aluminum Coping: Provide pre-finished 0.090 inch thick aluminum of alloy and type selected by manufacturer for compatibility with other components. Fabricate coping to configurations indicated. Finish for coping shall match adjacent aluminum framing.

2.7 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Physical and thermal isolation of glazing from framing members.
 - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 5. Provisions for field replacement of glazing from exterior.
 - 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
 - 7. Components curved to indicated radii.
- D. Fabricate components to resist water penetration as follows:
 - 1. Internal guttering system or other means to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum curtain wall to exterior.
 - 2. Pressure-equalized system or double barrier design with primary air and vapor barrier at interior side of glazed aluminum curtain wall and secondary seal weeped and vented to exterior.
- E. Curtain-Wall Framing: Fabricate components for assembly using manufacturer's standard assembly method.
- F. Factory-Assembled Frame Units:
 - 1. Rigidly secure nonmovement joints.
 - 2. Prepare surfaces that are in contact structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion.
 - 3. Preparation includes, but is not limited to, cleaning and priming surfaces.
 - 4. Seal joints watertight unless otherwise indicated.
 - 5. Install glazing to comply with requirements in Section 088000 "Glazing."
- G. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.8 ALUMINUM FINISHES

- A. High-Performance Organic Finish: Three-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

2.9 SOURCE QUALITY CONTROL

- A. Structural Sealant: Perform quality-control procedures complying with ASTM C 1401 recommendations including, but not limited to, assembly material qualification procedures, sealant testing, and assembly fabrication reviews and checks.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare surfaces that will contact structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.

3.3 INSTALLATION

- A. General:
 - 1. Comply with manufacturer's written instructions.
 - 2. Do not install damaged components.
 - 3. Fit joints to produce hairline joints free of burrs and distortion.
 - 4. Rigidly secure nonmovement joints.
 - 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
 - 6. Where welding is required, weld components in concealed locations to minimize distortion or discoloration of finish. Protect glazing surfaces from welding.
 - 7. Seal joints watertight unless otherwise indicated.
 - 8. Prior to installation of glazing, provide secondary "dry-in" seal around entire perimeter of each curtain wall opening.
 - 9. Prior to installation of vertical perimeter curtain wall members, install jamb closure membrane fully adhered to interior substrate. Cut off excess membrane that may be exposed-to-view, so that edge of membrane terminates in sealant. Extend membrane from interior face of framing, over cavity, as occurs, to exterior face of curtainwall and adhere to exterior substrate, prime and supplement with adhesive as recommended by membrane manufacturer. Trim membrane so that leading edge at exterior will be set in "dry-in" sealant.
- B. Install insulated spandrel panels plumb, level and true. Glaze panels securely and in accordance with approved shop drawings and manufacturer's instructions to allow for necessary thermal movement and structural support.

1. Weatherseal all joints as required.
 2. Remove masking film as soon as possible after installation.
- C. Metal Protection:
1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with primer, applying sealant or tape, or installing nonconductive spacers as recommended by manufacturer for this purpose.
 2. Where aluminum is in contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- D. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum curtain wall to exterior.
- E. Install components plumb and true in alignment with established lines and grades.
- F. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.
- G. Install glazing as specified in Section 088000 "Glazing."
1. Prepare surfaces that will contact structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.
- H. Install weatherseal sealant according to Section 079200 "Joint Sealants" and according to sealant manufacturer's written instructions to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.

3.4 ERECTION TOLERANCES

- A. Erection Tolerances: Install glazed aluminum curtain walls to comply with the following maximum tolerances:
1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
 2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
 3. Alignment:
 - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
 - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.
 - c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.
 4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Test Area: Perform tests on representative areas of glazed aluminum curtain walls.

- C. Field Quality-Control Testing: Perform the following test on representative areas of glazed aluminum curtain walls.
 - 1. Water-Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
 - a. Perform tests in each test area as directed by Architect.
 - 1) Test 25 percent of exterior installation, in each type of exterior finish substrate, unless noted otherwise.
- D. Glazed aluminum curtain walls will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports.

END OF SECTION

SECTION 086200 - UNIT SKYLIGHTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Skylights with integral frame.
- B. Operating mechanism.

1.2 RELATED REQUIREMENTS

- A. Section 055000 - Metal Fabrications: Miscellaneous steel framing for rough opening.
- B. Section 061000 - Rough Carpentry: Wood support curbs.
- C. Section 076200 - Sheet Metal Flashing and Trim: Skylight counterflashing.

1.3 REFERENCE STANDARDS

- A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights 2017.
- B. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document) 2015.
- C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes 2014.
- D. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric) 2013.
- E. ASTM E2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights 2019c.

1.4 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Grade Substantiation: Prior to submitting shop drawings or starting fabrication, submit one of the following showing compliance with specified grade:
 - 1. Evidence of AAMA Certification.
 - 2. Evidence of WDMA Certification.
 - 3. Evidence of CSA Certification.
 - 4. Test report(s) by independent testing agency itemizing compliance and acceptable to authorities having jurisdiction.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with not less than three years documented experience.

- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years documented experience.

1.6 WARRANTY

- A. See Section 017800 - Closeout Submittals, for additional warranty requirements.
- B. See
- C. Provide 10 year manufacturer warranty, including coverage for leakage due to defective skylight materials or construction.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Unit Skylights:
 - 1. Basis-of-Design Products for Skylight Units: Subject to compliance with requirements, provide or comparable product submitted to and accepted by Architect prior to bidding.
 - 2. Velux America, Inc; VELUX Dynamic Dome: www.veluxusa.com/#sle.

2.2 SKYLIGHTS

- A. Skylights: Factory-assembled glazing in aluminum frame, free of visual distortion, and weathertight.
 - 1. Shape: Square dome.
 - 2. Glazing: Double.
 - 3. Operation: Operable for ventilation.

2.3 PERFORMANCE REQUIREMENTS

- A. Provide unit skylights that comply with the following:
 - 1. Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific skylight type:
 - 2. Allow for expansion and contraction within system components caused by a cycling surface temperature range of 170 degrees F (95 degrees C) without causing detrimental effects to system or components.

2.4 COMPONENTS

- A. Double Glazing: Acrylic plastic; factory sealed.
 - 1. Outer Glazing: White translucent.
 - 2. Inner Glazing: White translucent.
- B. Frames: ASTM B221 ASTM B221M Extruded aluminum thermally broken, reinforced and welded corner joints, integral curb frame mounting flange and counterflashing to receive roofing flashing system, with integral condensation collection gutter, glazing retainer; clear anodized finish.

2.5 ACCESSORIES

- A. Counterflashings: Same metal type and finish as skylight frame.

- B. Protective Back Coating: Zinc molybdate alkyd.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that openings and substrate conditions are ready to receive work of this section.
- C. Verify that curbs installed under other sections are complete.

3.2 PREPARATION

- A. Apply protective back coating on aluminum surfaces of skylight units that will be in contact with cementitious materials or dissimilar metals.

3.3 INSTALLATION

- A. Install unit skylights in accordance with manufacturer's instructions and ASTM E2112.
- B. Install aluminum curb assembly, fastening securely to roof decking; flash curb assembly into roofing system.
- C. Install skylight units and mount securely to curb assembly; install counterflashing as required.
- D. Apply sealant to achieve watertight assembly.

3.4 CLEANING

- A. Upon completion of installation, thoroughly clean skylight aluminum surfaces in accordance with AAMA 609 & 610.
- B. Remove protective material from prefinished aluminum surfaces.
- C. Wash down exposed surfaces; wipe surfaces clean.
- D. Remove excess sealant.

END OF SECTION

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SECTION 088000 - GLAZING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Glass for windows, doors, interior borrowed lites, storefront framing, glazed curtain walls.
2. Glazing sealants and accessories.
3. Glass types include:
 - a. Monolithic Float Glass.
 - b. Fully Tempered Monolithic Float Glass.
 - c. Laminated Glass.
 - d. Insulated Glass.
 - e. Insulated Fully Tempered Glass.
 - f. Insulated Laminated Glass.
 - g. Spandrel Glass.
 - h. Fire-resistance-rated glazing.
 - i. Fire-protection-rated glazing.
 - j. Security Glass.
 - k. Specialty/Decorative Glass.

B. Related Requirements:

1. Section 084113 "Aluminum Framed Entrances and Storefronts."
2. Section 084413 "Glazed Aluminum Curtain Walls" for glazing sealants used in structural-sealant-glazed curtain walls."

1.2 DEFINITIONS

- A. Glass Manufacturers:** Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses:** Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. IBC:** International Building Code.
- D. Interspace:** Space between lites of an insulating-glass unit.

1.3 COORDINATION

- A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.**

1.4 REFERENCES

- A. American Society for Testing and Materials (ASTM):**
1. ASTM E 119: Fire Tests of Building Construction and Materials.
- B. American National Standards Institute (ANSI):**
1. ANSI Z97.1: Standard for Safety Glazing Materials Used in Buildings.
- C. Consumer Product Safety Commission (CPSC):**

1. CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials, Category II.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals:
 - 1.
- C. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches square. Submit the samples listing glass type corresponding to Glass Legend indicated on Drawings and as follows:
 1. Tinted Monolithic Float Glass.
 2. Tinted Fully Tempered Monolithic Float Glass.
 3. Laminated Glass.
 4. Insulated Glass.
 5. Insulated Fully Tempered Glass.
 6. Insulated Laminated Glass.
 7. Spandrel Glass.
 8. Fire-resistance-rated glazing.
 9. Fire-protection-rated glazing.
 10. Security Glass.
 11. Specialty Glass.
 - a. Custom Digital Artwork Ceramic Ink Proofs: Before printing, prepare full-color proofs which include a full-scale sample, as well as a reduced sample of the entire graphic for each artwork location for the Architect's approval. Approved proof will set the quality standards for graphic and aesthetic effect.
- D. Fire-Rated Window/Wall Framing Samples: For each of the following:
 1. Sample of steel frame, not less than 6 inches in length.
 2. Sample of aluminum cover cap, not less than 6 inches in length and in finish specified.
- E. Glazing Accessory Samples: For sealants, in 12-inch lengths.
- F. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- G. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- H. Field Dimensions for Custom Digital Artwork Ceramic Ink Glazing: Provide field dimensions to Architect for graphic design of digital artwork graphics. Include dimensions, locations, and graphic depictions of all disruptions within the field of glazing surface indicated to receive digital artwork. Examples of disruptions of wall surface include, but are not limited to: frames, mullions, etc.

1. Elevations and dimensions shall be drawing using a computer aided drafting program and submitted in a legible format.
2. Dimensional Tolerance: 1/8 inch maximum.
3. Dimensions shall be reviewed and accepted by signage manufacturer prior to submittal of shop drawings.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, manufacturers of insulating-glass units with sputter-coated, low-E coatings and sealant testing agency.
- B. Product Certificates: For each type of glass and glazing product, from manufacturer. For glass.
- C. Product Test Reports: For tinted glass, coated glass, insulating glass and glazing sealants for tests performed by a qualified testing agency.
 1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.
- D. Preconstruction adhesion and compatibility test report.

1.7 CLOSEOUT SUBMITTALS

- A. Warranties: Sample of special warranties.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved by coated-glass manufacturer.
- B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- C. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
- D. Source Limitations for Glass: Obtain insulating glass from single source from single manufacturer for each glass type.
- E. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.
- F. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 1. GANA Publications: GANA's "Laminated Glazing Reference Manual" and GANA's "Glazing Manual."
 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

- G. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- H. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
- I. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.
- J. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.
 - 1. Install glazing in mockups specified in Section 084113 "Aluminum-Framed Entrances and Storefronts", Section 084413 "Glazed Aluminum Curtain Walls" to match glazing systems required for Project, including glazing methods.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project site.
 - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 2. Review temporary protection requirements for glazing during and after installation.
 - 3. Review drawings for locations and details of glazing.
 - 4. Review custom ceramic glazing.

1.10 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion and Compatibility Testing: Test each glass product, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.
 - 1. Testing is not required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
 - 2. Use ASTM C 1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
 - 3. Test no fewer than [eight] [Insert number] Samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.
 - 4. Schedule enough time for testing and analyzing results to prevent delaying the Work.

5. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including the use of specially formulated primers.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with insulating-glass manufacturer's written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.12 FIELD CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.

1.13 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
 1. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Laminated Glass: Manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.
 1. Warranty Period: 10 years from date of Substantial Completion.
- C. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.
 - 1. Obtain tinted glass from single source from single manufacturer.
 - 2. Obtain laminated glazing from single source from single manufacturer using the same types of lites, plies, interlayers, and spacers for each [laminated glazing] [security glazing] type indicated.
- B. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design glazing. Design glass, including comprehensive engineering analysis according to ASTM E 1300 by a qualified professional engineer, using design criteria set forth in Article 2.2 and as follows:
 - 1. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical, design glass to resist design wind pressure based on glass type factors for short-duration load.
 - 2. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch, whichever is less.
 - 3. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.
- C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the ICC's International Building Code (IBC) listed on Drawings and ASTM E 1300.
 - 1. Design Wind Pressures: As indicated on Drawings.
 - 2. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch, whichever is less.
 - 3. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.
- D. Windborne-Debris-Impact Resistance: Exterior glazing shall comply with basic-protection testing requirements in ASTM E 1996 for Wind Zone (as verified with architect) when tested according to ASTM E 1886. Test specimens

shall be no smaller in width and length than glazing indicated for use on Project and shall be installed in same manner as glazing indicated for use on Project.

1. Large-Missile Test: For glazing located within 30 feet of grade.
 2. Small-Missile Test: For glazing located more than 30 feet above grade.
- E. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.
- F. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
1. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
 2. For laminated-glass lites, properties are based on products of construction indicated.
 3. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 4. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
 5. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
 6. Visible Reflectance: Center-of-glazing values, according to NFRC 300.
- G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.3 GLASS PRODUCTS, GENERAL

- A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
1. GANA Publications: "Laminated Glazing Reference Manual."
 2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR A7, "Sloped Glazing Guidelines."
 3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Guidelines for Sloped Glazing."
 4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- B. Plastic Glazing Labeling: Identify plastic sheets with appropriate markings of applicable testing and inspecting agency, indicating compliance with required fire-test-response characteristics.
- C. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the Safety Glazing Certification Council or another certification agency acceptable to authorities having

jurisdiction or manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

- D. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
- E. Thickness: Where glass thickness is indicated, it is a minimum.
 - 1. Minimum Glass Thickness for Exterior Lites: 6mm.
 - 2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.
- F. Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass. Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass. Where fully tempered float glass is indicated, provide fully tempered float glass.
- G. Thermal and Optical Performance Properties: Provide security glazing with performance properties specified, as indicated in manufacturer's published test data, based on construction products indicated and on procedures indicated below:
 - 1. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
 - 2. Solar-Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
 - 3. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.4 GLASS PRODUCTS

- A. Heat-Strengthened Float Glass: ASTM C 1048, Kind HS (heat strengthened), Type I, Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
 - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
- B. Fully-Tempered Monolithic Patterned Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type II (patterned), Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
- C. Low-E-Coated Vision Glass: Coated by pyrolytic process or vacuum deposition (sputter-coating) process, and complying with other requirements specified.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide products listed below or comparable products from other manufacturers meeting specified requirements, and which are submitted to and accepted by Architect prior to bidding.
 - a. Vitro Architectural Glass; "Solarban 70".
 - 2. Kind: Kind CV (coated vision glass).

3. Glass: Clear and tinted float. Refer to Glass Types Schedule at end of this Section.
 4. Performance Criteria: Refer to Glass Types Schedule at end of this Section.
- D. Glass Types: Refer to Glass Type Schedules at end of this Section.

2.5 LAMINATED GLASS

- A. Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
1. Construction: Laminate glass with [polyvinyl butyral interlayer] [ionomeric polymer interlayer] [or] [cast-in-place and cured-transparent-resin interlayer] to comply with interlayer manufacturer's written instructions.
 2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
 3. Interlayer Color: Clear unless otherwise indicated.
 4. Glass: Comply with applicable requirements in "Glass Products" Article as indicated by designations in "Laminated Glass Schedule" at end of this Section.
- B. Windborne-Debris-Impact-Resistant Laminated Glass: Comply with requirements specified above for laminated glass except laminate glass with [one of] the following to comply with interlayer manufacturer's written instructions:
1. Polyvinyl butyral interlayer.
 2. Polyvinyl butyral interlayers reinforced with polyethylene terephthalate film.
 3. Ionomeric polymer interlayer.
 4. Cast-in-place and cured-transparent-resin interlayer.
 5. Cast-in-place and cured-transparent-resin interlayer reinforced with polyethylene terephthalate film.
- C. Laminated Glass: ASTM C 1172. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
1. Construction: Laminate glass with polyvinyl butyral interlayer unless fire-protection or fire-resistance rating is based on another product.
 2. Interlayer Thickness: Provide thickness as needed to comply with requirements.
 3. Interlayer Color: Clear unless otherwise indicated.
 4. Glass: Comply with applicable requirements in "Glass Products" Article as indicated by designations in "Laminated Glass Schedule" at end of this Section.
- D. Glass Types: Refer to Glass Type Schedules at end of this Section.

2.6 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190.
 - 1. Sealing System: Dual seal, with manufacturer's standard primary and secondary sealants.
 - 2. Perimeter Spacer: Aluminum with black, color anodic finish .
 - 3. Desiccant: Molecular sieve or silica gel, or a blend of both.
- B. Glass Types: Refer to Glass Type Schedules at end of this Section.

2.7 AIR-GAP SECURITY GLAZING

- A. Air-Gap Security Glazing: Factory-assembled units, consisting of sealed lites of glazing material indicated separated by a dehydrated interspace.
 - 1. Sealing System: Dual seal, with manufacturer's standard primary and secondary sealants.
 - 2. Spacer Specifications: Manufacturer's standard[rigid] spacer material and construction.

2.8 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:
 - 1. EPDM complying with ASTM C 864.
 - 2. Silicone complying with ASTM C 1115.
- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned EPDM or silicone gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
 - 1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.
- C. Fire-Rated Glazing: Provide glazing gaskets, glazing sealants, glazing tapes, setting blocks, spacers, edge blocks, and other glazing accessories that are compatible with glazing products and each other and are approved by testing agencies that listed and labeled fire-resistant glazing products with which products are used for applications and fire-protection ratings indicated.
 - 1. Glazing Sealants for Fire-Rated Glazing Products: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT. Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated.
 - a. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.

2.9 GLAZING SEALANTS

- A. General:

1. Compatibility: Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 2. Provide glazing sealants that are compatible with glazing products and each other and are approved by testing agencies that listed and labeled fire-resistant glazing products with which products are used for applications and fire-protection ratings indicated.
 3. Compatibility: Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 4. Security Glazing Compatibility: Provide glazing sealants that are compatible with one another and with other materials they contact, including security glazing, seals of insulating security glazing and air-gap security glazing, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 5. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 6. Colors of Exposed Glazing Sealants: As indicated by manufacturer's designations.
- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.
- C. Glazing Sealants for Fire-Rated Glazing Products: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT. Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated.
1. Colors of Exposed Glazing Sealants: As indicated by manufacturer's designations.
- D. Security Sealant: Manufacturer's standard, nonsag, tamper-resistant sealant for joints with low movement complying with ASTM C 920, Grade NS, Class 12.5 or 25, Use NT, and with a Shore A hardness of at least 45 when tested according to ASTM C 661.

2.10 GLAZING TAPES

- A. General: Provide glazing tapes that are compatible with glazing products and each other and are approved by testing agencies that listed and labeled fire-resistant glazing products with which products are used for applications and fire-protection ratings indicated.
- B. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; 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; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
 2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- C. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
 2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.11 MISCELLANEOUS GLAZING MATERIALS

- A. General:
1. Provide products of material, size, and shape complying with referenced glazing standard, with requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
 2. Provide glazing gaskets, glazing sealants, glazing tapes, setting blocks, spacers, edge blocks, and other glazing accessories that are compatible with glazing products and each other and are approved by testing agencies that listed and labeled fire-resistant glazing products with which products are used for applications and fire-protection ratings indicated.
- 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 of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.12 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
 - a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- B. Grind smooth and polish exposed glass edges and corners.
1. Provide ground and polished edges for glass doors and shelving at display cases.

2. Provide ground and polished edges for glass shelving at merchandising walls.

2.13 FABRICATION OF SECURITY GLAZING

- A. Fabricate security glazing in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
- B. Grind smooth and polish exposed security glazing edges and corners.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 2. Presence and functioning of weep systems.
 3. Minimum required face and edge clearances.
 4. Minimum required bite.
 5. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- 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 includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction 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.
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Set glass lites with proper orientation so that coatings face fire side or protected side as specified.
- K. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- L. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.

- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- E. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.8 INSULATING FULLY-TEMPERED GLASS SCHEDULE

- A. Low-E-coated, clear insulating fully tempered glass (088000.A41)
 - 1. Glass Type 41
 - a. Overall Unit Thickness: 1 inch.
 - 2. Minimum Thickness of Each Glass Lite: 6mm.
 - 3. Outdoor Lite: Fully tempered clear sputter-coated float glass.
 - a. Basis-of-Design Product: Vitro Architectural Glass; Solarban 70.
 - 4. Interspace Content: Air.
 - 5. Indoor Lite: Fully tempered clear float glass.
 - 6. Outdoor Lite: Pyrolytic-coated, self-cleaning, low-maintenance, clear [heat-strengthened] [fully tempered] float glass.
 - 7. Low-E Coating: Sputtered on second surface.
 - 8. Visible Light Transmittance: 64 percent minimum.
 - 9. Visible Light Reflectance (Exterior): 10 to 12 percent.
 - 10. Winter Nighttime U-Factor: 0.28 (air) maximum.
 - 11. Solar Heat Gain Coefficient: 0.27 maximum.
 - 12. Light-to-Solar Gain Ratio (LSG): 2.30 minimum.
 - 13. Safety glazing required.

3.9 INSULATING-LAMINATED-GLASS SCHEDULE

- A. Low-E-coated, clear insulating laminated glass. (088000.A51)
 - 1. Glass Type 51.
 - 2. Overall Unit Thickness: 1-1/16 inch.
 - 3. Minimum Thickness of Outdoor Lite:
 - 4. Outdoor Lite: Fully tempered clear sputter-coated float glass.
 - a. Basis-of-Design Product: Vitro Architectural Glass; Solarban 70.
 - 5. Interspace Content: Air.
 - 6. Indoor Lite: Clear laminated glass with two plies of [heat-strengthened] [fully tempered] float glass.
 - a. Minimum Thickness of Each Glass Ply: 6mm.
 - b. Interlayer Thickness: 0.090.inch.
 - c. Interlayer Color: Clear
 - 7. Low-E Coating: Pyrolytic on second surface.

8. Visible Light Transmittance: [Insert number] percent minimum.
9. Visible Light Reflectance (Exterior): [Insert number] percent maximum.
10. Winter Nighttime U-Factor: [Insert value] maximum.
11. Solar Heat Gain Coefficient: [Insert value] maximum.
12. Light-to-Solar Gain Ratio (LSG): [Insert value] minimum.
13. Safety glazing required.

END OF SECTION

SECTION 099113 - EXTERIOR PAINTING

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Steel and iron.
 - 2. Galvanized metal.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for those allowances affecting work of this Section.
 - 2. Section 099600 "High-Performance Coatings" for special-use coatings.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Indicate VOC content.
- B. Samples for Initial Selection: Where colors are not indicated on Drawings, submit for each type of topcoat product.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 6 inches square.
 - 2. Apply coats on Samples in steps to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.3 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: One (2) gallon of each material and color applied.

1.4 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
 - b. Other Items: Architect will designate items or areas required.
 - 2. Final approval of color selections will be based on mockups.

- a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.6 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products from one of the following, unless otherwise specified:
 1. Benjamin Moore & Co.
 2. Glidden Professional.
 3. PPG Paints.
 4. The Sherwin-Williams Company.
- B. Products: Subject to compliance with requirements, provide one of the products listed in the Exterior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

- A. Material Compatibility:
 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

- B. Colors: Where not indicated on Drawings, as selected by Architect from manufacturer's full range.
- C. Paint Systems: Refer to schedule at end of this Section.

2.3 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
 - 1. Owner may engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
 - 2. Testing agency will perform tests for compliance with product requirements.
 - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer, but not less than the following:
 1. SSPC-SP 3.
- E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 1. Use applicators and techniques suited for paint and substrate indicated.
 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
 4. Paint entire exposed surface of window frames and sashes.
 5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film

thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

A. Steel Substrates - Unprimed:

- 1. Benjamin Moore & Co.
 - a. 1 coat Ultra Spec Acrylic Metal Primer HP04.
 - b. 2 coats Ultra Spec DTM Acrylic Low Lustre Enamel HP25.
- 2. Glidden Professional.
 - a. 1 coat Metal primer as recommended by topcoat manufacturer.
 - b. 2 coats Ultra-Hide WB Int/Ext Acrylic/Alkyd Enamel.
 - 1) 2 coats Timeless Exterior Acrylic Latex.
- 3. PPG Paints.
 - a. 1 coat 90-912 Pitt-Tech Plus Acrylic Industrial DTM Primer.
 - 1) 1 coat Pitt-Tech Plus Acrylic Industrial DTM Primer.
 - b. 2 coats [6-1410/1510 Series, Speedhide Int/Ext WB Alkyd Enamel.
 - 1) Speedhide Int/Ext WB Alkyd Enamel.
 - 2) 2 coats of Pitt-Tech Plus Acrylic Industrial Enamel.
- 4. The Sherwin-Williams Company.
 - a. 1 coat Pro Industrial Pro-Cryl Universal WB Acrylic Primer.
 - b. 2 coats Pro Industrial WB Alkyd Urethane.

B. Steel Substrates - Primed:

- 1. Benjamin Moore & Co.
 - a. 1 touchup coat Ultra Spec Acrylic Metal Primer HP04.
 - b. 2 coats Ultra Spec DTM Acrylic Low Lustre Enamel HP25.
- 2. Glidden Professional.
 - a. 1 touchup coat DTM primer as recommended by paint manufacturer.
 - b. 2 coats Ultra-Hide WB Int/Ext Acrylic/Alkyd Enamel.
 - 1) 2 coats Timeless Exterior Acrylic Latex.
- 3. PPG Paints.
 - a. 1 coat 90-912 Pitt-Tech Plus Acrylic Industrial DTM Primer.
 - 1) 1 coat Pitt-Tech Plus Acrylic Industrial DTM Primer.
 - b. 2 coats 6-1410/1510 Series, Speedhide Int/Ext WB Alkyd Enamel.
 - 1) 2 coats Speedhide Int/Ext WB Alkyd Enamel.
 - 2) 2 coats of Pitt-Tech Plus Int/Ext Acrylic Industrial Enamel.
- 4. The Sherwin-Williams Company.
 - a. 1 touchup coat Pro Industrial Pro-Cryl Universal WB Acrylic Primer.
 - b. 2 coats Pro Industrial WB Alkyd Urethane.

C. Galvanized Steel Substrates – (except railings, handrails and guardrails):

1. Benjamin Moore & Co.
 - a. 1 coat Ultra Spec Acrylic Metal Primer HP04.
 - b. 2 coats Ultra Spec DTM Acrylic Low Lustre Enamel HP25.
2. Glidden Professional.
 - a. 1 coat DTM Metal primer as recommended by topcoat manufacturer.
 - b. 2 coats Ultra-Hide Int/Ext WB Acrylic/Alkyd Enamel.
 - 1) 2 coats Timeless Exterior Acrylic Enamel.
3. PPG Paints.
 - a. 1 coat 90-912 Pitt-TechPlus Acrylic Industrial DTM Primer.
 - 1) 1 coat Pitt-TechPlus Acrylic Industrial DTM Primer.
 - b. 2 coats 6-1410/1510 Series, Speedhide Int/Ext WN Alkyd Enamel.
 - 1) 2 coats Speedhide Int/Ext WB Alkyd Enamel.
 - 2) 2 coats of Pitt-Tech Plus Acrylic Industrial Enamel.
4. The Sherwin-Williams Company.
 - a. 1 touchup coat Pro Industrial Pro-Cryl Universal WB Acrylic Primer.
 - b. 2 coats Pro Industrial WB Alkyd Urethane.

END OF SECTION

SECTION 099600 - HIGH PERFORMANCE COATINGS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and the application of high-performance coating systems on the following substrates:
 - 1. Exterior Substrates:
 - a. Steel.
 - b. Galvanized metal.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for those allowances affecting work of this Section.
 - 2. Section 012200 "Unit Prices" for unit prices affecting work of this Section.
 - 3. Section 099113 "Exterior Painting" for general field painting.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Indicate VOC content.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of coating system and each color and gloss of topcoat indicated.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Apply coats on Samples in steps to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:
 - 1. Cross-reference to coating system and locations of application areas.
 - 2. Use same designations indicated on Drawings and in schedules.
 - 3. Color designations.

1.3 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Coatings: Two (2) gallon of each material and color applied.

1.4 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each coating system indicated to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each coating system specified in Part 3..
 - a. Wall and Ceiling Surfaces: Provide samples of at least 100 sq. ft.
 - b. Other Items: Architect will designate items or areas required.
2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.6 FIELD CONDITIONS

- A. Apply coatings only when temperature of surfaces to be coated and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply coatings when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
- C. Do not apply exterior coatings in snow, rain, fog, or mist.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products from one of the following, unless specified otherwise.
 1. Benjamin Moore & Co.
 2. Glidden Professional.
 3. PPG Paints.
 4. The Sherwin-Williams Company.
 5. Tnemec Company, Inc.
- B. Products: Subject to compliance with requirements, provide products listed in the Exterior High-Performance Coating Schedule and Interior High-Performance Coating Schedule for the coating category indicated.

2.2 HIGH-PERFORMANCE COATINGS, GENERAL

A. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
3. Products shall be of same manufacturer for each coat in a coating system.

B. Colors: Where not indicated on Drawings, as selected by Architect from manufacturer's full range.

C. Paint Systems: Refer to schedule at end of this Section.

2.3 SOURCE QUALITY CONTROL

A. Testing of Coating Materials: Owner reserves the right to invoke the following procedure:

1. Owner may engage the services of a qualified testing agency to sample coating materials. Contractor will be notified in advance and may be present when samples are taken. If coating materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying coating materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. Contractor will be required to remove rejected materials from previously coated surfaces if, on recoating with complying materials, the two coatings are incompatible.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.

1. Prepare previously painted surfaces indicated to receive new paint finish in strict accordance with paint manufacturer's written recommendations.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of coatings, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce coating systems indicated.
- D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.
- E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied coatings.
- G. Aluminum Substrates: Remove loose surface oxidation.

3.3 APPLICATION

- A. Apply high-performance coatings according to manufacturer's written instructions.
 1. Use applicators and techniques suited for coating and substrate indicated.
 2. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
 3. Coat backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 4. Do not apply coatings over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.

- D. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test coatings for dry film thickness.
 - 1. Contractor shall touch up and restore coated surfaces damaged by testing.
 - 2. If test results show that dry film thickness of applied coating does not comply with coating manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with coating manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from coating operation. Correct damage to work of other trades by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

3.6 EXTERIOR HIGH-PERFORMANCE COATING SCHEDULE

- A. Structural and Miscellaneous Steel:
 - 1. Benjamin Moore & Co.
 - a. 1 coat Corotech V150 Polyamide Epoxy Primer
 - b. 2 coats Corotech V510 Aliphatic Acrylic Urethane Semi-Gloss
 - 2. Glidden Professional.
 - a. 1 coat Rustoleum HB Polyamide Epoxy Primer.
 - b. 2 coats Rustoleum Aliphatic Acrylic Urethane, semi-gloss.
 - 3. PPG Paints.
 - a. 1 coat Amercoat 385, 5 to 8 mils DFT.
 - b. 2 coats Amercoat 450H.
 - 4. The Sherwin-Williams Company.
 - a. 1 coat Macropoxy 646.
 - 1) 1 coat Macropoxy 646-100.
 - b. 1 coat Acrolon 218 HS Polyester Acrylic Polyurethane, semi-gloss.
 - 1) 1 coat Waterbased Acrolon 100 HS Acrylic Polyurethane.
 - 5. Tnemec Company, Inc.
 - a. 1 primer coat of Tnemec Series 161 Tneme-Fascure, polyamide epoxy, 7 mils wet, 4 mils dry.
 - b. 1 epoxy intermediate coat or scarification is required if prime coat is exposed to exterior weather for more than three (3) weeks.
 - c. 1 topcoat of Tnemec Series 750, Endura-Shield, aliphatic polyester polyurethane, 3 mils wet, 1.5 mils dry, spray applied.

- d. Note: Number of coats may need to be increased to provide specified DFT and to achieve uniform coverage and hiding.
- B. Exposed Galvanized Structural Steel, Steel Joists and Miscellaneous Canopy Framing:
 - 1. Benjamin Moore & Co.
 - a. 1 touchup coat Corotech V170 Organic Zinc Rich Primer
 - b. 2 coats Corotech V510 Aliphatic Acrylic Urethane Semi-Gloss
 - 2. Glidden Professional.
 - a. 1 touchup coat Rustoleum Zinc-Rich Epoxy Primer.
 - b. 2 coats Rustoleum Aliphatic Acrylic Urethane, semi-gloss.
 - 3. PPG Paints.
 - a. 1 touchup coat Amercoat 68HS Organic Zinc-Rich Epoxy.
 - b. 2 coats AmerShield
 - 1) 2 coats PSXONE High-Performance Polyacrylic Siloxane.
 - 4. The Sherwin-Williams Company.
 - a. 1 touch-up coat Zinc Clad IV, organic zinc rich epoxy primer.
 - 1) 1 coat Pro Industrial Pro-Cryl Universal Primer.
 - b. 2 coats Sher-Cryl (HPA) high performance acrylic, semi-gloss.
 - 1) 2 coats Pro Industrial Pre-Catalyzed Epoxy.

END OF SECTION